

Final Environmental Impact Report for the Revised PRC 421 Recommissioning Project

SCH Number: 2005061013

CSLC EIR Number: 732

Lead Agency:

California State Lands Commission



November 2014

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LIST OF ABBREVIATIONS AND ACRONYMS

The following table contains the abbreviations and acronyms used in the text.

UNITS OF MEASUREMENT

°F	degrees Fahrenheit	$L_{eq(24)}$	24-hour equivalent sound level
af	acre feet	mg/kg	milligrams per kilogram
BOPD	barrels of oil per day	mile ²	square miles
BWPD	barrels of water per day	MMSCFD	million standard cubic feet per day
cy	cubic yard	MSCFD	thousand standard cubic feet per day
dB; dBA	decibel; decibels on the A-weighted scale	nm	nautical mile
ft ²	square foot	ppb	parts per billion
GWh/year	Gigawatt-hours/year	ppm	parts per million
Hz	hertz	ppt	parts per thousand
kHz	kilohertz	psi	pounds per square inch
km	kilometer	psig	pounds per square inch gauge
KVA	kilovolt amperes	SCF	standard cubic feet
kW	kilowatt	$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
L_{dn}	day-night sound level	V	volts
L_{eq}	equivalent steady sound level that provides an equal amount of acoustical energy as the time-varying sound	V/C	volume to capacity ratio
		VAC	volts of alternating current

OTHER ABBREVIATIONS & ACRONYMS

A	AAPL	All American Pipeline
	AB	Assembly Bill
	ACP	Area Contingency Plan
	ACTI	Advanced Cleanup Technologies, Inc.
	ADL	Arthur D. Little, Inc.
	ANSI	American National Standards Institute
	AOA	Airport Operating Area
	APCD	Air Pollution Control District
	API	American Petroleum Institute
	ATC	Authority To Construct
B	BMP	Best Management Practice
	BOEM	Bureau of Ocean Energy Management
	BOEMRE	Bureau of Ocean Energy Management, Regulation and Enforcement
	BSEE	Bureau of Safety and Environmental Enforcement
C	CAA	Clean Air Act
	CAAQS	California Ambient Air Quality Standards
	CalCOFI	California Cooperative Oceanic Fisheries Investigations
	CalEPA	California Environmental Protection Agency
	CARB	California Air Resources Board
	CBC	California Building Code

CCAA	California Clean Air Act
CCC	California Coastal Commission
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLIS	Comprehensive Environmental Resource Conservation and Liability Information System
CESA	California Endangered Species Act
CFC	California Fire Code
CFR	Code of Federal Regulations
CGS	California Geological Survey
CINMS	Channel Islands National Marine Sanctuary
CIPC	California Invasive Plant Council
CLUP	Coastal Land Use Plan
CMP	Congestion Management Program
CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CORRACTS	Corrective Action Sites
CPFV	commercial passenger fishing vessel
CSFM	California State Fire Marshal
CSLC	California State Lands Commission
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
D DOT	U.S. Department of Transportation
DOGGR	Division of Oil, Gas, and Geothermal Resources
DOT/OPS	U.S. Department of Transportation/Office of Pipeline Safety
DPM	Diesel Particulate Matter
DTSC	State Department of Toxic Substances Control
E EAP	Emergency Action Plan
EFH	Essential Fish Habitat
EIA	Energy Information Administration
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMT	Ellwood Marine Terminal
EOF	Ellwood Onshore Facility
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ERPG	Emergency Response Planning Guidelines
ESA	Endangered Species Act
ESH	Environmentally Sensitive Habitat
ESHA	Environmentally Sensitive Habitat Areas

List of Abbreviations and Acronyms

	ESP	electric submersible pump
F	FAA	Federal Aviation Administration
	FBE	Fusion Bonded Epoxy
	FERC	Federal Energy Regulatory Commission
	FHWA	Federal Highway Administration
	FPD	Fire Protection Division
	FRSB	Fast Response Spill Boat
	FSRU	Floating Storage and Regasification Unit
	FSV	flow safety valve
G	GHG	greenhouse gas
	GIS	Geographic Information System
	GLCS	Gas-Liquid Cyclone Separator
	GP	General Plan
H	H ₂ S	hydrogen sulfide
	HDPE	High Density Polyethylene
	HWTS	Hazardous Waste Tracking System
I	ICS	Incident Command System
	IIRT	Initial Incident Response Team
	IMO	International Maritime Organization
	IPCC	Intergovernmental Panel on Climate Change
	IRI	Industrial Risk Insurers
L	LCP	Local Coastal Plan
	LFC	Las Flores Canyon
	LLCS	Liquid-Liquid Cyclone Separator
	LNG	liquefied natural gas
	LOS	Level of Service
	LPG	liquefied petroleum gas
	LRDP	Long Range Development Plan
M	MM	mitigation measure
	MMP	Mitigation Monitoring Program
	MMPA	Marine Mammal Protection Act
	MMS	Minerals Management Service
	MND	Mitigated Negative Declaration
	MOU	Memorandum of Understanding
	MRMD	Mineral Resources Management Division
	MS4	municipal separate storm sewer system
	MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
	msl	mean sea level
N	NAAQS	National Ambient Air Quality Standards
	ND	Negative Declaration
	NEPA	National Environmental Policy Act
	NFPA	National Fire Protection Association
	NFRAP	No Further Remedial Action Plan
	NGL	natural gas liquids
	NHPA	National Historic Preservation Act
	NMFS	National Marine Fisheries Service
	NO	nitrogen oxide

	NO ₂	nitrogen dioxide
	NOAA	National Oceanic and Atmospheric Administration
	NOD	Notice of Determination
	NOI	Notice of Intent
	NOP	Notice of Preparation
	NO _x	nitrogen oxides
	NPDES	National Pollutant Discharge Elimination System
	NPL	National Priority List
	NRC	National Response Center
	NRHP	National Register of Historic Places
O	O ₃	ozone
	OCS	outer continental shelf
	OES	Office of Emergency Services
	OIT	Operator Interface Terminals
	OPA	Oil Pollution Act
	OPR	Office of Planning and Research
	OSCP	Oil Spill Contingency Plan
	OSHA	Occupational Safety and Health Administration
	OSPR	Office of Spill Prevention and Response
	OSPRA	Oil Spill Prevention and Response Act
	OSRV	Clean Seas Oil Spill Response Vessel
P	Pb	lead
	PCB	polychlorinated biphenyl
	Phase I ESA	Environmental Site Assessment
	PM	particulate matter
	PM _{2.5}	particulate matter less than 2.5 microns
	PM ₁₀	particulate matter less than 10 microns
	PSV	Pressure Safety Valve
	PTO	Permit to Operate
	PTTC	West Coast Petroleum Technology Transfer Council
	PUC	California Public Utilities Commission
Q	QRA	Quantitative Risk Assessment
R	RCRA	Resource Conservation and Recovery Act
	RMS	Remote Monitoring System
	ROC	Reactive Organic Carbon
	ROG	Reactive Organic Gas
	ROSF	Rincon Onshore Separation Facility
	ROW	Right-of-Way
	RP	Recommended Practice
	RSPA	Research and Special Programs Administration
	RWQCB	Regional Water Quality Control Board
S	SAFE	Safety Analysis Function Evaluation
	SBCAG	Santa Barbara County Association of Governments
	SBCFD	Santa Barbara County Fire Department
	<u>SBMTD</u>	<u>Santa Barbara Metropolitan Transit District</u>
	SCADA	Supervisory Control and Data Acquisition
	SCE	Southern California Edison

List of Abbreviations and Acronyms

SCEC	Southern California Earthquake Center
SCH	State Clearinghouse
SCUBA	self-contained underwater breathing apparatus
SFA	Sustainable Fisheries Act
SHPO	State Historic Preservation Office
SIMQAP	Safety, Inspection, Maintenance and Quality Assurance Program
SIP	State Implementation Plan
SIRT	Sustained Incident Response Team
SLIC	Spills, Leaks, Investigations and Cleanups List
SO ₂	sulfur dioxide
SPCC	Spill Prevention Control and Countermeasure Plan
SQG	Small Quantity Generator
T TAC	Toxic Air Contaminant
TOSCO	Shell and Conoco Phillips
TPH	Total Petroleum Hydrocarbons
TSS	Traffic Separation Scheme
U UBC	Uniform Building Code
UCSB	University of California, Santa Barbara
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
V VMC	Visual Modification Class
VRU	Vapor Recovery Unit

GLOSSARY OF TECHNICAL TERMS

Bottomhole – The bottom of a well.

Caisson – A retaining, watertight structure used in geotechnical engineering.

Casing – Steel pipe cemented in place during the construction process to stabilize the wellbore. The casing forms a major structural component of the wellbore and serves several important functions: preventing the [formation](#) wall from caving into the wellbore, isolating the different formations to prevent the flow or [crossflow](#) of [formation fluid](#), and providing a means of maintaining control of formation fluids and pressure as the well is drilled.

Electric submersible pump – An artificial-lift system that utilizes a downhole pumping system that is electrically driven. The pump typically comprises several staged centrifugal pump sections that can be specifically configured to suit the [production](#) and wellbore characteristics of a given application.

Fall-off test – A pressure test in which a reservoir is pressurized with water, then the reduction in pressure over time is measured. This allows for analysis of the rate of leakage out of (or influx into) the reservoir related to adjacent reservoirs, aquifers, improperly sealed wells, etc.

Gas-Liquid and Liquid-Liquid Cyclone Separator – Compact vertical vessels mounted on Well 421-2 that subjects incoming fluids to a hydraulically created vortex and centrifugal forces, causing the heavier liquid particles to separate liquid and gas streams.

Heater treater – A vessel that uses heat to treat oil-water emulsions so the oil can be accepted by the [pipeline](#) or transport.

Mud line – The sea bottom, interface between ocean and land.

SCADA – Supervisory Control and Data Acquisition system, a computational pipeline monitoring system.

Shoe plug – A concrete plug at the bottom of a string of open casing.

String – An assembled length of steel pipe configured to suit a specific wellbore. The sections of pipe are connected and lowered into a wellbore, then cemented in place. Casing is [run](#) to protect or isolate formations adjacent to the wellbore.

Sub-surface safety valve – A safety device installed in the upper wellbore to provide emergency closure of the producing conduits in the event of an emergency. The valve is charged via hydraulic fluid and is designed to be fail-safe, so that the wellbore is isolated in the event of any system failure or damage to the surface [production](#)-control facilities.

Surface plug – A concrete plug placed from the surface down to a variable depth in the well bore – typically 50 feet in modern operations.

Surface safety valve – A safety valve installed at the top of the wellbore to prevent uncontrolled flow from the well, this valve would be failsafe and actuated by a charge of nitrogen gas.

Well cellar – A pit in the ground to provide additional height between the rig floor and the well head to accommodate the installation of blowout preventers and other equipment. It also collects drainage water and other fluids for disposal.

Wellhead – The system of spools, valves and assorted adapters that provide [pressure](#) control of a production well.

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California State Lands Commission

PART I – PREFACE

Final Environmental Impact Report for the
Revised PRC 421 Recommissioning Project, November 2014

PART I. PREFACE TO FINAL ENVIRONMENTAL IMPACT REPORT

PURPOSE

This document is the Final Environmental Impact Report (EIR) (November 2014) for the Revised PRC 421 Recommissioning Project (Project). This Final EIR:

- Has been prepared for consideration by the California State Lands Commission (CSLC or Commission), as the Lead Agency for this Project, pursuant to the California Environmental Quality Act (CEQA) and in accordance with the State CEQA Guidelines (Pub. Resources Code § 21000 et seq. and Cal. Code of Regs., tit. 14, § 15000 et seq., respectively); and
- Replaces in its entirety:
 - 1) a Final EIR, released in January 2014¹, that the Commission, at its April 23, 2014, meeting, directed staff to revise, and
 - 2) a Recirculated Draft EIR released for a 60-day public review period in July 2014.

ORGANIZATION OF FINAL EIR

Consistent with State CEQA Guidelines section 15132, the Final EIR, reproduced for convenience in a one-volume document, consists of the following elements:

- **Part I** – Preface;
- **Part II** – Comments and Responses to Comments received on the July 2014 Recirculated Draft EIR during the 60-day public comment period, including a list of persons, organizations, and public agencies that provided comments; and
- **Part III** – Revisions to the July 2014 Recirculated Draft EIR and any other information added to the EIR by the CSLC as Lead Agency. Part III includes the entire text of the Recirculated Draft EIR, as revised, including revisions to the text of the Recirculated Draft EIR in response to comments received or for reasons that include: to update information; to refine discussions and resolve internal inconsistencies; and to make minor format changes. Some changes have resulted in a shifting of text from one page to another. Except for minor format changes, all revisions to the Recirculated Draft EIR are shown as follows.
 - Additions to the text of the Recirculated Draft EIR are underlined.
 - Deletions of the text of the Recirculated Draft EIR are shown as ~~strikeout~~.
 - Figures updated from those presented in the Recirculated Draft EIR are marked [revised].

¹ Comments received on the 2013 Draft EIR and the responses and revisions provided in the January 2014 Final EIR are being maintained by CSLC as part of the administrative record.

The Final EIR may be viewed at the following repository locations and on the CSLC website (www.slc.ca.gov/Division_Pages/DEPM/DEPM_Home_Page.html):

Goleta Branch Library 500 N. Fairview Ave. Goleta, CA 93117-1797 (805) 964-7878	Santa Barbara Public Library 40 E. Anapamu St. Santa Barbara, CA 93101 (805) 962-7653
City of Goleta, Planning & Environmental Review Attn: Anne Wells 130 Cremona Dr., Ste. B Goleta, CA 93117 (805) 961-7546	County of Santa Barbara Attn: Kevin Drude 123 E. Anapamu St. Santa Barbara, CA 93101 (805) 568-2513
California State Lands Commission Attn: Steve Curran 200 Oceangate, 12 th Floor Long Beach, CA 90802 (562) 590-5266	California State Lands Commission Attn: Eric Gillies 100 Howe Ave., Suite 100-South Sacramento, CA 95825 (916) 574-1897

PROJECT DESCRIPTION

Venoco, Inc. (Venoco), an independent oil and gas company and the operator of State Oil and Gas Lease PRC 421 (PRC 421), is seeking CSLC approval of its Recommissioning Plan to return PRC 421 to oil production from an existing shoreline well (Well 421-2) that has been shut-in since 1994. The Project would be conducted along the southern coast of California, adjacent to and within the City of Goleta, Santa Barbara County (see Figure 1-1 in Part III of the Final EIR). As proposed:

- Well 421-2 would be recommissioned using an existing pier (Pier 421-2) located on Haskell’s Beach adjacent to the City of Goleta;
- Water and gas from crude oil emulsion extracted from Well 421-2 would be separated at the existing Ellwood Onshore Facility (EOF) in the City of Goleta;
- Infrastructure associated with Well 421-2 production would be upgraded, including repair of caisson walls, a new electrical submersible pump, well safety equipment, and a new flowline to the EOF, and
- Venoco would decommission a second well (Well 421-1) located on an adjacent pier (Pier 421-1) that was historically used as a water and gas injection well during past production of Well 421-2, remove Pier 421-1 that was historically used for the processing and storage of the Well 421-2 product, and remove the caisson and facilities that support Well 421-1.

Production estimates for PRC 421, based on current projections, are as follows:

- Estimated production during the first month is 150 barrels of oil per day (BOPD) due to anticipated repressurization of the reservoir that has likely occurred from the well having been shut-in since 1994. The instantaneous oil production rate is not projected to exceed 500 BOPD; and

- After two years, production is anticipated to taper off to approximately 50 BOPD, matching the well's last 10 years of continuous historical production.

The estimated productive life of PRC 421 is 20 years, which is less than the production life of Platform Holly estimated at a minimum of 40 years. Existing permits for operation of the EOF direct that the EOF be decommissioned when Platform Holly is no longer economically viable; the processing of production from PRC 421 would not change that permit restriction.

DECISION-MAKING PROCESS

The State CEQA Guidelines stipulate that an EIR must be prepared for any project carried out or approved by a state or local public agency that may have a significant impact on the environment. The CSLC has determined that:

- 1) the Revised PRC 421 Recommissioning Project is a "project" as defined by the Guidelines;
- 2) the Project may have a significant adverse impact on the environment; and
- 3) an EIR is required.

The CSLC will use this Final EIR as part of its review process, including determining whether or not to approve Venoco's Recommissioning Plan to resume oil and gas production from State Oil and Gas Lease PRC 421. If the EIR is certified and the Project is approved, mitigation measures will be adopted as part of the approval and incorporated as conditions of resuming oil and gas operations throughout Project implementation. The CSLC must certify that:

- The Final EIR has been completed in compliance with CEQA;
- The Final EIR was presented to the CSLC in a public meeting and the CSLC reviewed and considered the information contained in the Final EIR prior to considering the proposed Project; and
- The Final EIR reflects the CSLC's independent judgment and analysis.

(State CEQA Guidelines § 15090.)

If the CSLC decides to certify the Final EIR and approve the Project, the CSLC must make one or more written findings of fact for each significant environmental impact identified in the document. The possible findings are:

- The Project has been changed (including adoption of mitigation measures) to avoid or substantially reduce the magnitude of the significant impact.
- Changes to the Project are within another agency's jurisdiction and have been or should be adopted by such other agency.
- Specific considerations make mitigation measures or alternatives infeasible.

(State CEQA Guidelines § 15091.)

If any impacts identified in the EIR cannot be reduced to a level that is less than significant, the CSLC may issue a Statement of Overriding Considerations for Project approval if specific social, economic, or other factors justify the Project's unavoidable adverse environmental effects. If the CSLC approves a project for which a Final EIR has been prepared and certified, the CSLC will issue a Notice of Determination.

PROJECT CEQA CHRONOLOGY

The following is a brief chronology of the CEQA documentation process, including public meetings, associated with the proposed Project (see also Final EIR Part III, Section 1.3.2, Public Participation).

- **June 3, 2005 – July 5, 2005.** Notice of Preparation and Scoping Meeting (NOP) published based on Venoco's original Project application. Two scoping meetings held in Goleta on June 23, 2005.
- **September 4, 2007 – November 2, 2007.** Draft EIR released for public review with comments accepted by mail, email, facsimile transmission, and in person at two public meetings held in Goleta on October 16, 2007.
- **December 2007 – January 2013.** The CSLC staff suspended EIR preparation due to major changes in Project details that occurred after release of the 2007 Draft EIR. (The CSLC did not finalize, or respond to the comments received on, the 2007 Draft EIR; all comments received are on file as part of the administrative record.) A summary of changes includes the following: (1) Venoco revised its Project Description in 2013; (2) Line 96 from the EOF to Las Flores Canyon was constructed and is now operating; (3) Venoco ended barging of oil production from the Ellwood Marine Terminal; (4) Venoco completed emergency repairs to the Pier 421-2 caisson; and (5) Project alternatives and cumulative projects have changed. (State CEQA Guidelines § 15088.5, subdivision (g).)
- **January 2013.** CSLC staff and Venoco agree to restart the EIR process.
- **March 6, 2013.** New NOP published.
- **March 26, 2013 – April 29, 2013.** Revised NOP published based on a revised Project description submitted by Venoco, which changed from processing on the PRC 421 piers to processing at the EOF. Two scoping meetings held in Goleta on April 3, 2013.
- **October 18, 2013 – December 20, 2013.** Draft EIR released for public review with comments accepted by mail, email, facsimile transmission, and in person at two public meetings held in Goleta on December 11, 2013.

CSLC staff held public meetings related to the subject EIR in the City of Goleta on the following dates:

- **June 23, 2005 – Scoping**
- **October 16, 2007 – Draft EIR**
- **April 3, 2013 – Scoping (Revised Project)**
- **December 11, 2013 – Draft EIR**
- **September 15, 2014 – Recirculated Draft EIR**

- **December 2013 – January 2014.** Final EIR completed, including CSLC staff responses to all comments received on the October 2013 Draft EIR and revisions to the document.
- **April 23, 2014.** The CSLC deferred certification of the Final EIR (January 2014) and directed staff to include additional analyses, including a full evaluation of the Processing PRC 421 Oil at Las Flores Canyon Alternative, in the EIR.
- **July 24, 2014 – September 24, 2014.** Following substantial revisions to the EIR, including the fully evaluated Processing PRC 421 Oil at Las Flores Canyon Alternative and other changes, a new Recirculated Draft EIR was released for public review with comments accepted by mail, email, facsimile transmission, and in person at two public meetings held in Goleta on September 15, 2014.
- **September 2014 – November 2014.** In preparing this Final EIR (November 2014), the CSLC staff responded to all comments received on the Recirculated Draft EIR, obtained additional information as needed to respond to comments, and prepared revisions to the July 2014 Recirculated Draft EIR (see Parts II and III). The CSLC hearing on the Final EIR and action on the proposed Project is scheduled for December 17, 2014. (Date is subject to change; see www.slc.ca.gov for further information.)

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California State Lands Commission

PART II – RESPONSES TO COMMENTS

Final Environmental Impact Report for the
Revised PRC 421 Recommissioning Project, November 2014

PART II. RESPONSES TO COMMENTS

Pursuant to State California Environmental Quality Act (CEQA) Guidelines section 15088, the California State Lands Commission (CSLC or Commission), as CEQA lead agency, is required to evaluate comments on environmental issues received from persons who reviewed the Recirculated Draft Environmental Impact Report (EIR) prepared for the Revised PRC 421 Recommissioning Project (Project) and to prepare a written response. The lead agency must respond to comments received during the noticed comment period and may respond to late comments. The State CEQA Guidelines further require the lead agency to describe in its written response the disposition of significant environmental issues raised (e.g., revisions to the proposed Project to mitigate anticipated impacts or objections). If the lead agency's position varies from recommendations and objections raised in the comments, the agency must address the major environmental issues raised and give details to explain why any specific comments and suggestions were not accepted.

Part II of this Final EIR contains copies of the comment letters and oral comments (excerpts from transcripts of the two public meetings on the Recirculated Draft EIR) and the CSLC's responses. Fourteen written comment letters were submitted on the July 2014 Recirculated Draft EIR during the 60-day public review period (July 24, 2014, through September 24, 2014). Four speakers gave oral comments at the public meetings, which the CSLC staff held in the City of Goleta on September 15, 2015 (see below for details).

To reduce redundancy, the CSLC has prepared both (1) Master Responses to several general or recurring comments (Subpart II.A) and (2) responses to significant environmental issues raised in individual comments (Subpart II.B). Responses to comments are presented in the order listed in Table II-1 and are organized as follows:

- Each commenter is given a unique comment set and code that refers to the agency, organization, or person submitting the comments. The comment set includes all written and/or oral comments provided by that commenter, including multiple submittals of comments, if applicable.
- Individual comments are numbered in the margins of each comment letter and/or the corresponding transcripts from the two public meetings held on the July 2014 Recirculated Draft EIR; correspondingly numbered responses follow each comment set.

Part III of this Final EIR contains the complete EIR with revisions to the text of the July 2014 Recirculated Draft EIR shown in ~~strikeout~~ and underline that were made in response to comments that required changes for the reasons stated on page I-1. The following conventions are used to indicate how the June 2014 Recirculated Draft EIR text was changed during EIR finalization in Part III of this Final EIR:

- Underlined text represents text added to the EIR (in some cases moved from another location in the document, in other cases new text).

- ~~Strikeout text~~ represents text removed from that location in the EIR (in some cases moved elsewhere, in other cases deleted entirely).
- Figures updated from those presented in the Recirculated Draft EIR are marked [revised].

Table II-1 Order of Responses to Comments, Commenters on Recirculated Draft EIR, and Comment Identification Numbers Used in this Final EIR

MASTER RESPONSES TO RECURRING COMMENTS			
<i>Comment ID #</i>			
MR-1		Duration of Project and Production at Platform Holly	
MR-2		Continued Use of the EOF	
MR-3		Repressurization and Repressurization Monitoring	
MR-4		Use of Shared Facilities at Las Flores Canyon	
MR-5		Mitigation of Greenhouse Gas Emissions	
<i>Comment Set/ID #</i>		<i>Name of Commenter</i>	<i>Date</i>
GOVERNMENTAL AGENCY			
1	CG-1 to CG-37	City of Goleta	09/24/14
2	SBC-1 to SBC-8	County of Santa Barbara	09/24/14
3	APCD-1; APCD-2	Santa Barbara County Air Pollution Control District	09/08/14
4	DOGGR-1	California Department of Conservation, Division of Oil, Gas, and Geothermal Resources	08/26/14
5	USACE-1	U.S. Army Corps of Engineers	12/19/13
GROUPS / ORGANIZATIONS			
6	CBD-1 to CBD-9	Center for Biological Diversity	09/24/14
7	EDC-1 to EDC-20	Environmental Defense Center (including oral comments: Linda Kropj)	09/24/14
8	GOO-1 to GOO-9	Get Oil Out! (oral comments: Carla Frisk)	09/15/14
9	CK-1 to CK-6	Santa Barbara Channelkeeper	09/24/14
PUBLIC			
10	IC-1 to IC-26	Ingeborg Cox, MD (including oral comments)	09/20/14
11	ESD-1	Ed and Susan Dougherty	09/04/14
12	ML-1	Michael Lopez (oral comments)	09/15/14
13	BM-1 to BM-3	Barbara Massey (oral comments)	09/15/14
14	DM-1	D. A. Metrov	09/04/14
15	NWV-1; NWV-2	Nancy Vasquez and William Vasquez	07/28/14
APPLICANT			
16	VEN-1	Venoco, Inc.	09/23/14

SUBPART II.A. MASTER RESPONSES (MR-1 THROUGH MR-4)

MR-1 DURATION OF PROJECT AND PRODUCTION AT PLATFORM HOLLY

Commenters on the Recirculated Draft EIR raised several issues regarding the Project's anticipated duration and the projected life of Platform Holly, including the possibility that the Project would extend the life of the Ellwood Onshore Facility (EOF) if production is authorized for PRC 421.

Commenter issue: Why is the anticipated Project duration stated as 12 years in the Notice of Preparation (NOP) and as 20 years in the Recirculated Draft EIR?

The estimated life of an oil and gas project, like PRC 421, is determined by several dynamic factors, such as oil price, operating cost and rate of production decline, as well as technical advancements in oil recovery. Since each of these factors can be variable over time, reported values derived from these factors represent a snapshot in time. In general, the economic limit of an oil and gas project is reached when operating expenses exceed revenues. Small changes in any one of these variables will have a significant effect on economic life. The estimate of 12 years provided in the October 2013 NOP was based on then current information regarding the economically recoverable oil. This estimate is no longer accurate based on current and reasonably foreseeable oil prices, which are forecasted to increase over the Project life based on historic pricing trends. For example, U.S. oil prices increased 95.8 percent over a 9-year period between June 2005 (the NOP date of the original PRC 421 project) and the publication of the Recirculated Draft EIR.¹ While oil prices are volatile and have fallen recently, the long-term trend of increasing prices indicates that the price of oil will likely continue to increase and, as a result, extend the reported Project duration to an estimated 20 years; the most recent drop in oil prices would correspondingly affect the reported Project duration if all other factors remained the same. Technological advancements in oil recovery also have the potential to extend the life of an oil project. It has been asserted that technological advances are speculative; however, oil production technology has advanced significantly over the last 40 years with developments. For example, directional drilling has allowed for expanded ability to reach greater areas of an oil field and to produce oil from a single platform or well. Further, **although not proposed as part of this Project**, hydrologic fracturing ("fracking") has vastly expanded oil production in the U.S., with the first expansion of domestic production in more than 30 years occurring in states such as North Dakota and Pennsylvania. The current estimate of the production life for the Project, as evaluated in the EIR, of "at least 20 years," is based on reservoir modeling calculations and market forecasts completed by Venoco and independently reviewed by the CSLC's Mineral Resources Management Division staff.

Direct comparison between the production life of Platform Holly and PRC 421 is inappropriate as there are substantial differences in the amounts of recoverable oil present in the Ellwood and South Ellwood Oil Fields. While the Ellwood Oil Field has

¹ The crude oil price index that was used represents world market oil prices and is based on the simple average of three spot prices: Dated Brent, West Texas Intermediate, and the Dubai Fateh.

been produced for more than 80 years, the South Ellwood Oil Field has been in production approximately half of that time, and it is known that substantial amounts of recoverable oil exist within the South Ellwood Oil Field. For example, the South Ellwood Oil Field holds an estimated 840 million to 1.95 billion barrels of remaining oil in place, although only a portion may be fully recoverable (Adjustment to Easterly Boundary of PRC 3242.1; application submitted to CSLC by Venoco, 6/30/2014).

As a point of clarification, CEQA does not require a lead agency to conduct a speculative worst case analysis. Rather, the analysis must consider a reasonably foreseeable worst case scenario (*North Coast Rivers Alliance v. Marin Municipal Water District Board of Directors* (2013) 216 Cal.App.4th 614, 635.). The Project life of 20 years is the reasonably foreseeable production life of the Project based on current prices and technology. Therefore, the projected remaining life of PRC 421 represents an estimate based on the available evidence and provides an accurate, stable, and finite description of the Project for environmental review.

Commenter issue: Why is there a difference between the anticipated lifetime of Platform Holly in past EIRs, including the 25-year estimate in the October 2013 Draft EIR, versus the Recirculated Draft EIR, which includes a 40-year estimate?

The expected life of Platform Holly is subject to similar dynamic variables as discussed above. Because the forecasted price of oil is expected to increase over the life of the Project, projected revenues relative to costs would increase, indicating that production from Platform Holly may be economically viable for a longer period of time. A mid-year 2013 reserve analysis that was performed by an independent petroleum industry consulting firm for Venoco estimates the economic limit of Platform Holly to be 2055. Therefore, this new information of the estimated lifetime for Platform Holly production was incorporated into the July 2014 Recirculated Draft EIR.

Commenter issue: PRC 421 oil production may extend the life of the EOF.

Venoco's Project application states the EOF will be decommissioned when the production life of Platform Holly ends, regardless of the status of Lease PRC 421. In the event that production from Lease PRC 421 has not ended by the time production ends on Platform Holly, the EOF must still be decommissioned and may not be used to process production from Lease PRC 421 (see Section 2.2 of the EIR). Based on the latest reservoir modeling and market forecasts, Venoco estimates that the production life of Platform Holly, and therefore the EOF, is anticipated to be 40 years (see Section 2.4.1 of the EIR). Because production from Lease PRC 421 is anticipated to end in 20 years, no conflict is expected.

Commenter issue: Without a definite end date, because the lease is held so long as there is production in paying quantities or lease/well maintenance, there is no way to evaluate the long-term impacts.

As stated in Section 2.2 of the EIR, processing of oil from PRC 421 at the EOF will cease prior to the end of production at Platform Holly. In the event that production continues at PRC 421 beyond the EOF's lifetime, the production would have to go

elsewhere for processing. Pursuant to State CEQA Guidelines section 15144 (Forecasting), while an agency cannot foresee the unforeseeable, it must use its best efforts to find out and disclose all that it reasonably can. Based on the current and reasonably foreseeable price of oil, production from Lease PRC 421 is anticipated to be 20 years. Section 15145 of the State CEQA Guidelines further provides that if, after thorough investigation, an impact is too speculative for evaluation, the agency need only note its conclusion and terminate discussion of the impact. There is no way to know for certain whether the oil and gas resources underlying the Lease PRC 421 area will continue to be economically recoverable beyond 20 years, perhaps due to an unforeseeable increase in oil prices or technological advances in oil recovery, and any further estimate would be speculative. Venoco is obligated under its lease and also by Public Resources Code section 6830 to achieve the maximum economic recovery of oil. Placing an artificial endpoint on the Project production would be inconsistent with Venoco's lease terms and Public Resources Code section 6830. Because the reasonably foreseeable production from Lease PRC 421 is expected to terminate prior to the end of production on Platform Holly (which would terminate all processing at the EOF), there is no evidence to support the contention that future impacts, not already assessed, would occur. The estimate of the Project duration reported in the EIR provides an accurate, stable, and finite description of the Project for environmental review in compliance with the State CEQA Guidelines.

MR-2 CONTINUED USE OF THE EOF

Commenters on the Recirculated Draft EIR raised several points regarding the continued use of the EOF, which they characterized as aging, as well as its designation as a legal nonconforming use.

Commenter issue: The EOF is an aging facility in need of significant improvements and modifications in order to safely process oil from PRC 421.

The EOF is subject to intensive safety inspections by various local and state agencies, and has undergone substantial improvements over the last 20 years to maintain safe operation of the facility. This combination of rigorous ongoing inspections and required improvements has led to ongoing updates and improvements to EOF systems. Many safety and operational improvements have occurred at the EOF over the last 20 years to improve performance while it has been operating as a non-conforming use. These improvements include the installation of and modifications to the Grace unit, which is a component of gas processing that removes carbon dioxide (CO₂) from the sales gas stream to increase the efficiency of CO₂ removal, modifications to underground storage tanks, installation of an odor station and fence-line air quality monitors, and safety instrument upgrades for the York skid refrigeration unit and LoCat system for sulfur absorption, which are both utilized during natural gas processing. These improvements were implemented to address odor complaints of area residents, improve safety, and to replace aging or defective equipment. Table MR-2 outlines some of the more substantial modifications and upgrades and a list of additional minor upgrades or maintenance actions can be found in Appendix K.

Table MR-2: Ellwood Onshore Facility Modifications and Upgrades

	Modification	Year
1.	Installation of Grace unit, a component of Venoco's gas processing stream consisting of four membranes that strip CO ₂ and other inert gases from the sales gas. This replaced the previous Fluor unit for CO ₂ removal	1992
2.	Replacement of portions of broken 6" pipeline under Emergency Permit conditions	1994
3.	Removal of Odor Abatement System (OAS) and reroute sulfide gas flows to existing thermal oxidizer, a processing unit for air pollution control that decomposes hazardous gases at a high temperature and releases them into the atmosphere	1997
4.	Installation of GSF Energy odor station and Met, Data Acquisition System (DAS) and hydrogen sulfide (H ₂ S) fence line air quality monitors	2000
5.	Phase 2 modification to Grace CO ₂ removal unit with the addition of four membrane tubes	2003
6.	Cathodic protection upgrades for equipment and underground process piping	2004
7.	Underground diesel storage tank modifications and installation of new sump and dispenser tanks	2004
8.	Safety instrument upgrade for York skid, a refrigeration unit that cools gases, with installation of additional instruments to monitor critical temperature points on the existing York Skid motor	2004
9.	Safety instrument upgrades related to the LoCat system, used for absorbing sulfur during the processing of natural gas	2005
10.	Phase 3 Grace unit membrane upgrade	2005
11.	Replacement of the exterior coating on the Platform Holly-EOF oil & gas pipeline	2006
12.	Installation of two additional membrane tubes to the Grace unit	2008
13.	Replacement of existing burner and blower on thermal oxidizer (H-205) with new units	2010
14.	Construction of new pipeline from EOF to Plains Pipeline (PAAPLP)	2010
15.	Addition of a pump skid, a platform where pumps are installed, to blend natural gas liquids (NGLs) and liquefied petroleum gas (LPG) into the crude sent by pipeline	2011-2014

Sources: APCD 2011. Final District Reevaluation permit to operate No. 7904-R9 Venoco, Ellwood Onshore Facility. December. Available at <http://www.sbcapcd.org/eng/titlev/permits/p7904r9.pdf>
 Venoco 2006. Platform Holly to Ellwood Onshore Facility 6" Oil and 6" Gas Pipeline Beach Crossing Exterior Coating Repair Project Execution Plan. May.
 Santa Barbara County 2003. Energy Division Memorandum: Venoco's Grace Unit Modification Recommended for Building Permit, February 11.
 Santa Barbara County 2004. Memorandum: State Lease 421. July 29.
 Santa Barbara County Energy Division Letter to Steven A. Greig 2004. Re: Safety Instrument Upgrade for York Skid. December 21.
 Santa Barbara County Energy Division Letter to Steven A. Greig 2005. Re: Safety Instrument Upgrades Related to the LoCat System. February 3.
 Santa Barbara County Energy Division Letter to Vytautas P. Adomaitis 2004. Re: Venoco Ellwood EOF Cathodic Protection Inspection Record. September 13.

Operation and safety of the EOF is subject to review and oversight by multiple agencies. The System Safety and Reliability Review Committee (SSRRC), a countywide interagency group with participation from the Santa Barbara County Air Pollution Control District (APCD), reviews maintenance and safety issues at the EOF. A review of records of the last 3 years of SSRRC issues and their current status showed no “significant potential for serious issues.” Regular inspections are performed by APCD, the Santa Barbara County (County) Fire Department, the County Office of Emergency Management, and an engineer and electrician from Building and Safety Division of the Planning & Development Department (P&D) under contract with the City of Goleta. In addition, a full-day inspection is conducted by the Energy and Minerals Division of P&D under contract to the City of Goleta that includes representatives of all the above County departments to provide a comprehensive interagency review of systems safety and reliability at the EOF. The EOF is also subject to inspections at least once a month by the State Division of Oil, Gas, and Geothermal Resources (DOGGR). Additionally, this facility will continue to perform modifications to improve safety and reduce emissions as required under the existing inspection regimen and as allowed by the City of Goleta. In addition, if required, PRC 421 production can be shut down in less than 5 minutes (refer to page 4-84).

In addition to these ongoing inspections by local agencies, the EOF was also subject to Safety and Oil Spill Prevention Audits conducted by the CSLC staff in 2008 and 2011. These audits concluded that the EOF design and strategy was based on sound engineering principles and accepted industry practices and contained a high level of compliance.

Commenter issue: The proposed modifications and improvements at the EOF cannot lawfully be constructed because the EOF is a legal nonconforming use, and, accordingly, significant modifications would likely result in termination on the EOF’s nonconforming status.

At this time, the EOF is a fully permitted and operating facility and the owner asserts that it intends to continue operating this facility under its existing permits as a legal nonconforming use. However, the modifications and improvements that are proposed under the Project would be considered by the City of Goleta as the responsible agency with permit authority over modifications to EOF. The City of Goleta would review anticipated modifications and improvements to determine if they qualify as substantial structural changes or an extension or expansion of the nonconforming use. In the case that these modifications and improvements do qualify as such, the City would then have to determine if they can be approved under City ordinances. These future determinations are a function of the City of Goleta decision-makers as the permitting authority over the EOF.

This Final EIR addresses the environmental impacts associated with the proposed Project, including changes to the EOF. The purpose of this Final EIR is to analyze the Project as proposed by the Applicant for its potential effects on the physical environment, along with a reasonable range of alternatives. The EIR discloses the potential for conflicts with adopted City policies and ordinances regarding PRC 421 and

the EOF, as well as the potential for the City to find the Project consistent with City policies and ordinances, which is the function of an EIR. Final determination of project consistency with adopted City policies and ordinances rests with the Goleta City Council. If the City of Goleta finds that the Project-related modifications and improvements would result in the termination of the EOF's nonconforming status, then the EIR provides a range of alternatives that do not include processing at the EOF for consideration by the CSLC, which may be considered by the City of Goleta as well during review of the Project.

Under the proposed Project, the buildings and facilities at the EOF would not be enlarged, expanded, or extended, and proposed modifications would not result in oil processing exceeding or approaching permitted levels for the EOF, which is permitted and designed to process 13,000 barrels of oil per day (BOPD). The EOF currently processes approximately 5,000 BOPD, or less than 39 percent of its permitted capacity. The Project would result in an increase in processing of an average of 150 BOPD, which is an increase of 3 percent over existing flows or less than 2 percent of existing remaining permitted capacity of 8,000 BOPD. The proposed Project would include minor changes to the EOF, including installation of various pressure sensors and gauges and installation of a programmable logic controller (PLC), transformer, and electrical motor control panel. In general, under State planning and zoning law, local zoning ordinances can provide a workable framework for the maintenance and continuation of legal non-conforming uses, as well as a process for bringing them into conformance when changes or improvements take place. Based on the City of Goleta's zoning code, all improvements proposed at the EOF will be reviewed for conformity with the City's code regarding nonconforming uses.

MR-3 REPRESSURIZATION AND REPRESSURIZATION MONITORING

Commenters on the Recirculated Draft EIR raised several issues regarding the evidence for repressurization and the potential for measuring repressurization without authorizing production of PRC 421.

Commenter issue: There is not enough evidence of repressurization. Also, repressurization of the Vaqueros Reservoir may continue after production ceases, resulting in continued environmental hazards.

As discussed in the EIR, based upon the best available information, repressurization of the Vaqueros Reservoir is an ongoing natural phenomena and an element of the environmental baseline that will occur with or without the Project (i.e., the reservoir would still be subject to repressurization following the completion of the proposed Project). The production of oil, pursuant to the proposed Project, would provide a temporary reduction in formation pressure necessary to generate data needed for long-term planning. The removal of oil through the production lifetime reduces the potential quantity of oil that could be released into the environment associated with repressurization concerns.

The pressure in the Vaqueros Reservoir increased throughout the time it was measured from August 1987 through November 2000, as shown in Figure 4.2-2. The total pressure increase from 1987 to 2000 was from approximately 690 pounds per square inch (psi) to 1,350 psi. The rate of increase in pressure from the year 1987 to 1994 was 55 psi per year. During the time period Well 421-2 was shut in, the pressure continued to increase at a slightly higher rate of climb, approximately 62 psi per year, from 1996 to 2000 (see Figure 4.2-2). Following the emergency production of oil in 2000, Well 421-2 was again shut-in thereby eliminating the possibility for future pressure measurements and monitoring. These measurements are readings of the pressure within the reservoir at the bottom hole location in the reservoir. These bottom hole pressure readings were determined from measurement instruments that record fluid rise inside the well bore. The higher the fluid levels within the well, the greater the pressure at the bottom of the well at reservoir depth.

The pressure increase appears to be a natural condition that occurs due to aquifer influx, which is natural groundwater movement. The Vaqueros formation is a layer of sandstone deposits that occurs both onshore and offshore. Groundwater and sea water entering the formation over time provided the original reservoir pressure at the reservoir depth. When the oil field was developed and under full production from all of the 109 historic wells, the withdrawal of reservoir fluids was depleting the pressure from within the reservoir. Many years later, when wells of various operators began to be abandoned, fluid withdrawals diminished until only one well, 421-2, was producing. During this period of reduced production, the constant rate of aquifer water feed began to exceed the reservoir withdrawals, and the pressure began to climb.

CSLC staff believes that the natural forces that caused the original pressurization have not changed, and are still ongoing. Substantial evidence exists to support the basis of aquifer influx (natural groundwater movement) being the source of the original Vaqueros Reservoir pressure state, as well as the cause of its present repressurization. First, geologic data from exploratory and developmental drilling showed that oil accumulation lies on the surface of an extensive aquifer. Second, an active water drive was suspected early in the field's development, as most initial wells flowed and many experienced rapid water encroachment. Finally, evidence of pressure support from aquifer influx, as well as gravity segregation, can be seen in the production performance of Well 421-2, as documented in Appendix C, Safety.

Evidence of the hazards of repressurization was seen in 2000 when both PRC 421 wellheads developed gas leaks. In order to repair the leaks, the pressure within Well 421-2 had to be relieved to be able to safely enter the well. Venoco installed a temporary pipeline at Well 421-2, and when it was subsequently opened it flowed unaided an estimated total of 17,000 barrels of nearly pure oil over the next 10 months until pressure was reduced to the point that it could be safely re-entered. Repressurization has the potential to result in similar hazards at some of the older wells that were abandoned at lower than current standards, possibly resulting in seepage of gas or oil.

The pressure in the Vaqueros Reservoir is expected to increase over time, including following completion of the proposed Project, as groundwater continues to enter the formation. The pressurization monitoring that is included as part of the proposed Project would provide additional information regarding this issue so that the CSLC can work toward formulating a long-term solution after the Project is complete.

Commenter Issue: There is no clear demonstration that allowing the proposed Project will resolve the concern of repressurization. The proposed Project does not analyze other mechanisms available to resolve the pressurization issue. Also, the potential effect of elevating the pressure in the field knowing that there are improperly abandoned wells offshore needs to be clearly analyzed.

The Applicant is not responsible for ongoing or future pressurization of the reservoir or for previously abandoned wells that were not part of its operations; however, producing oil from PRC 421-2 would reduce pressure in the reservoir for the short- to mid-term (i.e., estimated 20-year Project life), reducing potential for a leak from a previously capped well or a natural seep. Additionally, over the long term, draining oil from this reservoir would leave less oil in the formation subject to potential release due to repressurization. This would reduce the potential for a leak, as well as the size of the leak, if one were to occur. The pressure monitoring results obtained from Venoco over the productive life of PRC 421 would also help inform the CSLC and other agencies, including DOGGR, of the repressurization issue so that the State could develop an appropriate response to repressurization and potential for accidental oil releases.

The purpose of this Final EIR is to analyze the Project as proposed by the Applicant for its potential effects on the physical environment. Although this document includes analysis of repressurization of the Vaqueros Reservoir and the Project's potential effects on repressurization, as well as discussion of the potential environmental hazards associated with previously abandoned wells, it is not intended as an evaluation of potential solutions to the repressurization issue or of the hazards associated with existing abandoned wells. Reducing the buildup of pressure and removing oil from the reservoir that may otherwise leak into the environment due to repressurization of the oil field, as well as repressurization monitoring during the life of the Project, are benefits that would help to reduce potential impacts related to repressurization. Pursuant to State CEQA Guidelines section 15144, while an agency cannot foresee the unforeseeable, it must use its best efforts to find out and disclose all that it reasonably can. The data that would be collected by the Project are integral to assessing the future risks of repressurization of the formation. Any issues regarding future repressurization will be addressed by the CSLC, DOGGR, and other interested agencies as part of ongoing management of the State's offshore resources. While the precise degree of repressurization of the formation and its resultant potential for risk of significant offshore oil leaks may be unknown, the absence of the Project has the potential to incrementally increase potential for such leaks and would deprive agencies from obtaining essential information on repressurization. This reinforces the findings in the EIR that the Project is an environmentally superior option.

MR-4 USE OF SHARED FACILITIES AT LAS FLORES CANYON

Commenters on the Recirculated Draft EIR raised several issues regarding oil processing at Las Flores Canyon (LFC), including use of shared facilities and alternatives to wastewater disposal at this location. Comments regarding use of shared facilities generally requested more information about why PRC 421 emulsion could not be commingled with ExxonMobil's production that is currently processed at the LFC facility. Comments about wastewater disposal alternatives suggested trucking to dispose of wastewater, rather than using another pipeline to ship wastewater to PRC 421-1 for disposal.

Commenter Issue: What is the reason that PRC 421 production cannot be commingled with ExxonMobil production for processing at LFC?

The LFC facility is owned and operated by ExxonMobil. The Applicant met with ExxonMobil to discuss potential commingling of production at the existing LFC facility. As discussed as part of Alternative 4 of this EIR, *Processing PRC 421 Oil at Las Flores Canyon*, ExxonMobil has capacity to allow only for PRC 421 gas to be commingled and processed along with its production. However, ExxonMobil responded that it presently lacks processing capacity to admit additional wet crude oil into its dehydration plant and does not have facilities for disposing of wastewater generated by the proposed Project. Therefore, the Applicant would have to develop separate new dehydration facilities to process wet oil, as well as facilities for wastewater disposal. Adequate space was identified at the LFC site for the Applicant to develop its own facilities, as discussed in detail in Section 5.3.4.

In addition to capacity constraints, shared use of processing facilities at LFC is limited based on the ability to measure oil and gas streams. The federal Bureau of Safety and Environmental Enforcement (BSEE) "best practices" for royalty accounting, as well as those of the CSLC and DOGGR, do not permit commingling of State and federal produced oil and gas without first metering the independent streams. Because the PRC 421 three-phase emulsion is wet, it cannot be measured accurately nor commingled with the ExxonMobil's production stream until after it is dehydrated. In order to dehydrate PRC 421 production, a complete stand-alone dehydration train, independent of ExxonMobil, would be required.

Commenter Issue: Under the LFC alternative, PRC 421-1 should be decommissioned regardless of water disposal limitations at LFC. Additional alternatives for disposal of produced water need to be explored, with the worst case scenario being trucking of produced water to a disposal site.

According to State CEQA Guidelines section 15126.6, subdivision (a), an EIR should describe a range of reasonable alternatives that would avoid or substantially lessen environmental impacts. An EIR does not need to consider every conceivable alternative. The Processing PRC 421 Oil at LFC Alternative was developed with the intent of reducing potential environmental impacts of the proposed Project. Accordingly, this alternative analyzed the method of water disposal that was thought to have the least

potential for impacts. In the event that wastewater injection is not possible at LFC, wastewater would need to be piped back to PRC 421-1 for disposal. This method is expected to have less impact to the environment than trucking wastewater for subsequent disposal, which would contribute to a range of resource area impacts, such as transportation, air quality, and greenhouse gas emissions (GHGs).

For example, under the Processing PRC 421 Oil at LFC Alternative, trucking of disposal water from the LFC to a disposal site would require the construction of a produced water holding tank, and a truck loading rack capable of loading both tank trucks and vacuum trucks. In order to return water to the EOF, additional construction of a truck off-loading station within the EOF, with associated pumps, storage facilities, and vapor recovery connections would be required. Based on an average 60 percent water cut increasing up to 90 percent over time in the emulsion produced at PRC 421-2 and an average of 150 BOPD dropping to 50 BOPD over the first 2 years, there would be a total of approximately 225 barrels (9,450 gallons) of process water per day at the beginning of the Project. Over time the water cut would rise, possibly reaching 90 percent as experienced in the early 1940s to mid-1960s. In this case, 50 BOPD of production would result in 450 barrels (18,900 gallons) of process water for disposal. Given the production of up to 450 barrels, approximately two to four trips per day would be required by 5,000- to 10,000-gallon capacity tanker trucks, depending on the size truck that is able to access the Project site. This would result in up to 15,000 to 30,000 truck trips over the Project life. These trucks would haul the wastewater to an appropriate disposal site, with associated impacts to air quality, GHGs, transportation, noise, safety, and hazards and hazardous materials. Transferring this water back to PRC 421-1, an established wastewater injection well, via pipeline would not require ongoing truck trips.

In accordance with State CEQA Guidelines section 15126.6, subdivision (b), “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.” Due to the additional environmental impacts associated with the trucking of water, this alternative would not substantially lessen significant environmental impacts of the proposed Project and is therefore not included in this EIR for consideration.

MR-5 MITIGATION OF GREENHOUSE GAS EMISSIONS

Commenters on the Draft EIR raised several issues regarding mitigation measures for the emissions of GHGs.

Commenter issue: The Recirculated Draft EIR generally identifies potential mitigation measures but then – despite the stated feasibility of mitigation – improperly defers formulation of specific mitigation measures, and removes the topic from public purview. The Recirculated Draft EIR lacks any analysis regarding the effectiveness of the proposed measures, and fails to provide any measures that can be implemented as enforceable project conditions.

This EIR incorporates the following Mitigation Measures (MMs) related to GHG emission reductions: MMs AQ-1a, which prohibits unnecessary truck idling; AQ-1b, which encourages alternative fueled equipment and reduces construction emissions; and AQ-4, which is discussed in more detail below. These measures are fully enforceable through permitting conditions, regulations and agreements set by the California Air Resources Board (CARB), U.S. Environmental Protection Agency (EPA), and/or Santa Barbara County APCD; the implementation and monitoring of these measures are detailed in the Mitigation Monitoring Program (MMP) in Section 7.0. As the Lead Agency, the CSLC is responsible for enforcement and monitoring of all mitigation for the Project.

MM AQ-4 requires demonstration of required reductions in GHGs prior to commencement of construction and provides the public with the opportunity to comment on key elements of the mitigation measure, including a preference for onsite measures versus participation in adopted plans or programs. Specifically, MM AQ-4 requires the Applicant select a GHG reduction program, including onsite emissions reductions (such as transportation, building retrofit, and water efficiency programs) or participation in an adopted GHG management plan, accredited regulatory program or equivalent in order to reach GHG reduction targets. MM AQ-4 provides flexibility for the GHG reduction program to obtain the mitigation reduction goal and provides the CSLC and Santa Barbara County APCD with the flexibility to evaluate feasible approaches or measures. These recommended measures have been employed by public agencies and are listed as mitigation options in the Office of Planning and Research (2008) Technical Advisory on CEQA and Climate Change. These include increased on-site efficiency through equipment or operational modifications, implementation of off-site GHG reduction programs within Santa Barbara County, and the purchase of credits through sources such as CARB's Cap-and-Trade program or Climate Action Reserve. The overall GHG reduction program must be approved by the CSLC staff prior to commencement of construction.

The incorporation of State accredited programs and local adopted GHG reduction programs provide several vehicles for which the Project's GHG reduction program can achieve targets. Impact AQ-4 under Section 4.4, Air Quality and Greenhouse Gas Emissions, has been updated to include more information on these programs.

Cap-and-Trade Program: The Cap-and-Trade program, established in 2012 and administrated by CARB is a statewide initiative to achieve the requirements set by Assembly Bill (AB) 32. It establishes market-based GHG regulation and compliance mechanisms, setting a price on carbon emissions, and sets a firm annual cap on these emissions. Subsequently the cap will decline three percent per year. Legally enforceable regulations for the program have been included in the California Code of Regulations sections 95801-96022. Participants must first register with CARB through the Compliance Instrument Tracking System Service (CITSS), a market tracking system that provides accounts to participants and allows them to conduct transactions with other account holders. The CITSS issues participants allowances and compliance offsets, tracks compliance instruments, and supports market oversight of transfers.

Compliance instruments under the Cap-and-Trade program include annual GHG allowances issued by CARB and offset credits issued by CARB.

Participants must also report and verify annual GHG emissions and energy data for the Mandatory Reporting of Greenhouse Gas Regulation pursuant to California Code of Regulations, Title 17, section 95101, and AB 32 California Cap-and-Trade program under AB 32 (Cal. Code Regs., tit. 17, § 95802). The annual quantification of GHG emissions is included as part of MM AQ-4 as required by State mandatory GHG reporting programs. Participants are required to report the amount of transportation fuel supplied, therms of natural gas delivered to end users, therms received from interstate pipelines, energy delivered to the California transmission and distribution system, and combustion/ fugitive emissions. All data reported must be certified and completed under penalty of perjury. Further details on the Cap-and-Trade program may be found at <http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>.

Climate Action Reserve: The Climate Action Reserve is a carbon offset registry in North America and establishes standards for carbon offset projects, oversees independent third-party verification bodies, issues carbon credits generated from projects, and tracks the transaction of credits in a transparent, publicly-accessible system. The Climate Action Reserve first began in 2001 as the California Climate Action Registry, which addressed GHG emissions through voluntary public reporting of emissions. With the passing of AB 32 in 2006, CARB approved the Climate Action Reserve as an Offset Registry for the Cap-and-Trade program, allowing the Reserve to issue Registry Offset Credits and Early Action Offset Credits. Participants must register for an account through the Climate Action Reserve and submit the necessary supporting documents related to the registered project. The Reserve provides carbon offsets that meet the criteria of permanent, verifiable and enforceable benefits to the environment. Further information may be found at <http://www.climateactionreserve.org/>.

City of Goleta Climate Action Plan: The City of Goleta Climate Action Plan, created in 2014, includes an Emissions Reduction Plan that identifies various measures to effectively meet GHG reduction targets outlined in AB 32. The City's Emissions Reduction Plan targets sectors in building energy, transportation and land use, water consumption, waste generation, refrigerants, and municipal operations with the goal of a 15 percent reduction in GHG emissions by 2020. Measures selected for inclusion in the Climate Action Plan are statewide initiatives to improve building energy efficiency and renewable energy, and community measures and City-aided outreach programs. Examples of specific measures include energy efficiency retrofit programs for low-income housing, residential and commercial buildings, funding programs for residential and commercial solar installations, expansion of the Santa Barbara Metropolitan Transit District (SBMTD) network, and implementation of Goleta's Bikeways Plan. The effectiveness of these measures to reduce GHG emissions is detailed in Appendix B of the Climate Action Plan. In coordination with the City of Goleta, the Applicant may choose to participate in or contribute towards the measures and programs listed within the Climate Action Plan as a means of off-site mitigation of GHG emissions. The City of Goleta Climate Action Plan is available online at <http://www.projectgoleta.com/wp-content/uploads/2014/06/COG-Final-Climate-Action-Plan.pdf>

Commenter Issue: The CSLC cannot legally set a zero emissions threshold for GHG emissions either generally or for one particular type of industrial use.

Pursuant to State CEQA Guidelines section 15064.4, subdivision (b), a lead agency has the discretion to determine appropriate thresholds for GHG emissions with consideration to the extent to which a project increases GHG emissions compared to the existing setting. CARB also gives authority to individual agencies and jurisdictions to select GHG emission thresholds. Under CEQA (Pub. Resources Code, § 21001, subd. (d)), and *No Oil Inc. v City of Los Angeles (1974)* Cal. 3d 68, the Legislature seeks to protect the environment by the establishment of administrative procedures drafted to “ensure that the long-term protection of the environment shall be the guiding criterion in public decisions.” As provided in Section 4.4.3 of this EIR, the zero emissions threshold was selected to assure no net increase in GHGs over baseline conditions and not to impede progress in meeting AB 32 mandated reductions or the goal of 80 percent reduction goals of GHGs by 2050 under Executive Order S-3-05.

While the California Natural Resources Agency (CNRA) states that section 15064.4, subdivision (b) does not necessarily imply a zero emissions threshold, this does not preclude the CSLC from selecting a zero net increase threshold of GHG emissions for the proposed Project. The CSLC staff recommendation for a zero net increase threshold is consistent with past and current offshore oil and gas projects that have been under the Commission’s purview in Santa Barbara County (e.g., Venoco Ellwood Full Field Development Project EIR, the Plains Exploration & Production Company Tranquillon Ridge Oil and Gas Project [CSLC Staff Report 2009]).

SUBPART II.B. INDIVIDUAL COMMENTS AND RESPONSES

COMMENT SET 1: CITY OF GOLETA



September 24, 2014

SENT VIA EMAIL
CEQAcomments@slc.ca.gov

CITY COUNCIL

Michael T. Bennett
Mayor

Paula Perotte
Mayor Pro Tempore

Roger S. Aceves
Councilmember

Jim Farr
Councilmember

Tony Vallejo
Councilmember

**INTERIM
CITY MANAGER**
Michelle Greene

Eric Gillies, Project Manager
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

RE: Revised PRC 421 Recommissioning Project Recirculated Draft EIR

Dear Mr. Gillies,

The City of Goleta (City) staff has reviewed the Recirculated Draft Environmental Impact Report for the Venoco, Inc. Revised PRC 421 Recommissioning Project, dated July 2014, State Clearinghouse No. 2005061013 (RDEIR). The City appreciates the numerous changes and additions that were made to strengthen the analysis in the environmental document. The Venoco, Inc. Revised PRC 421 Recommissioning Project (the Project) is located primarily within both the jurisdictional and authoritative boundaries of the California State Lands Commission (CSLC) and the City. The existing wells and the seaward portion of the piers are located within the CSLC's jurisdiction and leasing authority. The landward portion of the existing piers, access to and from the piers, construction staging, pipelines/flowlines, and cables are located within the jurisdictional boundaries and subject to the regulatory authority of the City. The Project proposes to process the oil and gas and re-inject the water within the jurisdictional boundaries of the City, utilizing the Ellwood Onshore Facility (EOF), which is located in an area that is zoned "Recreation". The EOF is, and has been since 1991, a legal, non-conforming use.

The City, the CSLC, and the California Coastal Commission (CCC) have determined and agreed, pursuant to a Memorandum of Understanding, that the CSLC shall act as the lead agency for the Project pursuant to the California Environmental Quality Act, Public Resources Code Sections 21000, *et seq.* (CEQA) and the CEQA Guidelines, Title 14 of the California Code of Regulations, Sections 15000, *et seq.*, (collectively CEQA, unless provided otherwise). Therefore, pursuant to CEQA, the City is a Responsible Agency for

Mr. Eric Gillies, California State Lands Commission
September 24, 2014
Re: Venoco, Inc. Revised PRC 421 Recommissioning Project RDEIR
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purposes of the RDEIR. The RDEIR is supposed to examine potential impacts to the environment during the construction, operational, and decommissioning/restoration phases of the Project and is intended to be the environmental analysis required by law for issuance of any appropriate permits by the CSLC and other Responsible Agencies, most notably the City.

As a Responsible Agency, the City is directed by Section 15096 of the CEQA Guidelines to review and comment on the RDEIR and such comments are to be focused on any shortcomings in the RDEIR limited to the portions of the Project that are under the jurisdiction of the City and subject to the exercise of the City's permitting authority.

Based on our review of the RDEIR, we have identified outstanding issues which require correction, clarification, and/or further analysis to ensure that the Final Environmental Impact Report (EIR) provides adequate environmental analysis for the portion of the Project within the City, as required by law. The EIR fails to adequately acknowledge and/or address fundamental issues relating to re-commencing processing of the 421 product at the EOF:

- The EOF is an aging facility in need of significant improvements and modifications in order to safely perform the proposed processing of the 421 product;
- The modifications and improvements needed for this project cannot lawfully be constructed because the EOF is and has been for the past 25 years, a legal non-conforming use. As a non-conforming use, the Goleta Municipal Code (GMC) prohibits any existing building or structure from being enlarged, extended, reconstructed, moved or structurally altered (GMC § 35-161). The proposed modifications to the EOF, as defined in the RDEIR, are significant and would likely result in the loss of and subsequent termination of the EOF's non-conforming status. The RDEIR fails to address the potential loss of the EOF as the processing facility for the 421 product.

CG-1

The City's more specifically focused comments regarding the adequacy of the RDEIR as environmental analysis for the issuance of City permits are provided below.

1. Section 1.0 Introduction - Project Objecti

The RDEIR Project Objective has been narrowed since the previous DEIR was prepared (page 1-4, line 18 through 26). Despite the lack of production from the 421 wells for over 20 years as the result of an onshore oil spill, the DEIR clearly states that the recommissioning of production is not the "project", but rather it is the processing of the 421 product at the EOF, located within the City. This is short-sighted at best, and contrary to the letter and spirit of CEQA. The EOF is an almost 50-year old facility whose useful productive life is already significantly diminished. It is and has been for 25 years a legal non-conforming and entirely incompatible use with the surrounding

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recreation, resort, residential, and adjacent highly sensitive habitats. In fact, currently, it is more incompatible with its surrounding environment than it has ever been. There are still only conclusory statements with no factual analysis or basis presented about the necessity for this project either as a means to determine or alleviate possible re-pressurization. Decommissioning and restoration are not adequately discussed.

CG-2 cont.

The City requests that the Project Objective be re-broadened to include *multiple* objectives and the analysis be re-evaluated based on the broadened objectives. Two suggested objectives include (1) decommissioning and restoration of the wells and piers and (2) independently pressure testing to address the currently wholly speculative assertion that this 421 project is the only means of determining future risks of pressurization of the formation and the determination of future spill risks and responses.

2. Section 2.0 Project Description - EOF Chang

The proposed project includes changes within the boundary of the EOF that are not clearly and specifically described. The requested clarifications, descriptions, drawings, and maps are identified below:

- Modifications at the EOF are inadequately described on page 2-21, lines 21-28 and do not reflect the new facilities mapped in Figure 2-3 and provided in RDEIR Appendix G. For example, based on Appendix G, the proposed new programmable logic controller (PLC) would be placed in an upgraded electrical cabinet to monitor Lease 421 production facilities. What are the dimensions of the new cabinet and will the siding be plywood or metal, for example? Will there be lighting needed that will affect the adjacent Bell Creek ESHA? Per Appendix G, the PLC would also include local control functions as well as communication to the existing EOF control room. How would the communications occur? Are new overhead lines necessitated? Elaborate with the specifics and re-evaluate the impacts, as necessary.
- Appendix G and Figure 2-3 also identify a new Variable Speed Drive (VSD) control for well and leak detection and safety shutdown to be installed at the EOF. Appendix G describes the VSD package as approximately 3 feet by 8 feet by 6 feet high with a new cable from the VSD to the well at Lease 421. The VSD must be described in detail and include any housing, footprints, foundations, siding materials, roofing, and overhead connections that may be required to support the new equipment. Figure 2-3 does not reflect a cable connection to the VSD nor does the text describe the cable except a general statement that cables would occur within existing conduits in the EOF. The City needs this information to be included in the RDEIR, noting that we are not aware of any conduits at the proposed location of the VSD.
- Page 2-20, lines 21-23, identifies a connection for a temporary pig receiver but does not include detail about the size and extent of the equipment. This

CG-3

information and additional detail about where the receiver will be stored when it is not in use must be included in the RDEIR.

- Page 2-21, line 23 identifies that a transformer will be required for the project. Add the location of the new transformer to Figure 2-3 and describe in more detail the size and extent of the facility.
- Upgrades, such as switches, video feed, and an electrical motor control panel, are proposed to the existing EOF control room for remote monitoring and control (pages 2-24 and 2-25). There is no specific description of these modifications and whether these modifications will have an effect on EOF facilities. Include this description and explanation and provide evidence to support the claim that there is capacity within the existing control room to support these additions.
- The project description in the RDEIR must identify whether those changes and modifications that are proposed at the EOF may facilitate and be used to change oil and gas processing activities at the EOF, regardless of whether that is part of the Project. Include this analysis in the EIR.
- The new 3-inch flowline exits the existing 6-inch pipe cover 25 feet south of the EOF fenceline and continues without a cover until it intersects the Holly tie-in within the EOF. This is unclear in the Project Description text and incorrect on Figure 2-2 and Figure 2-3. The text needs to be clarified. The figures need to accurately map the new 3-inch pipeline segment where it exits the existing 6-inch pipe cover. Add a new map legend feature identifying the Proposed 3-inch Flowline - Uncovered for the portion within the EOF and include the termination point of the 6-inch line on Figures 2-2 and 2-3.

CG-3 cont.

CG-4

3. Section 2.0 Project Description - EOF Backup Storage Capacity

The backup storage at the EOF is incorrectly stated in the project description and needs to be corrected. On page 2-29, line 29, the backup storage is presented as 1 to 2 days of production when in actuality, the EOF can accommodate less than one day's storage for Platform Holly product only. More specifically, there are two, 2,000 barrel storage tanks at the EOF, for a total storage capacity of 4,000 barrels of oil. Utilizing the current production from Platform Holly at 5,000 BOPD (refer to page 2-22, line 1) backup storage at the EOF is less than one day for Platform Holly alone. As such *there is no capacity for backup storage for the 421 product at the EOF*. The safety features of the EOF and the PRC 421 project should be reassessed with this updated information. Section 4.2 Safety should be updated to evaluate the risk of the lack of backup storage for the Project.

CG-5

4. Section 2.0 Project Description - Pipelines and Cabi

On page 2-27, lines 8 and 10, the 6-inch pipeline is referred to as existing/new. Exactly what portions exist and what portions are new? The maps and text in the project

CG-6



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description and as evaluated in the environmental sections do not consistently evaluate the portions of the pipeline that are existing versus the portions of the pipeline that are new. This is important from the perspective that new pipeline segments create new impacts. For example, on page 2-13, lines 25 and 26, a new 25-foot long pipeline connection is proposed to be constructed from the abandoned interconnection with the Line 96 to the EOF fenceline. This new pipeline segment is reflected in Figure 2-2 and Figure 2-3 as an existing pipeline and nowhere is it evaluated as a new pipeline connection. This needs to be correctly described and mapped in the project description and analyzed for impacts and mitigations.

The routes presented in Figures 2-2 and 2-3 (RDEIR pages 2-8 and 2-9 respectively) show different alignments for the cables and the 3 inch flowline in the existing 6 inch line. For example, the cables and the 3 inch flowline enter into the EOF at different locations from one figure to another. Also, Figure 2-3 identifies the 3 inch flowline in existing 6 inch line running directly through the Bell Creek ESHA creekbank. If this is the correct route as is likely the case, the alignment through the Bell Creek ESHA must be re-evaluated in the environmental analysis as most if not all the sections used the incorrect alignment. In particular, Section 4.2 Safety, Section 4.5 Hydrology, Water Resources, and Water Quality, and Section 4.7 Terrestrial Biological Resources must analyze related impacts and present mitigation for this route.

CG-6 cont.

A repair of a 25-foot section of existing, in ground, pipeline is depicted in Figure 2-2 on page 2-8 of the RDEIR and briefly described as both a repair and a pulling point for the 6-inch slipline and the 3-inch flowline on page 2-19 lines 16-21 under Section 2.3 Construction Procedures. There does not appear to be a physical description of the proposed pipeline repair under the "Pipelines" section on page 2-13. Include a detailed description of the repair, including access and construction methods under the "Pipelines" section starting on page 2-13. The City points out that this segment of pipeline is located along the beach bluff in an ESHA (refer to map on page 4-208 for ESHA locations) and we require this detail as part of the environmental review document. We also require detail regarding the construction methods and staging related to the pulling point for the 6-inch slipline and the 3-inch flowline, also proposed to occur at this location. Also, update Figure 2-2 to reflect the precise location of the segment requiring repair and all access points, and any other related stockpiles or staging areas.

In order to access this repair site, construction equipment will utilize the beach (according to the January 2014 FEIR Response to Comment, page II-42). The impacts associated with this work do not appear to be considered in Impact TBIO-1 and the associated mitigation measures. The details of the equipment needed for construction, where the equipment will be staged, and what areas of wetlands and important habitats are disturbed in the process are omitted from the RDEIR. An analysis of these sites should be included in the FEIR and the construction impacts on these areas fully analyzed. Only then will the City have the information necessary to consider what permits will be necessary for the project.

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In numerous locations throughout the project description and the RDEIR the existing 6-inch pipeline is incorrectly referred to as a 6-inch outer diameter pipeline, for example on pages 2-6, line 30 and 2-14, line 13. This global change should be made throughout the RDEIR to ensure that there are no engineering design miscommunications regarding the size of the pipeline as it is proposed to be used as a sleeve for a 421-related product line.

CG-8

5. Section 2.0 Project Description - Project Durati

The project duration (page 2-6, lines 18-19) includes an estimated project life of 20 years, depending upon production characteristics and project economics. The importance of the project duration cannot be understated as the project impacts hinge on the length of time that the well 421-2 is likely to be producing and the expected timeline for decommissioning. The project, as defined, specifically incorporates processing at the EOF and no analysis or data is provided, discussed, or referenced as to the life of the EOF facility itself. It is an already aged facility and modifications needed for this current project, let alone future project extensions governed by well production methodologies and technologies do nothing to address the deterioration of the EOF. The City is concerned about the lack of justification and validation regarding the change from the CSLC's Project EIR Notice of Preparation, dated March 26, 2013, documenting a 12 year project duration. There was no data provided to justify a change from a 12 year project duration to a 20 year project duration. This change needs to be justified and validated with facts, such as modeling methods and results to be included in the EIR.

CG-9

The City is also concerned about the RDEIR's explanation of the Proposed Project in relation to Platform Holly (Page 2-7, lines 16-18). The estimated lifetime of Platform Holly was extended from 25 years in the October 2013 Draft EIR to 40 years in the January 2014 Final EIR without supporting evidence. On page II-10 of CSLC's Response to Comments in the January 2014 Final EIR, the response to comments notes that "technological advances in oil recovery" may extend the life of the Proposed Project. This is speculative and the EIR should contain evidence to support this claim.

CG-10

If the life of Platform Holly can be nearly doubled due to technological advances, an argument could be made that so can the life of PRC 421, and the PRC 421 impacts must be similarly analyzed. Additionally, the life of the EOF is not necessarily coterminous with that of the availability of product from either Holly or 421. Failure to address modifications and improvements that would be needed to the EOF – and more importantly, whether they could be legally done – for any timeline is a significant deficiency throughout this document. As such, the supposed long-term impacts of the proposed project are poorly underestimated and require reconsideration. This is especially significant when comparing alternatives and may alter the Environmentally Superior Alternative conclusion, in support for consolidation at Las Flores Canyon.

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6. Section 2.3.2 Construction Staging Area and Equipment

The Project Description does not provide specific locations for stockpiles, staging, and turnaround points for construction, decommissioning, and restoration work in a very constrained work area along the access road, at the piers, and on the beach. The City requires this level of detail for construction projects, particularly projects located along constrained corridors and where ESHA are within and adjacent to the work area. As such, include a description of the stockpiles, staging, and turnaround points for construction, decommissioning, and restoration work and reflect the locations on project maps. A new map may be warranted to reflect this information.

Proposed equipment width in relation to the existing road width should also be described to demonstrate that the access road along the shoreline can (or cannot) adequately accommodate equipment. Additionally, the trenching activities in support of pipeline installation will include utilizing the entire width of the access road. The project description needs to explain how access to and from the site will be maintained (or not) during trenching activities.

CG-12

After the location of stockpiles, staging, turnaround points, and access are better described and mapped, impacts should be evaluated and mitigation measures developed to reduce levels of significance.

7. Section 4.2 Safety - Leak Detection

The existing 6-inch pipeline termination point is located 25 feet south of EOF fence line and is a critical location from a safety standpoint. From this connection point, northeast into and within the EOF, the 3-inch flowline is unprotected from the existing 6-inch pipeline and therefore also unprotected from the leak detection system/switch (refer to page 4-78 lines 24-26). The safety risks associated with leaks along this portion of the flowline must be disclosed and evaluated accordingly. The opportunity for impact mitigation to be identified as part of this Significant and Unavoidable impact is important disclosure in this EIR.

CG-13

8. Section 4.2 Safety - Spill Response

Impact S-4: Potential for Release of Oil or Hazardous Materials from Pier 421-2 include outdated worst-case discharge planning volume rates for the South Ellwood Field. The 3,000 barrels used in the RDEIR on page 4-87 lines 13 and 14 is outdated information and needs to be updated to accurately reflect 5,000 BOPD (page 2-22, line 1). The analysis should be updated and the facts verified to ensure that Venoco has the response resources capable of handling a shoreline cleanup that can accommodate the project.

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9. Section 4.2 Safety - Emergency Response

Mitigation Measure MM S-5b. Develop Emergency Action Plan (EAP) on page 4-94 includes a sentence starting on line 24 about update notice for revisions that does not make sense. Delete the sentence and clarify that the City and the County Office of Emergency Management shall coordinate updates of the EAP with the operator on a regular basis or as conditions change that warrants review of emergency response protocols.

CG-15

On page 4-101, lines 1-4 of the RDEIR, the approved South Ellwood Field EAP is referenced as the existing emergency response plan for the EOF. No mitigation is included for the proposed project under Impact S-7: Increased Processing of Oil and Gas at the EOF. The City points out that the proposed project includes modifications within the EOF, such as the interconnection of the PRC 421 oil with the Holly oil, and a new transformer, PLC cabinet, and VSD facility. These changes would necessitate changes to the South Ellwood Field EAP. As such, a new mitigation measure should be included to require an update to the EAP for the South Ellwood Field.

CG-16

On page 4-94, line 33 under MM S-5c. Safety, Inspection, and Maintenance of Oil and Gas Pipelines, include wording that requires the City and the operator to update the Safety Inspection, Maintenance, and Quality Assurance Program (SIMQAP) biennially or sooner if conditions change that warrant SIMQAP review.

CG-17

10. Section 4.2 Safety - Increased Processing of Oil and Gas at the EOF

The Impact S-7: Increased Processing of Oil and Gas at the EOF overlooks safety-related impacts at the EOF based on an incorrect assumption that control system improvements at the EOF are the extent of the changes within the EOF (page 4-98, lines 32-33). As stated in previous comments, backup oil storage at the EOF is currently limited to less than one day of production at Platform Holly. Any added production from a new source places a burden on the EOF backup storage facility and related safety risks. This impact needs to be disclosed and evaluated accordingly. Additionally, the new transformer, PLC cabinet, and VSD facility with a 3 foot by 8 foot by 6 foot dimension, all located adjacent to the Bell Creek ESHA should not be dismissed from analysis. The transformer may create a fire hazard at a new location in the EOF, for example. These impacts must be analyzed and related mitigation measures identified.

CG-18

11. Section 4.2 Risk of Fire at the EOF, Pipelines, or Piers

Impact S-8: Increased Risk of Fire utilizes an older Quantitative Risk Assessment (QRA) prepared for the EOF to identify the crude oil fire thermal exposure distance (page 4-101, line 32). A distance of 150 feet is presented in the RDEIR utilizing the QRA. The City points out that the 150 foot distance provided in the 2000 QRA is based upon the Platform Holly crude oil fires having gravity of 22.4 percent API. The PRC 421 crude oil is much lighter with 35 API gravity and will have a much larger footprint than

CG-19



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150 feet. The risk of fire needs to be re-calculated based upon the PRC 421 crude oil gravity. The fire risk is understated in the text and must be re-evaluated with this new information and from the perspective that the 421 piers, access road, and EOF interconnection are not accessible except from Hollister Avenue, a dead-end road. Additionally, the evaluation would benefit from consideration of the adjacent land uses such as the Bacara Resort and Spa, Sandpiper Golf Course, and residential development that could be impacted if fire were to ignite as a result of the project. Eucalyptus trees and other flammable vegetation exist along the pipeline corridor between the piers and the EOF and within the adjacent Bell Canyon drainage. Adding a new ignition source at these locations that are difficult to access should not be overlooked in the EIR analysis.

CG-19 cont

12. 4.3 Hazardous Material - Soil Sampling Mitigation

To reduce impacts related to potential hazardous materials released during Project construction and operation and during decommissioning and removal of Pier 421-1, Mitigation Measure MM HAZ-1c. Soil Sampling is required in the RDEIR (page 4-114, line 36). The mitigation measure requires that all soils removed from the pier caisson be considered contaminated and removed as such. The remainder of the project construction is subject to "Venoco" monitoring and soil contamination determination (page 4-114, line 41). The City points out that the remainder of the project area is located within the City's jurisdiction, and we have specific requirements for City-retained monitors and soil inspections. On page 4-114, line 41, make the following edits:

CG-20

"construction activities, a City of Goleta Soils Inspector/Monitor shall continually visually monitor the soils disturbed within the construction areas to determine if there is any evidence of undiscovered contamination. The City of Goleta shall hire the Soils Inspector/Monitor, paid for by Venoco, to inspect soil disturbance activities within the City's jurisdiction during all phases of the project to ensure that any hazardous materials and/or contaminated soils encountered are properly contained and removed. Soil samples may be taken, subject to the direction of the Soils Inspector/Monitor."

13. 4.3 Hazardous Material - Decommissioning and Abandonment Securities

To reduce impacts related to potential hazardous materials exposure and ensure timely decommissioning and abandonment of Well 421-1 and Pier 421-2, Mitigation Measure MM HAZ-1e. Performance Securities is required in the RDEIR (page 4-115, lines 29-35). The mitigation measure requires that the permittee provide the securities and agreements, in the estimated amount for the decommissioning/abandonment work, to the CSLC prior to return to production of the PRC 421 well. The City requires similar performance securities and agreement for the portion of the project located within the City's jurisdiction, including, but not limited to the piers, the sea wall supporting the access road, the access road, and the onshore pipelines and cables and ancillary facilities. We also require the timing of the securities and agreement prior to the

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issuance of the Land Use Permit, not prior to the return to production of the PRC 421 well.

CG-21 cont

14. Section 4.7 Terrestrial Biological Resources - Construction Impacts

The existing setting presented in Section 4.7 Terrestrial Biological Resources is based upon reconnaissance level field surveys and literature review and does not include the survey methods, the surveyor names and qualifications, or the dates and times of the surveys (refer to page 4-205, line 11). Given that the literature review resulted in an abundance of ESHA and special-status species within and adjacent to the project footprint, it is best to conduct special-status species surveys, habitat surveys, and wetland delineations as part of the environmental analysis, in order to properly characterize the existing conditions from which the impacts can be evaluated and accurate mitigation measures can be developed.

The approach in Section 4.7 Terrestrial Biological Resources is to defer the survey work after the EIR is certified and after the permit entitlements are granted (refer to page 4-218, lines 11-39 for an example of deferred survey and delineation work). The City has a practice of conducting survey work during environmental review in order to understand and quantify the impacts of the project and develop project-specific mitigations that can be agreed-upon by the project applicant before project approval. In the case of the PRC 421 Project, wetlands and ESHA will be directly/indirectly impacted as a result of the project.

CG-22

It will be challenging to move forward without quantifying the impacts and related mitigation measures as suitable sites for the restoration of wetlands and ESHA may be difficult to locate and also potentially costly for the applicant. We recommend that it is disclosed in the EIR that the applicant does not own the property where the impacts would occur and the restoration may necessitate offsite locations as a result. The City's General Plan requires that all Coastal Zone wetland and ESHA impacts be mitigated within the City's Coastal Zone boundary. If offsite restoration were an outcome, the mitigation would be required to occur within the City's Coastal Zone boundary and would also be subject to the Coastal Commission's review and approval.

15. Section 4.7 Terrestrial Biological Resources - Pipeline Repair Using the Beach for Access

Impact TBIO-1: Short-Term Construction Impacts to Biological Resources should specifically include a reference to the repair of the repair of a 25-foot section of existing, in ground, pipeline (refer to Figure 2-2 on page 2-8 of the RDEIR and to page 2-19 lines 16-21). This repair will include construction equipment on the beach, west of the existing access road. In order to access this repair site, construction equipment will utilize the beach, creating impacts that are not evaluated in Impact TBIO-1. Related mitigation measures need to be included.

CG-23



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16. Section 5.2: Alternatives Eliminated from Further Consideration

Under the Condensed Production Schedule Alternative (page 5-6, lines 22-33), it is assumed that there would be a need for another well to condense the schedule. The City suggests that the CSLC consider another alternative to increase the pump-rate out of the existing well, resulting in an expedited extraction process. Consequently, the environmental impacts would be lessened as this section suggests, but there would not be the added short-term impacts associated with drilling a new well. If this is not a feasible alternative, it should be explained and documented in this section of the EIR.

CG-24

17. Section 5.3.1: No Project Alternative

The project description for the No Project Alternative is inconsistent and needs to be clarified and corrected for the impacts and mitigation to be accurate. For example, the Pier 421-2 Layout inset in Figure 5-1 (page 5-13) shows two, 2-inch flowlines in the existing 6-inch pipeline. However, the detail included on page 5-14, lines 30-31 describe only one, 2-inch flowline in the existing 6-inch pipeline. Please reconcile this inconsistency.

CG-25

Based on the project description starting on page 5-14, line 22, this alternative does not appear to include decommissioning of the PRC 421 Piers and Wells. However, in the analysis of Aesthetic/Visual Resources there is reference to a second round of construction including decommissioning Pier 421-1 (page 5-21, line 26). If no decommissioning will occur, references to decommissioning should be removed from the analysis and the Aesthetic/Visual Resource impact re-evaluated without decommissioning. In particular, Impact VR-4 (page 5-21, line 38 and page 5-22, lines 1-2) should be re-assessed as it appears to include decommissioning and/or other conflicting project description details.

CG-26

As documented in the project description for this alternative (page 5-14, lines 24-25), new oil separation equipment will be installed on Pier 421-2. The Noise analysis (page 5-21, lines 11-20) does not include operational noise impacts associated with this equipment. These impacts should be quantified and evaluated in the EIR.

CG-27

18. Section 5.3.2: No Production/Quitclaim State Oil and Gas Lease PRC 421

The description of the “No Production/Quitclaim” alternative (page 5-22 starting on line 21) assumes that in the course of a quitclaim, CSLC would not conduct pressure-testing using the infrastructure of PRC 421. Given that this RDEIR notes the likelihood and environmental threat that repressurization presents, it does not seem reasonable to assume that after a quitclaim the State would simply leave the wells shut-in without first pressure testing.

CG-28

This alternative also does not consider decommissioning of the existing PRC 421 infrastructure. In the January 2014 Final EIR, the CSLC explained that “[e]xisting lease

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conditions stipulate that if production is no longer allowed, Venoco must prepare and submit a decommissioning plan and upon approval commence decommissioning.” (Response to Comment, page II-46). This explanation in the response to comments supports the assumption that decommissioning would occur even under the Quitclaim Alternative. Add additional supporting information about the 421 lease agreement and the quitclaim terms and requirements. Also, include any obligations under the existing 421 lease agreement that would transfer to the future lease holder under a quitclaim and their obligations related to decommissioning. As we have previously requested, the 421 lease agreement should be included in the EIR as the terms of the lease are essential to the evaluation of this alternative. If the lease agreement is a large file, include it as an appendix to the EIR.

CG-29 cont

The project description for this alternative needs to include both pressure-testing and decommissioning and the impacts of this alternative should be analyzed considering those inclusions.

19. Section 5.3.4 Processing PRC 421 Oil at Las Flores Canyon

The City appreciates the CSLC's changes to the RDEIR's Alternatives analysis, in particular, the evaluation of Processing PRC 421 Oil at Las Flores Canyon Alternative. This alternative is important from a Goleta General Plan policy direction perspective. Consolidating oil and gas processing facilities at Las Flores Canyon has long been the vision of the County's, as articulated in the South Coast Oil and Gas Consolidation Policies

In support of the CSLC's full evaluation of this alternative, the City provides additional comments and requests for changes. First, this alternative incorrectly includes the EOF facilities in the project description. As previously stated in this comment letter, the EOF has long been a legal non-conforming use and it is the City's intent, as authorized under the municipal code, to phase out the use and restore the use to the Recreation zoning designation. For this alternative to be viable, the CSLC must alter the project description to exclude all use of the EOF parcel. Revise the project description and re-evaluate the impacts accordingly.

CG-30

The City requests that the RDEIR evaluate an offshore route for the Las Flores Canyon Alternative so as to avoid the conflict with the Goleta General Plan policies, land use designations, ESHA's, and land uses within the City of Goleta. An offshore route would also remove the uncertainties of future oil and gas projects that may or may not have EOF components that trigger the expansion, enlargement, or extension of the non-conforming use.

CG-31

The City also requests that the decommissioning of Pier 421-1 and Well 421-1 be a mandatory part of the project description for this alternative. Currently, Well 421-1 may be used for water disposal if the produced water from the project cannot be disposed of at Las Flores Canyon (page 5-35, lines 17-22). Well 421-1 water disposal is an

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unacceptable option for this alternative. Other back-up options for produced water should be explored. For example, produced water can be trucked from Las Flores Canyon to an off-site disposal site.

CG-32 con

The Processing PRC 421 Oil at Las Flores Canyon Alternative assumes that there is a lack of capacity at the existing Las Flores Canyon facilities without evidence to support this claim (page 5-40, line 24). Include this detail in the EIR and modify the analysis as appropriate.

CG-33

The environmental impact analysis (starting on page 5-43) for this alternative incorrectly assumes that changes to the EOF will be allowed. As previously stated in this comment letter, changes cannot be allowed and therefore the impacts and mitigation analysis will need to be updated to reflect alternative routes, such as an offshore route.

CG-34

20. Section 6.4 Environmentally Superior Alternative (ESA)

The proposed project and alternatives comparisons are based on faulty presumptions and assumptions. The RDEIR identifies the risk of re-pressurization as “significant”, and subsequent releases of oil due to improper abandonment procedures yet provides no factual support for this wholly conclusionary statement. This argument needs to be substantiated with evidence. The RDEIR information conflicts with this assumption about repressurization. Data is presented to show that the wells were abandoned in the 1940’s and 1950’s and that no leaks have been reported during that 60 – 70-year period. If repressurization were occurring, leaks should have occurred. Further, the 421 wells have been shut in for 20 years yet repressurization leaks have not been documented. These conflicting messages must be reconciled, particularly when the subject of repressurization is used to justify many conclusions in the EIR. The RDEIR correctly states that an agency “cannot foresee the unforeseeable” (p. 4-64, lines 9-12), and yet this completely speculative “unforeseeable” pressure build-up serves as the basis for the assertion that 421 should be returned to production.

CG-35

21. Section 6.4.2 ESA - No Project Alternative

The No Project Alternative is also based upon faulty assumptions, primarily that the EOF is in fact an available facility for processing the 421 product. The capacity of the facility is not the governing factor here. Rather, the legal status as a non-conforming use and the possibility that that status would be terminated as a result of the proposed project modifications must be directly addressed in all of the alternative analyses. Further, at Page 6-6 lines 27-29, there is a statement that the No Project Alternative is inconsistent with the General Plan. This is incorrect. The policy referred to is a regional planning policy that is for wells located outside of the City limits and doesn’t apply here. The RDEIR should be applying the State’s policies for policy consistency, not the City’s policies, for the portion of the project in the State’s jurisdiction. There is no question that the City of Goleta has consistently and continually adopted policies in support of removal, decommissioning and termination of all onshore or surf zone oil and gas

CG-36



130 Cremona Drive, Suite B, Goleta, CA 93117 P 805.961.7500 F 805.685.2635 www.cityofgoleta.org

Mr. Eric Gillies, California State Lands Commission
September 24, 2014
Re: Venoco, Inc. Revised PRC 421 Recommissioning Project RDEIR
Page 14 of 14

facilities. The City has consistently supported and prefers consolidated processing at Las Flores Canyon.

CG-36 cont

22. Section 6.4.3 ESA - No Production/Quitclaim Alternative

It is reasonable to conclude that based on our comments provided in this letter, the No Production/Quitclaim Alternative would be the Environmentally Superior Alternative. This is especially true if field re-pressurization is not occurring, as minimal pressure testing would occur over a very short timeframe followed by decommissioning. This outcome would clearly be environmentally superior to the Proposed Project. If pressure testing revealed field re-pressurization, the field would be drained within a reasonably foreseeable timeframe at a CSLC-controlled pumping rate, rather than a market-driven pumping rate, with decommissioning immediately following. Although this second outcome would share many of the same impacts as the Proposed Project, a more expeditious conclusion of processing activities at the 421 piers and at the EOF (when compared to the proposed project) would make this alternative environmentally superior.

CG-37

Conclusion

The CSLC's successful resolution of these issues will aid the City's processing of the Project as a Responsible Agency. The City respectfully requests that the necessary changes and additions, as identified and described in this letter are included in the Final EIR.

Please do not hesitate to contact me with any questions regarding the above comments. Thank you again for the opportunity to provide comments.

Sincerely,



Anne Wells
Advance Planning Manager

C: Alison Dettmer, Coastal Program Chief, California Coastal Commission



RESPONSE TO COMMENT SET 1: CITY OF GOLETA

CG-1 See master response MR-2.

CG-2 Pursuant to State CEQA Guidelines section 15124, subdivision (b), the EIR provides “a statement of objectives sought by the proposed project” as set forth by Venoco, the Project Applicant. The objective also includes the “underlying purpose of the project” consistent with State CEQA Guidelines section 15124, subdivision (b), as proposed by Venoco. This underlying purpose is also consistent with and required by the State’s lease agreement with Venoco. Venoco’s objective in implementing this Project is “To return State Oil and Gas Lease PRC 421 to production and process the production at the EOF.” This production would result in the added temporary benefit of reducing the pressure in the Vaqueros Reservoir, as well as the long-term benefit of obtaining pressure measurements during the operable life of PRC 421-2, which would help inform future planning for the repressurization issue (see master response MR-3). Providing pressure testing is not a stated objective of this Project, but rather an added benefit that Venoco would include as part of the Project to enable the CSLC to obtain repressurization data in order to manage repressurization in the future. The Project would also result in decommissioning and abandonment of PRC 421-1 in the near term, with Venoco applying for the decommissioning and removal of Well and Pier 421-1 within 90 days of receiving permits to recommission PRC 421-2. This is also an added benefit of the Project, but not part of Venoco’s objective in proposing this Project.

CG-3 Figures 2-2 and 2-3 have been revised to display all new pipeline segments and improvements within the EOF as requested. When preparing the Recirculated Draft EIR, CSLC required submittal of sufficient information to allow for detailed environmental analysis to be performed regarding issues such as oil spills and air quality emissions. However, code-level information regarding detailed designs of minor changes within the developed areas of the EOF or internal to EOF buildings was not requested at the early stage of analysis. This is a typical standard employed in environmental documents where details, such as the exact composition of the door of a utility box, are not needed to support adequate environmental analysis. However, although not required for environmental analysis, many of these details have been added to support the City of Goleta’s permit-level of review to make a determination regarding continued use of the EOF. Specifically, the variable speed drive and transformer would be stand-alone electrical equipment, fabricated out of steel. The variable speed drive would be 82.5 inches high, by 38.8 inches wide and 44.5 inches deep, while the transformer would be approximately 53 inches high by 56 inches wide by 27 inches deep (see Appendix G for engineered drawings of these features). The programmable logic controller would be placed in an upgraded electrical cabinet, which is currently near the pig receivers. This equipment would be located within the existing developed footprint of the EOF. Venoco has confirmed that no major

disturbance of vegetation or substantial grading would be required to install this equipment and no additional lighting adjacent to Bell Canyon Creek or overhead lines to the EOF are required.

- CG-4 The new 3-inch flowline would be protected within a 6-inch pipeline for the full length that lies outside of the EOF and would not exit the protective 6-inch pipeline until after it is inside the EOF. The Recirculated Draft EIR stated on page 2-13, lines 25-26, that “a new 25-foot long piping connection would be constructed to the EOF fenceline.” This text has been revised to convey that the new segment of 6-inch pipeline would be approximately 50 feet long and would extend into the EOF beyond the fenceline. There is a small portion of the 3-inch flowline that would be uncovered within the EOF. Figure 2-3 has been updated accordingly.
- CG-5 The EIR text has been updated to reflect that there would be less than one day of available backup storage for oil produced from PRC 421 and Platform Holly at the EOF. The discussion in Impact S-7 was also updated to address the existing level of backup storage and to note that, if required, production from PRC 421-2 may have to cease for part of a day or longer due to lack of storage. As discussed under Impact S-7, short-term cessation of production is not anticipated to create new impacts to safety.
- CG-6 The 50-foot segment of 6-inch pipeline that would be constructed between the abandoned interconnection with the old Line 96 to the EOF pipeline has been labeled as “new/repared” pipeline in Figure 2-3. Additionally, the alignment of the 6-inch pipeline south of the EOF has been corrected in Figure 2-2 to show the proper alignment, which is within the Platform Holly right-of-way. Although this alignment passes along the eastern edge of the Bell Creek Environmentally Sensitive Habitat Area (ESHA), this section of the pipeline is an existing facility and would not be disturbed. The section of pipeline between the repair location south of the 12th tee of the Sandpiper Golf Course and the abandoned interconnection for Line 96 outside of the EOF would not be accessed from the exterior. The only changes through this section would be the addition of the plastic liner and 3-inch flowline through the pipeline; this work would be performed through access points at either end of the existing pipeline in order to pull the liner and flowline through the pipeline. Therefore, there would be no direct disturbances to the Bell Creek ESHA associated with use of this pipeline; potential impacts associated with oil spills are addressed in appropriate sections of the Final EIR. The 25-foot section of 6-inch pipeline needing repair has also been relabeled in Figure 2-2 as new/repared pipeline. The discussion in Section 2.3.4 has been updated to explain which sections of 6-inch pipeline would be newly installed in order to provide protection to the 3-inch flowline between PRC 421-2 and the EOF and to include these segments in the discussion regarding trenching.

Construction staging for the repair of the 25-foot pipeline section, as well as the installation of new pipeline sections by the EOF and between PRC 421-1

and PRC 421-2, would be the same as for the other construction activities associated with this Project. Staging areas would be located within existing already developed areas of the EOF, east of the existing fence that demarcates the boundary between the EOF and Bell Canyon Creek, including the helipad, if needed. The existing already developed access road between the two piers would also be used for staging, as described in Section 2.3.2 on page 2-17.

- CG-7 Construction equipment would be used on the beach to repair the 25-foot section of 6-inch pipeline. The potential impacts associated with use of this equipment on the beach were added to the discussion regarding construction equipment that would be located on the beach to perform other Project-associated activities, such as caisson repairs. This activity was added to the impact analysis under Impacts MBIO-1 and MBIO-3.
- CG-8 The text in the Final EIR has been revised as suggested.
- CG-9 See master response MR-1.
- CG-10 See master response MR-1.
- CG-11 See master response MR-2.
- CG-12 Section 2, Project Description, provides details regarding the location of construction and staging activities. In relation to roadway width, trenching, and staging, Venoco provided information regarding traffic management. Along the roadway, a moving construction spread and traffic control procedures would be implemented during trenching to minimize “open hole” length and traffic congestion. A traffic control person would be stationed on the road at the rear gate of the EOF, at the existing gate on the beach, and at Pier 421-1. All construction equipment would be selected so as to fit within existing roadway width, and would be staged in a linear fashion so as to minimize interference. See also CG-6 and CG-7 above.
- CG-13 The 3-inch flowline would be protected within a new section of 6-inch pipeline between the EOF and the abandoned interconnection with Line 96 where the existing 6-inch pipeline currently terminates. The discussion regarding this 50-foot section of new 6-inch pipeline has been updated for clarity in Section 2, Project Description (see Section 2.3.4)
- CG-14 The worst-case oil discharge planning volume rates for the South Ellwood Field, as well as oil spill response and clean-up information, has been updated with newer information from Venoco’s Oil Spill Contingency Plan (OSCP), updated in June 2014, and subject to review and approval by the California Department of Fish and Wildlife (CDFW) Office of Spill Prevention and Response (OSPR) and Santa Barbara County Office of Emergency Management (OEM). The OSCP also identifies Venoco’s available resources to address a shoreline cleanup. Venoco will rely on Clean Seas for on-water

containment and recovery of all spills. Clean Seas has demonstrated its ability to meet the OSPR daily recovery capability standards for the Santa Barbara Channel Onshore oil spill response and cleanup will be provided by NRC Environmental Services. This discussion is included in Impact S-4.

- CG-15 The text has been revised as suggested.
- CG-16 MM S-5b has been revised to include a requirement for Venoco to update the existing South Ellwood Field Emergency Action Plan (EAP) for proposed modifications within the EOF.
- CG-17 The text has been revised as suggested.
- CG-18 The text has been revised as suggested, including reference to the revised MM S-5b. The discussion in Impact S-7 was also updated to address the existing level of backup storage. As noted in master response MR-2 above, the EOF is permitted and designed to process 13,000 BOPD and the facility is operated under a rigorous inspection schedule by multiple local and state agencies to ensure that oil is processed safely consistent with existing regulations and permitted flows. The EOF currently processes approximately 5,000 BOPD, or less than 39 percent of its permitted capacity. The increase in processing of an average of 150 BOPD, which is equivalent to an increase of 3 percent over existing flows or less than 2 percent of existing remaining permitted capacity of 8,000 BOPD, is not significant enough to affect existing systems, such as storage tanks. Total average daily production from PRC 421 would be 150 BOPD, or less than 4 percent of the available capacity of 4,000 barrels of the storage tanks, which were designed to address permitted flows of 13,000 BOPD. If required, PRC 421 production can also be shut down in less than 5 minutes (refer to page 4-84), with an estimated 1.7 barrels sent on into the EOF, which would not exceed onsite storage capacity or affect the overall safety of operations at the EOF. Finally, the new transformer, variable speed drive, and upgraded electrical cabinet containing the programmable logic controller would all be located within existing developed areas of the EOF, set back from the western edge of the facility and Bell Canyon Creek by 25 to 50 feet. While these facilities would be within the 100-foot buffer from Bell Canyon Creek, they would be located amidst existing industrial facilities and operations and would not substantially alter existing operations by increasing noise, adding light, or increasing potential for spills that could affect the Bell Canyon Creek ESHA; however, additional discussion has been added to Impact T-BIO-1 to address these improvements.
- CG-19 The EIR text has been revised to recognize the potential higher risk of fire due to the lighter weight of PRC 421 oil versus Platform Holly oil, PRC 421's location off of Hollister Avenue, and the potential impacts at adjacent land uses.
- CG-20 The text has been revised as suggested.

- CG-21 MM HAZ-1e has been revised to include a security and agreement with the City of Goleta for the decommissioning and removal of the portions of the Project located in the City's jurisdiction.
- CG-22 Please refer to Section 4.7, Terrestrial Biological Resources, which has been revised to further address these issues. The existing setting discussion is based upon a range of documents, including a previously prepared wetland delineation survey approved by Santa Barbara County and several Mitigated Negative Declarations (MNDs) prepared by both Santa Barbara County and the City of Goleta. Most applicably, in 2001, the County approved MND 01-ND-34 which assessed in detail the potential impacts to three wetlands located along the PRC 421 access road and required installation of offsite mitigation for impacts to such wetlands (Santa Barbara County, 01-ND-34). Two of the wetlands were filled and more than 100 tons of road base overlying 3 inches of float rock were laid down as part of prior road repairs, along with other major improvements in this area. Required wetland restoration of 7,000 square feet of riparian/wetland habitat along the PRC 421 access road and Bell Canyon Creek was completed in 2005 as mitigation for impacts related to the road repair. Follow-up monitoring by Santa Barbara County confirmed successful implementation of this offsite wetland restoration (Watershed Environmental 2003; City of Goleta 2005). The wetland mitigation plan and the review of this mitigation by the City of Goleta have been included in Appendix L. Because PRC 421 recommissioning improvements would be confined to existing developed areas that have been subject to both historic and relatively recent major disturbance and previous offsite habitat restoration, the existing level of information within the document appears adequate for impact assessment.

No additional wetland delineations are proposed to address project impacts as these wetlands have been previously delineated and altered. Project-related improvements adjacent to wetland areas would consist of a narrow trench constructed in previously disturbed roadbed and would be confined to the existing roadbed. No special status species surveys were required as all improvements would be confined to existing developed areas and biological monitors would be used to avoid or minimize offsite disturbances. Substantial areas are available for habitat mitigation or restoration on or around the City's Sperling Preserve and Ellwood-Devereux Open Space. Many coastal canyons and tributaries to Devereux Creek support similar often degraded wetland habitats similar to those potentially impacted by the proposed Project.

- CG-23 The text in the impact analysis for Section 4.7, Terrestrial Biological Resources, has been revised to include discussion of the 25-foot section of 6-inch pipeline that would be repaired and extensions of this pipeline at both ends. As discussed in CG-7, construction equipment would be used on the beach to repair the 25-foot section of 6-inch pipeline, as well as to recommission PRC 421-2 and decommission PRC 421-1. This activity is analyzed under Impact MBIO-1 and MBIO-3.

- CG-24 CSLC considered an accelerated pumping schedule under the Condensed Production Schedule Alternative; however, accelerated pumping was found to be infeasible due to reservoir characteristics, issues associated with increasing or variable water cut, and resultant required changes in project operation (e.g., disposal of increased amounts of produced water). Further, given reservoir characteristics, accelerated pumping may not provide efficient access to all field resources, leaving unrecovered oil in place, which may be inconsistent with PRC 421 lease terms. Leaving unrecovered oil in place may also incrementally increase both the chance and the volume of oil that could potentially be released due to repressurization.
- CG-25 Figure 5-1 has been revised to more clearly depict where the 2-inch flowlines are located. There are a total of three 2-inch flowlines: one 2-inch flowline in the existing/new 6-inch pipeline that would run from PRC 421-2 to the EOF, and two 2-inch flowlines that would be located within a separate 6-inch pipeline that would run between PRC 421-1 and PRC 421-2. These additional 2-inch flowlines would be required to transport oil and produced water and gas between PRC 421-1 and PRC 421-2.
- CG-26 References to decommissioning Pier 421-1 under the No Project Alternative have been removed and Impact VR-4 has been updated accordingly.
- CG-27 A discussion of operational noise associated with new processing equipment on Pier 421-2 under the No Project Alternative was added, as suggested.
- CG-28 In order to test the pressure in the Vaqueros Reservoir, the well at PRC 421-2 would need to be reactivated. As discussed under project history, reactivation even for the purposes of pressure testing would require completion of a number of major improvements, including potential road improvements and installation of oil production and transport facilities, as well as processing of produced oil at the EOF, with potential for improvements at that facility. Obtaining meaningful pressure testing results would likely require several years of data collection, which would extend oil production beyond a shorter testing period, which in turn would require installation of more robust longer-term improvements with associated impacts. Because this well is currently shut-in and its reactivation for pressure testing alone would entail impacts similar to, although of shorter duration than, the proposed Project, the CSLC would not reactivate the well under the No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative. (See also master response MR-3.)
- CG-29 Quitclaim of the lease would eventually require adherence to the terms of the lease, which generally require the Lessee to surrender the premises with all permanent improvements thereon or, at the option of the State and as specified by the State, remove such structures, fixtures, and other infrastructure and equipment that have been put on the leased lands by the Lessee, and otherwise restore the premises. All removal and restoration costs would be borne by the Lessee, subject to the Lessee's right to remove his

equipment as provided in the statutes. The No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative acknowledges eventual decommissioning and describes likely cost apportionment to agencies or other outcomes (refer to Section 5.3.2). Thus, under the No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative, Venoco would eventually be required to file a decommissioning plan for all PRC 421 facilities. As disclosed in the EIR, this would be subject to future decommissioning permits. Consistent with requirements for alternatives analysis in State CEQA Guidelines section 15126.6 and the requirement for future permitting for decommissioning, this analysis is programmatic in nature. The impacts of future decommissioning activities are discussed programmatically throughout the EIR, particularly for PRC 421-1, as well as within the Alternatives.

- CG-30 The description of the Alternative remains accurate and is based on transferring and processing oil/water/gas emulsion at LFC. This alternative was considered because processing at the EOF would require minor improvements at the EOF, which may or may not be found by the City to be consistent with adopted ordinance provisions for legal nonconforming uses. As with all production alternatives, some use of the EOF would be required, including new control and security monitoring equipment within the EOF control room. The goal of this Alternative is to produce oil at PRC 421 while avoiding use of the EOF for processing, not to facilitate phasing out the EOF. See also response CG-31 and master response MR-2.
- CG-31 The Line 96 Pipeline Modification Project EIR fully examined an offshore oil pipeline alternative route from the EOF to LFC and it was determined to be more environmentally damaging compared to the onshore route. Therefore, evaluating an offshore route is not consistent with the intent of the alternative analysis of this EIR, which is to reduce potential environmental impacts associated with the Project.
- CG-32 Please see master response MR-4 regarding the use of trucking wastewater.
- CG-33 Text has been revised as suggested. Also see master response MR-4 for a discussion regarding limitations to commingling PRC 421 production with ExxonMobil's production at LFC. Further, analysis of alternatives need not include every possible option, but is required to provide a sufficient range of alternatives and information to allow informed decision-making. The EIR discloses challenges and impacts associated with processing of PRC 421 production at LFC, and summarizes the facility's limitations based on consultations with the operator. The EIR is not required to explore all possible details of each alternative, but rather set forth brief descriptions of the potential alternative and its associated impacts to allow comparison with the proposed Project. The analysis within this alternative meets this standard.
- CG-34 Please see master response MR-2. The EIR evaluates the Processing PRC 421 Oil at LFC Alternative and its associated impacts, and recognizes that the

City of Goleta will need to decide if required changes at the EOF are consistent with adopted City ordinances.

- CG-35 The EIR provides the best available information on repressurization. The alternatives analysis is crafted to meet the basic Project objective of resuming oil production at PRC 421 while providing a reasonable range of alternatives for consideration. The project objective is not to address repressurization, an ongoing natural phenomenon, but partially alleviating the adverse potentially consequences of repressurization is a potential benefit of the proposed Project. The EIR properly does not engage in speculation as to why no identified leaks, aside from the gas leaks at PRC 421, have occurred to date, but provides information regarding this issue. Although this information is related to the Project, it is separate from the Applicant's request to recommission PRC-421. See also master response MR-3.
- CG-36 The EIR recognizes that the City of Goleta will need to decide if required changes at the EOF are consistent with adopted City ordinances. Should the City elect to find that use of the EOF does not comport with City policies and ordinances, the EIR has provided a range of alternatives that do not require processing at the EOF, including surf zone processing at PRC 421 and processing at LFC. For a discussion regarding use of the EOF, see master response MR-2. The text regarding policy consistency has been revised as suggested.
- CG-37 The commenter provides no evidence or detailed analysis to support the conclusion that repressurization is not occurring. In contrast, based on available data and best available information regarding known repressurization and abandonment techniques employed on older offshore wells, the CSLC staff has determined that repressurization of the Vaqueros Reservoir has occurred in the past and has the potential to result in a release of oil from a natural seep or failure of a previously capped well that was not abandoned using today's standards. Producing oil from PRC 421-2 would reduce pressure in the reservoir for the short- to mid-term, reducing potential for a leak from a previously capped well or a natural seep. Additionally, over the long term, draining oil from this reservoir would leave less oil in the formation subject to potential leaking. The Project would also enable the collection of pressure monitoring data by Venoco over the productive life of PRC 421. Therefore, the CSLC maintains that the No Production/Quitclaim Lease Alternative is not the environmentally superior alternative and has the reasonably foreseeable potential to result in future releases of oil and gas into the marine environment. For further discussion on repressurization, see master response MR-3.

COMMENT SET 2: COUNTY OF SANTA BARBARA



**County of Santa Barbara
Planning and Development**

Glenn S. Russell, Ph.D., Director

Dianne Black, Assistant Director

September 24, 2014

Mr. Eric Gillies
Assistant Chief
Division of Environmental Planning and Management
California State Lands Commission
100 Howe Avenue Suite 100-South
Sacramento, CA 95825

RE: Comments on the Revised PRC 421 Recommissioning Draft EIR, SCH# 2005061013,
CSLC EIR #732

Dear Mr. Gillies:

Thank you for the opportunity to comment on the Revised Draft EIR. I was pleased to see that the comments I provided in my December 19, 2013 comment letter were included, particularly the more robust analysis of the Las Flores Canyon (LFC) Alternative. The following comments focus primarily on the LFC Alternative and suggest how the current analysis can be further enhanced.

The LFC Alternative is extremely important because it is the alternative that is consistent with the County's South Coast Oil and Gas Consolidation Policies (SCCP). When the County Board of Supervisors adopted the SCCP in 1987, its intention was to phase out older oil and gas processing, storage and transportation facilities with the primary goal of minimizing industrialization along the South Coast by optimizing consolidation of oil and gas facilities and sites. At that time the Gaviota and Las Flores Canyon sites were designated as the two consolidation sites; today only Las Flores Canyon remains so designated.

As part of the Consolidation process, seven oil and gas facility sites were rezoned to either agricultural or recreational zoning designations, making the existing operations legal non-conforming uses. The intent of the rezones was to disallow additional industrial expansion, while still allowing the current operations to continue within their permitted rights. The Venoco Ellwood Onshore Processing Facility (EOF) and site were affected by these rezones, making the EOF a legal non-conforming use and the site rezoned to recreation. Of the seven sites which were rezoned, only Venoco remains in operation.

The preparers of the EIR have expanded the analysis of the LFC Alternative, but additional critical details are still missing which are necessary to make an informed decision on the project.

SBC-1

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The following comments provide specific recommendations for additional detail and accuracy within the LFC Alternatives analysis.

- | | | |
|--|---|-------|
| 1. | The analysis states that if a water reinjection well for PRC-421 is infeasible at LFC, then a water pipeline to carry the produced water back to PRC-421 for injection at PRC 421-1 would be necessary. This would keep the PRC-421-1 in indefinite operations, with all of the associated potential impacts. Other alternatives to dispose the produced water need to be explored. The worst case scenario would be to truck the produced water from LFC to a disposal site. | SBC-2 |
| 2. | The LFC Alternative does not provide details for the transportation of the crude oil to The Plains pipeline. The oil should be able to be readily injected into the ExxonMobil Oil Discharge Line to avoid building a new pipeline. | SBC-3 |
| 3. | Processing capacity at the POPCO gas plant should be more than adequate to handle the PRC-421 production. POPCO processing capacity is approximately 90 MMSCFD, and the current throughput rate is approximately 33 MMSCFD. The PRC-421 gas production would not be a significant contribution to the POPCO plant. | SBC-4 |
| 4. | The identified three phase flow in the new pipeline would reduce the reliability of a leak detection system. Leak detection reliability and response are critical factors in determining pipeline integrity and risk mitigation. The proposed three phase flow needs to be evaluated in greater detail, including a thorough analysis of specific leak detection systems that would affectively monitor this type of flow. | SBC-5 |
| 5. | The Alternative does not discuss how the produced oil would be handled at LFC. There is no discussion of a storage tank at LFC to store and send oil to the Plains pipeline. | SBC-6 |
| I offer an additional comment on the Quitclaim Alternative. The Alternative does not adequately address the re-pressurization of the Ellwood field if well 421-2 well is shut in, which is the only active well that can be used to depressurize the system. The potential affect of elevating the pressure in the field knowing that there are improperly abandoned wells offshore needs to be clearly analyzed. Failure of any of those offshore wells could result in oil releases into the marine environment. | | SBC-7 |
| Finally, I ask that you include in the cumulative analysis Venoco’s recent request to the CSLC to expand the boundaries of State lease PRC-3242 and drill six new wells. The project would add an estimated 3,800 barrels of oil for processing at the Venoco EOF, resulting in potentially significant project specific and cumulative impacts, and along with the PRC-421 proposal, encourage the continued operations of the legal non-conforming EOF processing facility. | | SBC-8 |

Responses to Comments

*Comments on PRC 421 EIR
September 24, 2014
Page 3*

If you have any questions or comments regarding this letter, or would like to discuss my comments further, please call Kevin Drude at (805) 568-2519.

Sincerely,

A handwritten signature in blue ink that reads "James M. Black". The signature is written in a cursive style with a large initial "J".

for Glenn S. Russell, Ph.D., Director

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RESPONSE TO COMMENT SET 2: COUNTY OF SANTA BARBARA

- SBC-1 The history and relevance of the South Coast Oil and Gas Consolidation Policies adopted in 1987 by the County is acknowledged.
- SBC-2 In accordance with State CEQA Guidelines section 15126.6, subdivision (b), “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.” Due to the additional environmental impacts associated with the trucking of wastewater for disposal, this Alternative would not substantially lessen significant environmental impacts of the proposed Project. While alternatives do not need to be discussed at a similar level of detail to the proposed Project or provide exhaustive analysis of every option, the Processing PRC 421 Oil at LFC Alternative currently provides a relatively detailed analysis of produced wastewater disposal issues; however, in the interest of full disclosure, issues associated with trucking are briefly discussed in master response MR-4.
- SBC-3 Although specified in the Recirculated Draft EIR on page 5-41 (lines 1-3), the text in Section 5.3.4 in the Final EIR has been revised to provide more details on delivery. Under the Processing PRC 421 Oil at LFC Alternative, PRC 421 oil from the LFC facility would be routed alongside existing ExxonMobil pipelines to the Plains All American Pipeline, LP (PAAPLP) Coastal Pipeline pump station, and then directly injected into the PAAPLP Coastal Pipeline.
- SBC-4 As stated in Section 5.3.4, gas separated from the oil/gas/water emulsion would be transferred to ExxonMobil’s Pacific Offshore Pipeline Company (POPCO) facility for processing, thereby slightly increasing throughput at this facility. These existing facilities would continue to be operated consistent with industry standards and local, State, and Federal regulations.
- SBC-5 There are multiple leak detection system vendors of three-phase modeling programs with transient response features available (e.g., “OLGA”). All leak detection system vendors the Applicant has communicated with, including OLGA (Schlumberger), ATMOS, and EFA (Ed Farmer Associates), stated that the compositional changes expected from the well source, as well as inherent phase changes that would occur along the route, make leak detection with a three-phase flow a particularly challenging application. The use of real-time transient models has the potential to offer better accuracy, but at this time no vendor has agreed to furnish a specific quantitative estimate. The EIR states in Section 2.5.2, Maintenance and Safety of Line 96, that the existing Line 96 leak detection accuracy is estimated to fall in the +/- 5 percent range over a 4-hour period, and +/- 1 percent range over a 24-hour period. For the PRC 421 emulsion line, the pipeline pressure/composition is much more variable. As such, the maximum accuracy of the leak detection system is expected to be +/- 15 percent over a 4-hour period. Flow upsets (including slug flows) could

further reduce accuracy to +/- 40 percent until flow equilibrium is reestablished.

- SBC-6 Section 5.3.4, Processing PRC 421 Oil at LFC Alternative, describes the storage and transfer of produced oil from the LFC facility to the PAAPLP. 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 Lease Automatic Custody Transfer (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. Please refer to Figure 5-4, which depicts a 5,000 barrel capacity oil tank, and Section 5.3.4 of the Final EIR, which describes oil processing, storage and transport.
- SBC-7 The No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative discusses the implications and impacts of repressurization, as does the body of the EIR. Please also refer to MR-3 for discussion of repressurization under this Alternative.
- SBC-8 The South Ellwood Field Project proposal has been incorporated into the list of cumulative projects, and relevant cumulative discussion. Please see Section 3.0, Cumulative Impacts Methodology, of the Final EIR.

COMMENT SET 3: SANTA BARBARA COUNTY AIR POLLUTION CONTROL DISTRICT (APCD)

From: Joseph E. Petrini [PetriniJ@sbcapcd.org]
Sent: Monday, September 08, 2014 2:06 PM
To: Comments, CEQA@SLC
Cc: Molly M. Pearson
Subject: Revised PRC 421 Recommissioning Recirculated Draft EIR Comments

September 8, 2014

Eric Gillies, Project Manager
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

Dear Mr. Gillies,

The Santa Barbara County Air Pollution Control District (APCD) appreciates the opportunity to provide comments on the Recirculated Draft Environmental Impact Report (EIR) for the PRC 421 Recommissioning Project. Venoco proposes to reactivate oil Well 421-2 on Pier 421-2 and decommission Well 421-1 on Pier 421-1. Also proposed at Pier 421-2 are a new downhole electric submersible pump, a pig receiver, and new decking and handrails. Decommissioning of Well 421-1 will include complete removal of the existing pier structure and shutting-in the well, soil remediation, and restoration of the beach and seawall. A new 3-inch flowline will be installed in an existing 6-inch pipeline and would be reconfigured to Well 421-2 to the Ellwood Onshore Facility (EOF) for processing produced oil. The total throughput at the EOF would remain below permitted production limits. A new electric motor control panel, transformer, oil meter, and power cable connections and other improvements will be installed at the EOF. Electricity will be provided to the pier through two cables buried within a 30-inch deep and 2,500 foot-long trench.

A recirculated draft EIR has been prepared for the PRC 421 Recommissioning Project. The recirculated draft EIR replaces the final EIR for the project that was published during January 2014. The major revision to the January 2014 final EIR is the analysis of an alternative to process oil from PRC 421 at Las Flores Canyon (LFC). The alternative project would require the construction of new pipeline between the city of Goleta and LFC.

The proposed project is subject to APCD permit requirements and prohibitory rules, and an APCD permit will be required for modifications to the EOF and recommissioning of the well. Therefore, APCD is a responsible agency under the California Environmental Quality Act (CEQA), and will rely on the EIR when evaluating APCD permits for proposed equipment. The EIR should include the air pollutant emissions and impact analysis for all proposed equipment to avoid additional CEQA documentation requirements related to APCD permit issuance.

APCD staff offer the following comments on the Draft Recirculated EIR:

1. **Health Risk Assessment:** This project is considered a part of the Ellwood Onshore Facility stationary source. APCD will require that a health risk assessment (HRA) be conducted for the modified stationary source prior to issuance of an APCD permit for the new production well and associated equipment. If an HRA is prepared prior to finalizing the EIR, the HRA results should be incorporated into the final EIR. The requirement for an HRA was previously identified in APCD's April 22, 2013 letter in response to the NOP and in the December 19, 2013 APCD letter containing comments on the draft EIR.

2. **Air Quality and Greenhouse Gases Section, Table 4.4-6, Page 4-135:** Table 4.4-6 erroneously presents NOx as a pollutant associated with fugitive emissions from component leak paths. NOx is a product of combustion and would not be emitted from any sources of fugitive emissions. It is unclear whether the NOx emissions identified as “fugitive” are misplaced in the table or whether this is a typographical error. Please correct Table 4.4-6 accordingly.

If you or the project applicant have any questions regarding these comments, please feel free to contact me at (805) 961-8894 or via email at jep@sbcapcd.org.

Thank you.

Joe Petrini
Emission Inventory/Planning Specialist III
260 North San Antonio Road, Suite A
Santa Barbara, CA 93110
Phone: (805) 961-8894
Fax: (805) 961 -8801
jep@sbcapcd.org
www.sbcapcd.org

RESPONSE TO COMMENT SET 3: SANTA BARBARA COUNTY APCD

- APCD-1 Section 1.3.1 of the Final EIR, Responsible and Coordinating Agencies/Permitting, has been revised to include the Health Risk Assessment (HRA).
- APCD-2 Table 4.4-6 and related text has been corrected.

COMMENT SET 4: CALIFORNIA DEPARTMENT OF CONSERVATION, DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES (DOGGR)

NATURAL RESOURCES AGENCY

EDMUND G. BROWN JR., GOVERNOR



DEPARTMENT OF CONSERVATION

Managing California's Working Lands

DIVISION OF OIL, GAS, & GEOTHERMAL RESOURCES

195 S. BROADWAY • SUITE 101 • ORCUTT, CALIFORNIA 93455-4655

PHONE 805 / 937-7246 • FAX 805 / 937-0673 • WEB SITE conservation.ca.gov

August 26, 2014

Mr. Eric Gillies, Project Planner
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825

Dear Mr. Gillies:

SCH#2005061013 REVISED PRC 421 RECOMMISSIONING PROJECT

The Division of Oil, Gas, and Geothermal Resources (Division) has previously reviewed and submitted a letter dated April 22, 2013 with comments on the Notice of Preparation document. As previously indicated the Division is mandated by Section 3106 of the Public Resources Code (PRC) to supervise the drilling, operation, maintenance, and abandonment of oil and gas wells. This is for the purposes of preventing: 1) damage to life, health, property, and natural resources; 2) damage to underground and surface waters suitable for irrigation or domestic use; 3) loss of oil, gas, or reservoir energy; and 4) damage to oil and gas deposits by infiltration of water and other causes.

Under Section 1.3.1 Responsible and Coordinating Agencies/Permitting in the above document, the Division would also be responsible for reviewing and approving proposed plugging and abandonment operations considered for the idle injection well, in addition to the Notice of Intention to Rework for the reactivation of the idle producer.

DOGGR-1

Along with the Division's mandate under Section 3106 of the PRC to supervise the drilling, operation, maintenance, and abandonment of oil and gas wells, the Division oversees the operation, maintenance, and removal or abandonment of tanks and facilities attendant to oil and gas production, including pipelines. The Division has regulations under the California Code of Regulations (CCR) §1774 - §1774.2 that address pipeline construction, maintenance, inspection, testing and required pipeline management plans. The district office must also be notified to witness any pressure testing of the 3" flowline. Surface and subsurface safety valves must also be tested monthly and documentation filed with the Division within 5 days. A Division engineer will also witness quarterly testing of safety devices as required in CCR §1747.

If you have any questions, please contact our district office at 805 937-7246

Sincerely,

Patricia A. Abel
District Deputy

cc: Chrono/CEQA Unit/CEQA file

The Department of Conservation's mission is to balance today's needs with tomorrow's challenges and foster intelligent, sustainable, and efficient use of California's energy, land, and mineral resources.

RESPONSE TO COMMENT SET 4: DOGGR

DOGGR-1 Section 1.3.1 of the Final EIR, Responsible and Coordinating Agencies/Permitting, has been revised to list additional requirements. Text relating to DOGGR regulations and requirements on pressure testing and testing of safety valves and devices has also been incorporated in Section 2.0, Project Description, of the Final EIR.

COMMENT SET 5: UNITED STATES ARMY CORPS OF ENGINEERS (USACE)

From: Huerta, Crystal L. SPL [crystal.huerta@usace.army.mil]
Sent: Wednesday, July 30, 2014 11:15 AM
To: Comments, CEQA@SLC
Subject: Revised PRC 421 Recommissioning Project NOA Draft EIR (Corps File No. 2014-00453)
(UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Dear Eric Gillies:

This email is in response to the public review recirculated Draft EIR that was received by our office on July 25, 2014. The activities stated in this public review indicate that impacts proposed may impact waters of the U.S.

An application for a DA permit is available on our website:
<http://www.spl.usace.army.mil/Missions/Regulatory/PermitProcess.aspx>. If you have any questions, please contact me at 805-585-2143 or via e-mail at crystal.huerta@usace.army.mil. Please refer to this letter and SPL-2014-00453 in your reply.

USACE
-1

Thank you.

Crystal L. M. Huerta
Senior Project Manager, North Coast Branch Regulatory Division U.S. Army Corps of Engineers,
Los Angeles District
2151 Alessandro Drive, Suite 110, Ventura, CA 93001
Tel: (805) 585-2143, Fax: (805) 585-2154 Loyalty*Duty*Respect*Selfless
Service*Honor*Integrity*Personal Courage

email: crystal.huerta@usace.army.mil
website: <http://www.spl.usace.army.mil/Missions/Regulatory.aspx>

Assist us in better serving you!
You are invited to complete our customer survey, located at the following link:
http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.
Note: If the link is not active, copy and paste it into your internet browser.

Classification: UNCLASSIFIED
Caveats: NONE

RESPONSE TO COMMENT SET 5: USACE

USACE-1 Section 1.3.1 of the Final EIR, Responsible and Coordinating Agencies/Permitting, has been revised to include the USACE and the Department of the Army Permit as a responsible and coordinating agency and required permit, respectively.

COMMENT SET 6: CENTER FOR BIOLOGICAL DIVERSITY (CBD)

CENTER for BIOLOGICAL DIVERSITY

*Because life is good.**Via Electronic and First Class Mail*

September 24, 2014

Eric Gilles, Project Manager
 California State Lands Commission
 100 Howe Ave., Suite 100-South
 Sacramento, CA 95825
 Email: CEQAcomments@slc.ca.gov
 Fax: (916) 574-1885

Re: Comments on the Recirculated Draft Environmental Information Report for Revised PRC 421 Recommissioning Project, CSLC EIR Number: 732

The Center for Biological Diversity (the “Center”) submits the following comments on the Recirculated Draft Environmental Impact Report (“RDEIR”) prepared for the California State Lands Commission (“CSLC”) for the Recommissioning of Oil and Gas Lease PRC 421 (the “Project”).¹ The Center is a non-profit environmental organization dedicated to the protection of imperiled species, their habitats, and the environment through science, policy, and environmental law. Given the significant environmental impacts from the Project, and the fact that the facility is a non-conforming use, the CSLC should reject the Project in its entirety, irrespective of any contractual obligations the CSLC might have outside of the environmental review process. The CSLC should instead adopt the No Production Alternative (RDEIR 5.3.2) in order to adequately protect public health and the environment.

If, however, the CSLC does not reject the Project, it cannot approve the Project unless and until it revises the RDEIR to meet all applicable legal standards. *See* Cal. Pub. Res. Code § 21061. While the RDEIR has some improvements over the 2013 Draft EIR, it is still deficient in several respects. First, the RDEIR fails to expressly prohibit fracking and other unconventional well stimulation techniques; consequently, the CSLC cannot defer the analysis of the environmental impacts of such practices to some future date. Second, the RDEIR fails to address several environmentally relevant issues including the project’s effect on water quality, air quality, and increased risk of earthquakes. Finally, the RDEIR fails to include an acceptable mitigation plan in the event of an oil spill and for greenhouse gas emissions. Accordingly, the RDEIR fails to comply with the California Environmental Quality Act (“CEQA”). *See id.*

CBD-1

¹ On December 19, 2013, the Center submitted comments on the original Draft Environmental Impact Report for Revised PRC 421 Recommissioning Project. The Center hereby incorporates those comments by reference.

1. The CSLC Must Expressly Prohibit Fracking and Other Enhanced Recovery Techniques as a Permit Condition or Mitigation Measure

a. Fracking and Other Unconventional Well Stimulation Techniques Can Cause Significant Environmental Harm

Before the CSLC can approve the Project, it must expressly prohibit fracking, acidization, acid fracturing, and gravel packing techniques as a permit condition or mitigation measure. As the CSLC is aware, the legislature enacted CEQA in order to, *inter alia*, “[d]evelop and maintain a high-quality environment now and in the future, and take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state.” Cal. Pub. Res. Code § 21001(a). To accomplish this objective, CEQA contains both procedural and substantive requirements with which all agencies must comply. In particular, CEQA requires the CSLC to not only publically identify and analyze the environmental impacts of a proposed project, but also “to mitigate *or avoid* the significant effects on the environment of projects that it...approves whenever it is feasible to do so.” Cal. Pub. Res. Code § 21002.1 (emphasis added). As Venoco – the Project proponent – has indicated that it can accomplish the Project without engaging in fracking, acidization, or acid fracturing techniques, *see* RDEIR at ES-8; 2-16, it is certainly “feasible” for CSLC to prohibit Venoco from conducting such activities. *See* Cal. Pub. Res. Code § 21061.1 (defining “feasible” as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors”). And given the significant environmental hazards inherent in the practice fracking and other unconventional well stimulation techniques, it is incumbent upon the CSLC to expressly prohibit such practices.

CBD-2

Water contamination is a significant risk of fracking because of the hundreds of toxic chemicals used in fracking fluid. While the oil and gas industry has (until very recently) successfully evaded any requirements to disclose all of the chemicals used in fracking operations, what is known is cause for great alarm. For example, a 2013 Congressional Report that sampled data from incomplete industry self-reports found that “[t]he oil and gas service companies used fracking products containing 29 chemicals that are (1) known or possible human carcinogens, (2) regulated under the Safe Water Drinking Act, or (3) listed as hazardous air pollutants under the Clean Air Act.”² A peer-reviewed study that examined fracking fluid products determined that more than 75 percent of the chemicals could affect the skin, eyes, and other sensory organs, and the respiratory and gastrointestinal systems; approximately 40 to 50 percent could affect the brain/nervous system, immune system, cardiovascular system, and the kidneys; 37 percent could affect the endocrine system; and 25 percent could cause cancer and

² United States House of Representatives, Committee on Energy and Commerce Minority Staff, et al., Human health risk assessment of air emissions from development of unconventional natural gas resources, *Sci. Total Environ.* (2012), at 8; *see also* Letter from Center for Biological Diversity to CSLC, December 12, 2013 at 3-11 (detailing detrimental impacts from fracking and other enhanced recovery techniques).

mutations.³ Another recent study found increased arsenic and heavy metals in groundwater near fracking sites in Texas.⁴

Moreover, recent information indicates that fracking also releases toxic air pollutants.⁵ For example, one year after the South Coast Air Quality Management District began requiring the oil and gas industry to report the use of chemicals in certain well operations in the South Coast Air Basin, records show that oil companies have used 44 different air toxic chemicals more than 5,000 times in Los Angeles and Orange counties in the past 12 months.⁶ These data also indicate that the oil industry has used more than 45 million pounds – or 22,500 tons – of air toxics in 477 fracking, acidizing and gravel packing operations in Los Angeles and Orange counties alone since mandatory reporting began in June of 2013.⁷ The known air toxics most frequently used by oil companies in the Los Angeles air basin include crystalline silica, hydrofluoric acid, and formaldehyde.⁸ Air toxics are those chemicals considered to be among the most dangerous air pollutants because they have been proven to cause significant health harms, illness, and death. Formaldehyde, for example, harms the eyes and respiratory system and is classified as a cancer-causing substance by the International Agency for Research on Cancer and the California Air Resources Board.⁹ Similarly, crystalline silica, classified a hazardous substance under the Occupational Safety and Health Act and the Comprehensive Environmental Response, Cleanup, and Liability Act, causes eye and skin burns, is harmful if swallowed, causes respiratory tract irritation, and is a cancer hazard.¹⁰

CBD-2
cont.

In addition to posing a significant health risk to humans, fracking can kill or harm a wide variety of marine life, including some of California’s most iconic wildlife species. Scientific research has indicated that 40 percent of the chemicals added to fracking fluids have been found to have ecological effects, indicating that they can harm aquatic animals and other wildlife.¹¹ Such problems can be exacerbated when fracking chemicals break down, or are combined with other chemicals and environmental stressors. For example, some of the chemicals used in fracking operations can break down into nonylphenol, a very toxic substance with a wide range of harmful effects that include the development of intersex fish and altered sex ratios at the

³ Colborn, Theo, et al. Natural Gas Operations for a Public Health Perspective, 17 Human and Ecological Risk Assessment 1039 (2011).

⁴ Fontenot, Brian E, et al. 2013. An evaluation of water quality in private drinking water wells near natural gas extraction sites in the Barnett Shale Formation. *Environmental Science & Technology*; U.S. GAO (2012) *Information on Shale Resources, Development, and Environmental and Public Health Risks*.

⁵ McKenzie, L. et al. 2014. Birth outcomes and maternal residential proximity to natural gas development in rural Colorado. *Environmental Health Perspectives*, doi:10.1289/ehp.1306722.

⁶ An Analysis from the Center for Biological Diversity, Physicians for Social Responsibility – Los Angeles, Communities for a Better Environment, and the Center on Race, Poverty and the Environment et al. *Air Toxics One-Year Report: Oil Companies Used Millions of Pounds of Air-Polluting Chemicals in Los Angeles Basin Neighborhoods*, June 2014.

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

¹⁰ 78 Fed. Reg. 56,274 (Sept. 12, 2013).

¹¹ California Council on Science and Technology. 2014. Advanced Well Stimulation Technologies in California: An Independent Review of Scientific and Technical Information. August 28, 2014, available at <http://ccst.us/publications/2014/2014wst.pdf> (“CCST”).

population level.¹² Nonylphenol can also inhibit the development, growth, and survival of marine invertebrates, and has been shown to bioaccumulate in sea otters – a species listed as threatened under the federal Endangered Species Act.¹³ But overall, far too little is known about the detrimental impacts of many fracking chemicals, which has led the California Council on Science and Technology to recognize the necessity of “[a]n evaluation of eco-toxicological effects, including the potential impacts of these chemicals on aquatic organisms.”¹⁴

These are but a sampling of the myriad of detrimental environmental impacts from fracking.¹⁵ Thus, “in order to avoid the significant effects on the environment of [the] project” as required by CEQA, Cal. Pub. Res. Code § 21002.1, the CSLC must expressly prohibit fracking and other unconventional well stimulation techniques. The CSLC’s reliance on the promises of Venoco in a letter that it will not engage in such practices is insufficient. *See Neighbors for Smart Rail v. Exposition Metro Line Construction*, 57 Cal. 4th 439, 465 (2013) (noting that CEQA “allows an agency to approve or carry out a project with potential adverse impacts if binding mitigation measures have been ‘required in, or incorporated into’ the project ...”) (emphasis added, citing Cal. Pub. Res. Code § 21081(a)).¹⁶ Venoco’s promises that it will not engage in certain practices are not part of the mitigation measures encompassed within the RDEIR and therefore cannot be considered binding. Therefore, the CSLC cannot approve the project unless and until it expressly prohibits fracking and other unconventional well stimulation techniques as a permit condition or mitigation measure.

CBD-2
cont.

b. The CSLC Cannot Segment its Analysis in Absence of an Express Prohibition

Absent an express permit condition or mitigation measures prohibiting fracking and other unconventional well stimulation techniques, the CSLC must analyze the environmental impacts of each of these practices prior to approving the project. Under CEQA, the CSLC must analyze the environmental impacts of a future action if “(1) it is a reasonably foreseeable consequence of the initial project; and (2) the future expansion or action will be significant in that it will likely change the scope or nature of the initial project or its environmental effects.” *Laurel Heights Improvement Ass’n of San Francisco v. Regents of University of Cal.*, 47 Cal. 3d 376, 396 (1998). Such a requirement helps ensure that “environmental considerations do not become submerged by chopping a large project into many little ones.” *Id.* (citations omitted). The potential for fracking and other unconventional well stimulation techniques to occur under the Project clearly meet this test – because the CSLC has not expressly prohibited such practices, they are a foreseeable consequence of the Project, and their impacts on the environment would be significant.

¹² Diehl, J., et al. 2012. The distribution of 4-nonylphenol in marine organisms of North American Pacific Coast estuaries. *Chemosphere* 87:490-497.

¹³ *Id.*

¹⁴ CCST at 193.

¹⁵ See Letter from Center for Biological Diversity to CSLC, December 12, 2013 at 3-11 (detailing detrimental impacts from fracking and other enhanced recovery techniques).

¹⁶ The statement in the RDEIR that Venoco would be required to get additional approvals in the future in order to engage in fracking and other enhanced recovery techniques suggests that the CSLC is not expressly prohibiting such practices as a mitigation measure and/or permit condition. See RDEIR at ES-8; 2-16.

Due to recent technological advancements, such as new horizontal drilling technology, the use of fracking in oil and gas extraction is a growing practice.¹⁷ In fact, according to the Bureau of Land Management, 90 percent of oil and gas wells on federal and Indian lands are fracked today,¹⁸ and a study of data self-reported by industry reveals that nearly 2,000 wells have been fracked in California since January 2, 2011.¹⁹ Other reports suggest that offshore fracking has occurred more than 200 times in California.²⁰ Moreover, the proponent of this particular project has fracked other offshore oil wells in the past, including at least one well in 2010, and at least 20 wells in 2011 and 2012.²¹ As these data were based on voluntary self-reporting they are almost surely an underestimate. And, as articulated above, fracking will change the nature and scope of the environmental impacts of the proposed project. The evidence demonstrating that fracking and other unconventional well stimulation techniques are harmful to water quality, air quality, public health, and wildlife certainly render the impacts from such practices “significant.” As such, the CSLC must analyze all of the direct, indirect, and cumulative impacts of fracking and other unconventional well stimulation techniques. But instead of doing so, the RDEIR simply states that it will conduct such analysis in the future if the Venoco seeks to undertake such practices. RDEIR at ES-8. But “[b]y deferring environmental assessment to a future date, the [RDEIR] run[s] counter to that policy of CEQA which requires environmental review at the earliest feasible stage in the planning process.” *Sundstrom v. County of Mendocino*, 202 Cal. App. 3d 296, 307 (1988).

CBD-2
cont.

Moreover, even if Venoco’s promises were somehow sufficient to absolve the CSLC from analyzing the impacts of fracking (which they are not), these promises only apply to certain practices. Specifically, Venoco’s promises apply to “well stimulation techniques...within the meaning of California Public Resources Code Section 3157.” RDEIR at ES-8; 2-16 (referencing the company’s letter). This statute defines well stimulation as “any treatment of a well designed to enhance oil and gas production or recovery by increasing the permeability of the formation” and *specifically exempts* other recovery techniques, including “steam flooding, water flooding, or cyclic steaming.” Cal. Pub. Res. Code § 3157(a), (b). However, as indicated in the Center’s December 2013 comments on the DEIR, steam injection is a highly hazardous recovery technique that can cause “surface expressions” which has led to the death of at least one oil worker, and can also cause spills of hazardous chemicals.²² Thus, the CSLC should expressly prohibit this enhanced recovery technique. If it does not do so, the CSLC’s failure to address and mitigate the environmental impacts of steam injection in its current analysis violates its duties under CEQA. *See* CEQA Guidelines § 15126.2 (“[a]n EIR shall identify and focus on the significant environmental effects of the proposed action.”).

¹⁷ U.S. Dept. of the Interior, Bureau of Land Mgmt, Proposed Rule: Oil and Gas; Well Stimulation, Including Hydraulic Fracturing, on Federal and Indian Lands, 77 Fed. Reg. 27,691, 27,693 (May 11, 2012).

¹⁸ *Id.*

¹⁹ FracFocus, Home Search Page, www.fracfocus.org (last visited Sept 23, 2014).

²⁰ California Finds More Instances of Offshore Fracking, Oct. 19, 2013, <http://www.usatoday.com/story/money/business/2013/10/19/calif-finds-more-instances-of-offshore-fracking/3045721>.

²¹ FracFocus, Home Search Page, www.fracfocus.org (last visited Sept 23, 2014).

²² California Department of Conservation Division of Oil, Gas and Geothermal Resources, Executive Summary of Report of Occurrences: The Chevron Fatality Accident June 21, 2011 and Area Surface Expression Activity, Pre and Post Accident, Sections 21 & 22 T.32S./R.23E., Midway-Sunset Oil Field, Kern County (May 2012).

2. The RDEIR Fails to Address Numerous Environmental Impacts

In addition to entirely failing to properly analyze and mitigate the significant environmental impacts from fracking and other well stimulation techniques, the RDEIR fails to analyze and properly mitigate other detrimental environmental impacts, including the project's impacts on air quality, water quality, and increased risk of earthquakes. Such failures run afoul of the basic requirements of CEQA. *See Laurel Heights Improvement Ass'n of San Francisco v. Regents of the University of California*, 6 Cal. 4th 1112, 1123 (1993) (noting that an EIR must "inform the public and its responsible officials of the environmental consequences of their decisions *before* they are made... [to] protect[] not only the environment but also informed self-government").

For example, the RDEIR fails to properly analyze and mitigate against certain emissions that will result from the operation itself. *See* RDEIR 4-131-140. Air toxins emitted during oil and gas development and operations included volatile organic compounds and polycyclic aromatic hydrocarbons.²³ The study found that harmful chemicals were emitted throughout the drilling process, and air sampling detected many chemicals known to have harmful human health effects, including acetaldehyde, benzene, formaldehyde, isoprene, naphthalene, and many more.²⁴ Health effects associated with benzene include "acute and chronic nonlymphocytic leukemia, acute myeloid leukemia, chronic lymphocytic leukemia, anemia, and other blood disorders and immunological effects."²⁵ Yet there is no discussion of the project's potential to emit many of these toxins, including benzene. The CSLC must disclose, discuss, and mitigate the direct and cumulative impacts of these emissions on human health and the environment, and all other air pollutants emitted as a result of the Project in its EIR; the failure to do so violates CEQA. *Sundstrom*, 202 Cal. App. 3d at 307.

CBD-3

Moreover, while the RDEIR discusses and mitigates the emissions of greenhouse gases, it does not specifically discuss what types of greenhouse gases will be emitted by the project, such as methane. But oil and gas operations are known to emit large amounts of methane – a potent greenhouse gas with a global warming potential more than 30 times that of carbon dioxide over a 100-year timeframe.²⁶ The failure to specifically discuss methane emissions is particularly troubling considering that methane also contributes to increased concentrations of ground-level ozone, the primary component of smog,²⁷ and this particular well has had methane leaks in the past. RDEIR at 2-2.

Nor does the RDEIR properly analyze the significant and deleterious impacts offshore oil and gas operations can have on water quality. While the RDEIR states that wastewater will be disposed of via injection into WD-1, RDEIR at ES-13, the RDEIR fails to analyze the potential impacts that adding the volume of waste and chemicals generated by the project will have. This is a rather glaring omission given the harmful sludge of wastewater chemicals produced by oil

CBD-4

²³ Theo Colborn, et al., "An Exploratory Study of Air Quality near Natural Gas Operations," *Human and Ecological Risk Assessment: An International Journal* (November 26, 2012).

²⁴ *Id.* at 29-32, Table 4.

²⁵ McKenzie 2012, Food & Water Watch (2012) *The Case for a Ban on Fracking*.

²⁶ Myhre, G. et al. 2013. Anthropogenic and Natural Radiative Forcing, in *Climate Change 2013: The Physical Science Basis*.

²⁷ 76 Fed. Reg. 52,738 (Aug. 23, 2011).

and gas drilling operations, including benzene, arsenic, lead, hexavalent chromium, barium, chloride, sodium, sulfates, and boron,²⁸ and that such practices have been known to cause groundwater contamination, and drinking water contamination, among other problems. Rather than incorporating an analysis of the impacts of such chemicals on human health and the environment into the RDEIR itself, the CSLC requires Venoco to perform a study to determine the potential for the Project to release previously unknown hazardous materials. RDEIR at 4-114. Such deferral of analysis is unlawful. *Sundstrom*, 202 Cal. App. 3d at 307.

CBD-4
cont.

The RDEIR also fails to discuss ocean acidification and the project’s contribution to this increasing problem. Ocean acidification – caused by the absorption of CO₂ into seawater – has already caused the pH of our oceans to change by 30 percent since industrial times.²⁹ The primary impacts of such acidification is that it strips seawater of chemicals that animals require to build their shells and skeletons,³⁰ and has been found to have negative consequences for almost every type of animal with impacts on survival, reproduction, metabolism and growth.³¹ Ocean acidification is also exacerbated by the emission of SO_x and NO_x.³² As all three of these pollutants will be emitted by the project, RDEIR at 4-132, 4-135, 4-137, 4-140, the CSLC must disclose and analyze such impacts.

CBD-5

Finally, the RDEIR fails to address the fact that offshore oil and gas drilling can induce earthquakes. Scientists have long known that oil and gas activities are capable of triggering earthquakes, with records of the connection dating back to the 1920s.³³ More recent studies have drawn a strong connection between the recent rise in wastewater injection – the disposal method that would be adopted under the Project – and increased earthquake rates.³⁴ The USGS recently recognized that wastewater disposal from fracking is a “contributing factor” to the six-fold increase in the number of earthquakes in Oklahoma.³⁵ Another recent study also found that wastewater injection is responsible for the dramatic rise in the number of earthquakes in Colorado and New Mexico since 2001.³⁶ Wastewater injection has been scientifically linked to

CBD-6

²⁸ Mall, Amy, Petition for Rulemaking Pursuant to Section 6974(a) of the Resource Conservation and Recovery Act Concerning the Regulation of Wastes Associated with the Exploration, Development, or Production of Crude Oil or Natural Gas or Geothermal Energy (Sept. 8, 2010), at 7.

²⁹ James C Orr et al., “Anthropogenic Ocean Acidification over the Twenty-First Century and its Impacts on Calcifying Organisms,” 437 *Nature* 681-86 (2005).

³⁰ Alan Barton et al., “The Pacific Oyster, *Crassostrea Gigas*, Shows Negative Correlation to Naturally Elevated Carbon Dioxide Levels: Implications for Near-Term Ocean Acidification Effects,” 57 *Limnology and Oceanography* 698-710 (2012).

³¹ Kristy J. Kroeker, et al., “Impacts of Ocean Acidification on Marine Organisms: Quantifying Sensitivities and Interaction with Warming,” 19 *Global Climate Change Biology* 1884-1896 (2013).

³² S.C. Doney et al., “Impact of Anthropogenic Atmospheric Nitrogen and Sulfure Deposition on Ocean Acidification and the Inorganic Carbon System,” 104 *Proc. of the Nat. Academy of Sciences* 14580 (2007).

³³ National Research Council (2012) *Induced Seismicity Potential in Energy Technologies* at 3.

³⁴ Van de Elst, Nicholas J. et al., Enhanced Remote Earthquake Triggering at Fluid-Injection Sites in the Midwestern United States, 341 *Science* 164 (2013).

³⁵ Sumy, D. F., et al. 2014. Observations of static Coulomb stress triggering of the November 2011 *M*5.7 Oklahoma earthquake sequence, *J. Geophys. Res. Solid Earth*, 119, 1904–1923, DOI:10.1002/2013JB010612; USGS, *Record Number of Oklahoma Tremors Raises Possibility of Damaging Earthquakes*, http://earthquake.usgs.gov/regional/ceus/products/newsrelease_05022014.php (May 2, 2014).

³⁶ Justin L. Rubinstein, et al. 2014. The 2001 – Present Induced Earthquake Sequence in the Raton Basin of Northern New Mexico and Southern Colorado. *Bulletin of the Seismological Society of America*, 2014 DOI: 10.1785/0120140009.

earthquakes of magnitude three and greater in at least six states: Arkansas,³⁷ Colorado,³⁸ Ohio,³⁹ Oklahoma,⁴⁰ Texas,⁴¹ and New Mexico.⁴² The largest of these earthquakes occurred near Prague, Oklahoma and had a magnitude of 5.7 – the biggest in the state’s history.⁴³ It destroyed 14 homes, damaged a federal highway, injured two people, and was felt in 14 states.⁴⁴ The risk that oil and gas drilling in California will cause an earthquake is a real threat, as over half of California’s 1,553 active and new wastewater injection wells are within ten miles of recently active faults, and at least 30 of California’s offshore wastewater injection wells are located within three miles of a fault. Dozens more wastewater injection wells line the southern California coast, often located close to one or more faults.⁴⁵

CBD-6
cont.

By failing to consider each of these potential impacts, the RDEIR fails to “present information in such a manner that the foreseeable impacts of pursuing the project can actually be understood and weighed” and fails to give the public “an adequate opportunity to comment on that presentation before the decision to go forward is made” as required by CEQA. *See Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, 40 Cal. 4th 412, 449-50 (2007). The CSLC cannot approve the proposed project unless and until it considers these impacts and provides the public with the opportunity to comment on such impacts.

3. The RDEIR Fails to Include Adequate Mitigation Measures for Significant Environmental Impacts from the Project

a. The RDEIR Fails to Include Mitigation Measures in the Event of an Oil Spill

The RDEIR fails to include adequate mitigation measures in the event of an oil spill from PRC 421, in violation of CEQA. Pursuant to CEQA, an EIR must include “mitigation measures...to minimize the [project’s] significant effects on the environment.” Cal. Pub. Res. Code § 21100(b)(3). The mitigation of a project’s significant impacts has been described as one of the “most important” functions of CEQA. *Sierra Club v. Gilroy City Council*, 222 Cal. App. 3d 30, 41 (1990). The RDEIR acknowledges that there are significant impacts from potential oil spills resulting from the project. *See e.g.*, RDEIR at 4-103 (noting that the project “may have cumulatively considerable impacts related to oil spill risk”). Nevertheless, the RDEIR fails to

CBD-7

³⁷ E&E News, USGS, Okla. warn of more drilling-related earthquakes in State, Mike Soraghan. Oct. 25, 2013.

³⁸ *Id.*

³⁹ Ohio Dept. of Nat. Resources (2012) *Executive Summary: Preliminary Report on the Northstar 1 Class II Injection Well and the Seismic Events in the Youngstown, Ohio Area*; Fountain, Henry, Disposal halted at well after new quake in Ohio, *New York Times*, Jan. 1, 2012.

⁴⁰ Holland, Austin, Examination of possibly induced seismicity from hydraulic fracturing in the Eola Field, Garvin County, Oklahoma, Oklahoma Geological Survey Open-File Report OF1-2011 (2011).

⁴¹ Frohlich, Cliff (2012) Two-year survey comparing earthquake activity and injection-well locations in the Barnett Shale, Texas. *Proceedings of the National Academy of Sciences*.

⁴² Rubinstein, J. L., et al. 2012. The 2001-present triggered seismicity sequence in the Raton Basin of southern Colorado/Northern New Mexico, Abstract S34A-02 presented at 2012 Fall Meeting, AGU, San Francisco, Calif. Dec. 3-7, 2012.

⁴³ Kearney, K.M. et al. 2013. Potentially induced earthquakes in Oklahoma, USA: links between wastewater injection and the 2011 M_w 5.7 earthquake sequence. *Geology* 41:699-702.

⁴⁴ *Id.*

⁴⁵ FracTracker.org, <http://maps.fractracker.org/latest/?webmap=99ae030fd5844eadb3d14398cbcdfbd>

mitigate such impacts. Instead, the RDEIR simply requires Venoco to develop a plan in the future. Specifically, MBIO-4a and MBIO-4b call for Venoco to update its Emergency Action Plan and Oil Spill Contingency Plan to mitigate impacts to sensitive biological resources and to consult with wildlife experts to develop a plan to protect cormorants and pelicans in the event of a spill. RDEIR at 4-199–4-200.

But as CEQA guidelines make perfectly clear, “mitigation measures should not be deferred until some future time.” CEQA Guidelines § 15126.4(a)(1)(B); *see also Sundstrom*, 202 Cal. App. 3d at 307 (a “requirement that the applicant adopt mitigation measures recommended in a future study is in direct conflict with the guidelines implementing CEQA”). In other words, a mitigation plan “formulated...later outside the EIR process, does not satisfy CEQA’s requirements.” *Communities for a Better Environment v. City of Richmond*, 184 Cal. App. 3d 70, 96 (2010). The mitigation measures for an oil spill from PRC 421 that constitute nothing more than a requirement to develop a plan at some unspecified future date fail to comply with CEQA. This is a significant omission given the fact that there was an oil spill at the facility in 1994 – the last time the well was active. *See* RDEIR at ES-3. The CSLC therefore cannot approve the project unless and until it includes specific conditions to mitigate the impacts of an oil spill from PRC 421 as part of its EIR for the Project.

CBD-7
cont.

In addition, the RDEIR fails to discuss new information regarding the detrimental impacts of oil spills revealed by the BP oil spill in the Gulf of Mexico. For example, the RDEIR fails to consider a study that found that common bottlenose dolphins exposed to the oil spill were five times more likely to have moderate to severe lung disease than dolphins that were not in the heavily oiled area.⁴⁶ Another study found serious impacts on killfish.⁴⁷ The RDEIR is legally deficient for failing to disclose and analyze these significant impacts. *See Laurel Heights Improvement Ass’n*, 6 Cal. 4th at 1123.

CBD-8

b. The RDEIR Fails to Include Adequate Mitigation Measures for the Emissions of Greenhouse Gases

The RDEIR finds that there will be significant impacts from the emissions of greenhouse gases, but fails to include proper mitigation measures to address such impacts. Specifically, rather than including specific mitigation measures within the RDEIR itself, the RDEIR requires Venoco to develop and implement a program to reduce net greenhouse gas emissions to zero. RDEIR at 4-138. But as courts have made perfectly clear, “the novelty of greenhouse gas mitigation measures is one of the most important reasons ‘that mitigation measures timely be set forth, that environmental information be complete and relevant, and that environmental decisions be made in an account-able arena.’” *Communities for a Better Environment*, 184 Cal. App. 3d at 90 (quoting *Oro Fino Gold Mining Corp. v. County of El Dorado*, 225 Cal. App. 3d 872, 885 (1990)). In other words, greenhouse gas mitigation measures may not be put off for future study, but must be incorporated into a project and fully effective before approval is granted. Accordingly, the RDEIR’s greenhouse gas mitigation measure – that Venoco develop a plan in

CBD-9

⁴⁶ Lori Schwake, et al., Health of common bottlenose dolphins (*Turlops truncatus*) in Bataria Bay, Louisiana, following the *Deepwater Horizon* oil spill, *Environmental Science and Technology* (2013).

⁴⁷ Andrew Whitehead, et al. Geonomic and physiological footprint of the *Deepwater Horizon* spill on resident marsh fishes. 109 PNAS 20775 (2012).

the future – violates CEQA. *See id.*; CEQA Guidelines § 15126.4(c). Indeed, the greenhouse gas mitigation measure contained within the RDEIR is the exact mitigation measure that was rejected in *Communities for a Better Environment*. 184 Cal. App. 3d at 91-96. The CSLC cannot approve the Project unless and until specific mitigation measures are formulated within the EIR to mitigate and reduce greenhouse gas emissions to zero.

CBD-9
cont.

Conclusion

In sum, given the significant environmental impacts from the Project, the CSLC should reject the Project and adopt the No Production Alternative (RDEIR 5.3.2). If, however, the CSLC decides to approve the Project, it cannot do so unless and until it remedies the RDEIR's legal deficiencies. These deficiencies include the fact that the RDEIR fails to expressly prohibit fracking, acidization and other hazardous well stimulation practices and improperly segments its analysis of such impacts; fails to address several environmental impacts; and fails to require adequate mitigation in the event of an oil spill and for the emissions of greenhouse gases.

Sincerely,

/s/ Miyoko Sakashita

Miyoko Sakashita, Senior Attorney
miyoko@biologicaldiversity.org

RESPONSE TO COMMENT SET 6: CBD

CBD-1 Comment acknowledged. Venoco has explicitly stated that fracking is not a part of this Project, as discussed further below. Please refer to responses to specific concerns in responses to comments CBD-2 through CBD-9 below.

CBD-2 Use of hydraulic fracturing and other well stimulation techniques are specifically excluded from this Project and would require additional permitting in the unlikely event such techniques were considered necessary. The CSLC is sensitive to the concerns among the public, environmental organizations, and State agencies regarding the recent information about use of hydraulic fracturing offshore of California. Based on a growing awareness of the potential harm associated with hydraulic fracturing, and pending regulatory changes (e.g., new regulations proposed by the Department of Conservation, and Measure P, the Santa Barbara County Fracking Ban Initiative), the CSLC required Venoco to revise its Recommissioning Plan to clearly state that no hydraulic fracturing will occur at the PRC 421 wells.

Section 2.2 of the EIR, Proposed Project, states that as a condition of approval for the PRC 421 Recommissioning Plan, Venoco will not conduct any well stimulation techniques within PRC 421 using hydraulic fracturing, matrix acidization, or acid fracturing techniques, within the meaning of Public Resources Code section 3157 (Venoco letter to CSLC, dated April 14, 2014). Venoco will be required to seek approval from the CSLC, among other necessary agency approvals, prior to any well stimulation operation within PRC 421. As a result, hydraulic fracturing or other well stimulation techniques are “expressly prohibited” from use as part of this Project and are therefore not included in the analysis of potential impacts of this Project.

Further, the need for hydraulic fracture stimulation is determined by the type of reservoir rock and its ability to flow hydrocarbons to the well bore (permeability). In tight reservoirs, such as shale (unconventional reservoirs), the ability of the rock to flow oil is limited (low permeability), thus requiring stimulation in order to flow at high enough rates to be economic. Production from PRC 421 is from the Vaqueros Formation, which is a conventional sandstone reservoir. This reservoir (as with most sandstones) has the natural ability to flow fluid at high rates (high permeability) and thus does not require stimulation. Simply stated, Venoco will not use hydraulic fracture stimulation as part of this Project because it is not necessary.

Steam flooding, water flooding, and cyclic steaming are not planned as part of the proposed Project and would not be possible with the infrastructure that would be installed under the proposed Project. These recovery techniques would require retaining PRC 421-1, a major change in the Project, and/or physical changes to Pier 421-2; additionally, conveyance infrastructure may be required in order to deliver water to one of the piers, depending on the recovery technique under consideration. Steam flooding and water flooding

would require the use of an injection well in order to inject steam or water into the reservoir; however, the proposed Project includes decommissioning and removal of PRC 421-1, which was previously used as an injection well, and injection of wastewater at the EOF using Injection Well WD-1. The location of WD-1 precludes its use as a steam flooding or water flooding injection well because it is geologically isolated from the Ellwood Oil Field; therefore, injection at this location would not affect the pressure at Well 421-2 and would be ineffective as an enhanced recovery technique. See page 4-59 of the Final EIR for further discussion regarding Injection Well WD-1. Because there is no injection well that could be used for steam flooding or water flooding to increase production at PRC 421-2, the Applicant does not have access to either of these oil recovery techniques unless a new injection well was drilled from PRC 421-2 or if PRC 421-1 was retained. Both of these actions would constitute a major change in the description of the Project and would require additional permitting and environmental review. Further, additional equipment in the form of a steam generator, water storage and/ or recycling equipment would also be required on PRC 421-2, which would constitute additional major changes to the Project requiring permitting and environmental review.

Cyclic steaming entails injection of steam into the reservoir via the existing oil production well, rather than a neighboring injection well. The process includes three phases: the injection phase, during which steam is generated and injected into the well; the soak phase, during which the well is shut in to allow the heat to distribute through the formation and thin the oil; and the production phase, during which the newly thinned oil is produced through the same well. This process would require installation of equipment (e.g., heaters, compressors) that would be used to heat water and inject steam into the well. Additionally, either water storage and or recycling equipment would need to be added to PRC 421-2 to employ produced water in this process or a new pipeline would be required to transport water to Pier 421-2 for use in this process. Steam injection equipment and a new water pipeline are not proposed as part of the Project; therefore, PRC 421-2 would not have the necessary equipment or infrastructure to use the cyclic steaming process, and this process would not be used as part of the proposed Project. Any application for such steam injection would require additional permitting and environmental review.

- CBD-3 Section 4.4, Air Quality and Greenhouse Gases, includes an assessment of reactive organic compounds (ROCs; also known as volatile organic compounds), toxic air contaminant emissions and associated health risks. Benzene and polycyclic aromatic hydrocarbons fall under the category of ROCs; benzene is also a toxic air contaminant, as well as acetaldehyde, formaldehyde, isoprene and naphthalene. Impact AQ-2 discusses operational emissions resulting from the Project, and Table 4.4-6 identifies the estimated level of ROC emissions. All these emissions are well below the stringent thresholds of significance adopted by the Santa Barbara County APCD. PRC 421, associated pipelines, and the EOF are also subject to rigorous and

ongoing inspections by the APCD. In the past, these inspections have resulted in safety related improvements and emissions monitoring or reduction improvements at the EOF and PRC 421. For further detail on specific air quality emissions, please refer to the Technical Air Quality study in Appendix D.

Please also note that although occupied residents and other habitable structures are present from 2,000 to 4,000 feet from these facilities, MM S-4e in Section 4.2 requires a Quantitative Risk Assessment for potential risks to sensitive receptors, including health risks, as well as preparation of an EAP for the PRC 421 facilities, prior to issuance of any Land Use Permit for the Project.

GHG emissions, which encompass fugitive emissions from methane leakages and ground level ozone, are discussed in Section 4.4, Air Quality and Greenhouse Gases. Impact AQ-4 describes the types and sources of GHG emissions. Methane is addressed under fugitive emissions. Emissions described under Impact AQ-4 use CO₂ equivalents, which provide a summary of all GHGs, taking into account their relative global warming and climate change potential (refer to Table 4.47, footnote 1). Please also see MR-5 for further discussion on GHGs.

- CBD-4 This comment refers to water quality impacts related to oil and gas exploration and drilling operations. The Project entails the return to service of an existing well into existing oil reserves; no drilling of new wells or extension of the existing well is involved with this Project. Rather, a workover rig would be used to rework the existing Well 421-2 and install the electrical submersible pump (ESP). Impacts to water quality associated with the Project-related activities and operations are covered in Section 4.5, Hydrology, Water Resources, and Water Quality.
- CBD-5 Ocean acidification is a result of CO₂ released into the atmosphere that dissolves into the ocean. CO₂ is considered a GHG and CO₂ emissions are discussed in Section 4.4, Air Quality and Greenhouse Gases. MM AQ-4 requires Venoco to implement a GHG reduction program to reduce net GHG emissions to zero. This would result in no net increases to GHG emissions into the atmosphere, and therefore would not contribute to ocean acidification.
- CBD-6 Similar to response to comment CBD-4, the comment refers to potential impacts related to oil and gas drilling activities. The Project does not propose any new drilling or extension of existing wells. Further, studies identifying linkages between oil and gas activities and earthquake activity relate only to enhanced recovery techniques, such as hydraulic fracturing and the large volumes of wastewater disposal associated with these techniques. These are not included as part of the Project. Please refer to CBD-2 regarding the use of hydraulic fracturing and other enhanced recovery techniques. Offshore oil and gas production in existing State leases in the Ellwood area (PRC 421, PRC

3242, and PRC 3120) has been occurring continuously since the 1930s. There is no known link between regular oil production and increased earthquake generation.

CBD-7 State CEQA Guidelines section 15126.4, subdivision (a)(1)(B), states “Formulation of mitigation measures should not be deferred until some future time. However, measures may specify performance standards which would mitigate the significant effect of a project and which may be accomplished in more than one specified way.” Several layers of mitigation measures are applied to address potential oil spill impacts, which constitutes future events that may or may not occur. These include: project design measures, some embedded in established regulations, and others recommended as part of the EIR; preparedness measures, which entail ensuring that producers and agencies are prepared to respond to an oil spill; and clean up or remediation measures, which address the after effects of an oil spill. By nature, the latter two types of measures require preparation of response plans by producers, regulatory or trustee agencies; this approach is recognized in adopted regulations that authorize or require OSCP and other types of response planning. This Final EIR includes all three types of measures.

This EIR has formulated 16 mitigation measures related to oil spill prevention or response, including performance standards that would reduce the risk of oil spills and improve cleanup efforts in the event of an oil spill. These mitigation measures set forth clear detailed requirements for oil spill containment, response drills and planning, pressure testing for the well casing, regular facility inspection, and preparation of a Quantified Risk Assessment to identify any deficient facilities and require corrective actions. In addition, pipeline monitoring and regional coordination with and funding for the City of Goleta and Coal Oil Point Reserve are also required. Further, the required update of the South Ellwood Oil Field OSCP also sets forth detailed standards that must be addressed with key plans required to be completed prior to operation of the facility. The timing and implementation of these mitigation measures are detailed in Section 7.0, Mitigation Monitoring Program. As stated in mitigation measures MBIO-4a and MBIO-4b, these updates must be completed prior to Project completion and operation.

CBD-8 The studies referenced in Comment CBD-8 have now been included in the discussion for Impact MBIO-4 in Section 4.6, Marine Biological Resources, which describes adverse effects of oil spills on marine organisms, including bottlenose dolphins and fish species, and the list of references for this EIR. Further discussion of adverse effects of oil spills on sensitive biological resources present at the Project site and in the vicinity can be found in Section 4.6. However, the maximum projected spill from PRC 421 facilities into the marine environment is 1.7 barrels, with resultant limited potential for adverse impacts to marine organisms.

CBD-9 Please refer to MR-5 for discussion on mitigation for GHGs.

COMMENT SET 7: ENVIRONMENTAL DEFENSE CENTER (EDC)



September 24, 2014

Mr. Eric Gillies, Project Manager
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825
Submitted via email: CEQAcomments@slc.ca.gov

Re: Revised PRC 421 Recommissioning Project – Recirculated Draft Environmental Impact Report

Dear Mr. Gillies,

Thank you for the opportunity to comment on the Recirculated Draft Environmental Impact Report (RDEIR) for Venoco’s Revised PRC 421 Recommissioning Project. These comments are submitted by the Environmental Defense Center (EDC), on behalf of Get Oil Out!, Sierra Club, Los Padres Chapter, Citizens for Goleta Valley, and Citizens Planning Association, and are intended to supplement comments we have previously submitted regarding the Draft and Final EIRs, as well as our testimony at the California State Lands Commission’s (CSLC) April 23, 2014 hearing.¹

We appreciate the recirculation of the DEIR for this project. According to the RDEIR, the document was revised and recirculated to include an analysis of an alternative involving processing PRC 421 oil at Las Flores Canyon, and to “augment” the discussion regarding Vaqueros Reservoir repressurization. (RDEIR at ES-4, 5.) We are surprised, however, that the RDEIR does not address two other issues identified by the CSLC on April 23, 2014: (1) use of the Ellwood Onshore Facility, and (2) additional specification regarding mitigation of the project’s greenhouse gas (GHG) emissions. (See excerpt from CSLC April 23, 2014, transcript at p. 56, attached hereto as “Attachment A”.)

As discussed herein, we continue to believe that the RDEIR lacks substantial evidence that the project will reduce Reservoir repressurization, and that the analysis of the Las Flores Canyon processing alternative is inadequate. In addition, we continue to believe that the

EDC-1

¹ EDC’s prior written and verbal comments are incorporated herein by reference.

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EDC letter re RDEIR for Venoco PRC 421 Recommissioning Project
Page 2

discussion of mitigation measures for GHG impacts lacks specificity as required by the California Environmental Quality Act (CEQA) (Pub. Res. Code §§ 21000 *et seq.*) Our specific comments follow.

EDC-1
cont.

1.1 PROJECT LOCATION AND BACKGROUND

The RDEIR states that the estimated life of PRC 421 is 20 years, which is less than the life of Platform Holly, which is estimated to be “a minimum of 40 years.” (RDEIR at 1-4.) As we commented previously, the RDEIR must address the discrepancy between the projected 20-year life for PRC 421 in the RDEIR compared to the projection of 12 years in the Notice of Preparation. (See *Revised Notice of Preparation of a Draft Environmental Impact Report and Notice of Public Scoping Meeting*, March 26, 2013.)

Similarly, the projected life of Platform Holly has been significantly extended without explanation. For example, Venoco’s Development Plan Application for the “Extended Field Development from Platform Holly” from 2001 found that production from Platform Holly, without extended field development (equivalent to the current status quo), would cease in 2017. (Development Plan Application at B-74, attached hereto as “Attachment B”).² The DEIR for the Venoco Ellwood Full Field Development Project, dated June 2008, cited Venoco as estimating that “the new drilling associated with the proposed Project would occur within the estimated life of the existing facilities, which is provided by the Applicant as up to the year 2040.”³ These estimates are significantly less than the new estimate, which equates to ongoing production from Platform Holly until 2054. An explanation for these drastically different estimates must be provided.

EDC-2

1.2 PROJECT OBJECTIVE

The original DEIR for this project stated that Venoco’s objective for the project was “to return oil and gas lease PRC 421 to full oil production.”⁴ This objective has been revised in the RDEIR to include both recommissioning PRC 421 and processing at the Ellwood Onshore Facility (EOF). (RDEIR at 1-4.) CEQA defines the project objective as identifying “the *underlying purpose* of the project” (CEQA Guidelines § 15124(b)), which in this case is (as stated in the original DEIR) the desire to resume development of PRC 421. Production, processing, and transportation are all components of the project, but not part of the project “objective” which relates to the “why” of the project, not the “how.” Accordingly, the reference to processing should be deleted.

EDC-3

² Even with extended field development, which is not the case here, the Application stated that Platform Holly would produce until 2030 – 2039, and that the Platform was designed to produce until 2040. (Application at B-73, attached hereto as “Attachment B”).

³ Draft Environmental Impact Report for the Venoco Ellwood Oil Development and Pipeline (Full Field Development) Project, State Clearinghouse No. 2006061146, CSLC EIR No. 738 (2008), p. 3-9, attached hereto as “Attachment C”.

⁴ Draft Environmental Impact Report for the PRC 421 Re-commissioning Project, State Clearinghouse No. 2005061013, CSLC EIR Number 732 (2007), p. 1-1.

3.0 CUMULATIVE IMPACTS

The list of relevant cumulative projects must include “closely related past, present and reasonably foreseeable probable future projects.” (CEQA Guidelines § 15355(b).) The list in the RDEIR fails to include operations from Platform Holly, which is a “present” project, or Venoco’s proposed South Ellwood Field Project. (See CSLC Calendar Item, August 15, 2014, C67, attached hereto as “Attachment D”.)

EDC-4

4.0 ENVIRONMENTAL IMPACT ANALYSIS

4.2 SAFETY

Vaqueros Reservoir Repressurization

We appreciate the CSLC’s request for further analysis and explanation regarding the alleged repressurization of the Vaqueros Reservoir. We remain concerned that the evidence in the RDEIR demonstrates repressurization both with and without production, and that there is no evidence provided since 2000. (RDEIR at 4-57 - 58, Figure 4.2-2.)

The RDEIR ascribes the cause of repressurization to aquifer influx (RDEIR at 4-58 – 4-59) and poorly abandoned oil wells (RDEIR at 4-61 – 4-64). There is no evidence that recommissioning PRC 421 will adequately address these problems. The RDEIR itself states that it is not feasible to fix or properly abandon the wells. (RDEIR at 4-64.) There is no information about whether it is feasible to reduce the natural aquifer influx. Finally, there is no evidence that repressurization won’t continue after PRC 421 production ceases, especially because Venoco is under no obligation to fix the repressurization problem and can cease production when it is no longer economically viable. Pressurization from the abandoned wells and aquifer influx may still continue.

EDC-5

4.4 AIR QUALITY AND GREENHOUSE GASES

EDC and our clients support the adoption of a zero emissions threshold for evaluating the significance of GHG emissions. (RDEIR at 4-131.) As noted in the RDEIR, mitigation of the impacts caused by the project’s GHG emissions is feasible, and in fact Venoco can mitigate all of the project impacts onsite:

[T]he emissions reductions that may be needed are not substantial and could be achieved with onsite operational efficiency improvements. For example, GHG reductions could be achieved by using high efficiency emulsion heaters to replace the existing heater treaters. Reductions of more than 200 MTCO₂e [more than the 167.4 MTCO₂e projected for the project] could be achieved depending on the heater design.

EDC-6

(RDEIR at 4-139.)

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Despite this finding, the actual mitigation measure identified in the RDEIR is limited to the future preparation of a GHG emission reduction program which will be reviewed by CSLC staff. (RDEIR at 4-138, 139.) CEQA, however, requires that mitigation measures must be identified and fully enforceable, and shall not be deferred unless it is *infeasible* to specify the measures in the EIR. Pub. Res. Code § 21081.6(b); CEQA Guidelines § 15126.4(a)(1)(B); *Communities for a Better Environment v. City of Richmond* (2010) 184 Cal.App.4th 70, 90-96; *Federation of Hillside and Canyon Assns v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1260-1262 (mitigation measures should be implemented as conditions on development); *San Joaquin Raptor Rescue Center v. County of Merced*, 149 Cal.App.4th 645, 668-672 (2007) (formulation of specific mitigation measures shall not be deferred if it is feasible to identify them in the EIR). As the court held in *CBE v. City of Richmond*,

This mitigation plan for greenhouse gases is similarly deficient. Here, the final EIR merely proposes a generalized goal of no net increase in greenhouse gas emissions and then sets out a handful of cursorily described mitigation measures for future consideration that might serve to mitigate the 898,000 tons of emissions resulting from the Project. No effort is made to calculate what, if any, reductions in the Project's anticipated greenhouse gas emissions would result from each of these vaguely described future mitigation measures. Indeed, the perfunctory listing of possible mitigation measures set out in Mitigation Measure 4.3-5(e) are nonexclusive, undefined, untested and of unknown efficacy. The only criteria for "success" of the ultimate mitigation plan adopted is the subjective judgment of the City Council, which presumably will make its decision outside of any public process a year after the Project has been approved. Fundamentally, the development of mitigation measures, as envisioned by CEQA, is not meant to be a bilateral negotiation between a project proponent and the lead agency after project approval; but rather, an open process that also involves other interested agencies and the public.

CBE v. City of Richmond, 184 Cal.App.4th at 93. Similarly, in this case the RDEIR generally identifies potential mitigation measures but then – despite the stated feasibility of mitigation – improperly defers formulation of specific mitigation measures, and removes the topic from the public purview. (RDEIR at 4-138 – 139.) The RDEIR lacks any analysis regarding the effectiveness of the proposed measures, and fails to provide any measures that can be implemented as enforceable project conditions. The RDEIR thus violates the mitigation requirements of CEQA.

Notably, EDC raised this issue to the CSLC at the April 23, 2014, hearing, and the Commissioners responded by requesting this additional analysis and specificity in the RDEIR. (See transcript at pp. 54-56.)

5.0 ALTERNATIVES ANALYSIS

5.3.1 No Project Alternative

EDC-6
cont.

CEQA requires a discussion of the “No Project” alternative in an EIR. (CEQA Guidelines § 15126.6(e).) The purpose of the No Project alternative is “allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the project.” (*Id.*) The No Project analysis shall “discuss the existing conditions at the time the notice of preparation is published” as well as “what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consist with available infrastructure and community services.” (*Id.*)

EDC-7

The RDEIR omits the first half of the required analysis. The RDEIR does not discuss the existing conditions, but rather defines the No Project Alternative as resumed production and processing of oil from PRC 421. (RDEIR at 5-12.) This discussion may fit the second half of the required analysis, but does not address the full requirements of CEQA.

5.3.2 No Production / Quitclaim State Oil and Gas Lease PRC 421

It appears that the RDEIR intends this alternative to provide the other discussion of the No Project alternative required by CEQA Guidelines section 15126.6(e). However, by tying the No Production alternative to the quitclaim of the lease, the RDEIR fails to limit the focus to the comparison of physical impacts and conditions; instead, the RDEIR finds this alternative would require financial compensation to Venoco, thereby implying that this alternative would be infeasible. (RDEIR at 5-22.)

EDC-8

In addition, as explained above, the assumption that the consequence of no production would necessarily be an increase in pressurization is not substantiated by the evidence, and there is no evidence that repressurization won’t recur following cessation of production from the lease. (RDEIR at 5-23, 24.)

Finally, the RDEIR downplays the fact that this alternative would be consistent with the City of Goleta’s land use policies regarding PRC 421 and the EOF. (See, for example, Goleta General Plan/Coastal Land Use Plan Policies LU 9.2, 10.1, and 10.4. (RDEIR 5-25, 26.)

5.3.4 Processing PRC 421 Oil at Las Flores Canyon

We appreciate the addition of this alternative. Full consideration of this alternative is important because the City has not yet made a determination as to whether it is legally feasible for Venoco to process oil and gas from PRC 421 at the EOF, which is operating as a nonconforming use. Accordingly, the City itself requested this analysis in the EIR. (See letter from City of Goleta to CSLC, April 15, 2014.) Even if it is legally feasible (either through the existing land use and zoning requirements, or through a rezone approved by the City Council and voters), the City still needs to make a policy decision as to whether processing at the EOF is consistent with existing City policies regarding the EOF. (See City of Goleta General Plan/Coastal Land Use Plan Policy LU 9.2 (“(b) The intent is that in the long-term use of the property for oil and gas processing shall be terminated. The processing of hazardous materials and the risks associated with air emissions make this location, which is adjacent to Bacara Resort and Sandpiper Golf Course and near Ellwood School and the residential neighborhoods of Santa Barbara Shores and Winchester Commons, unsuitable for oil and gas processing in the long

EDC-9

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EDC letter re RDEIR for Venoco PRC 421 Recommissioning Project
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term.”), and 10.1 (“The Venoco EOF site is an inappropriate location for processing of oil and gas because of the public safety and environmental hazards associated with this type of use and its close proximity to residential neighborhoods, Ellwood School, Bacara Resort, and environmentally sensitive habitat areas.”).⁵ If the City determines that it is not feasible or acceptable to process the oil and gas at the EOF, it is important to have another alternative to processing on the pier.

We have some important concerns regarding the analysis in the RDEIR. First, the RDEIR reflects a fundamental misunderstanding regarding the purpose and intent of the consolidation policy. The policy was intended to reduce the proliferation of processing *sites* along the County’s south coast. While shared use of facilities is optimum, the purpose of the policy was to also allow co-location of facilities at one of two designated consolidated sites as a means to reduce impacts to coastal resources and to protect public health and safety. The RDEIR implies that co-locating facilities at the designated consolidated site at Las Flores Canyon is less preferable than processing at the nonconforming EOF. (RDEIR at 5-59.) This statement is incorrect and does not accurately reflect the intention of the consolidation policy, which in fact prefers co-locating facilities at a consolidated site over processing at an existing nonconforming site. The RDEIR should be revised to correct this misstatement.

EDC-9
cont.

Second, the RDEIR should be revised to fully analyze the option of separating the gas prior to transporting product to Las Flores Canyon. Although the RDEIR identifies and even describes this option (RDEIR at 5-36), the report fails to analyze the impacts and feasibility of this option. Instead, the RDEIR limits its analysis to the impacts associated with transport of product in a three-phase state (oil/gas/water). (RDEIR at 5-29.) The RDEIR should be revised to include an analysis of the gas separation option, which would not only reduce potential impacts, but may also facilitate processing of the oil at the existing Las Flores Canyon facilities.

EDC-10

Third, the RDEIR assumes lack of capacity for oil dehydration at Las Flores Canyon but does not provide any evidence in support of this assumption. (RDEIR at 5-40.) The RDEIR does not identify the capacity of Las Flores Canyon facilities, nor does it describe how such capacity is expected to change over the life of the PRC 421 project. Given the limited volumes of oil and gas that would be produced from PRC 421 (see RDEIR at 2-21), it seems likely that it would be feasible to accommodate this production within the capacity of the existing Las Flores Canyon facilities. The RDEIR must be revised to include this analysis.

EDC-11

Finally, the RDEIR fails to explain the purpose and scope of the consolidation requirements that apply to the Las Flores Canyon site. This site was approved as a consolidated processing site on the condition that it is made available to other producers. (*See ExxonMobil Santa Ynez Unit Expansion Project Development Plan (87-DP-32cz) Condition VII Consolidation*, attached hereto as “Attachment F”.) The consolidation condition prefers shared use of facilities, but also provides for shared site development or a reduction of Santa Ynez throughout to allow use of the same facilities. The RDEIR should be revised to analyze the potential sharing of the existing Las Flores Canyon facilities, either by separating the gas prior to

EDC-12

⁵ See attached full text of Policies LU 9.2 and 10.1 (“Attachment E”).

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EDC letter re RDEIR for Venoco PRC 421 Recommissioning Project
Page 7

transport or by requiring ExxonMobil to share use of the facilities in compliance with the Santa Ynez Unit project condition.

EDC-12
cont.

6.4 COMPARISON OF PROPOSED PROJECT AND ALTERNATIVES AND ENVIRONMENTALLY SUPERIOR ALTERNATIVE

6.4.3 No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative

The RDEIR assumes that the proposed project is necessary to address and reduce repressurization, and that no other mechanism is available to deal with issue, and thus finds the No Production alternative to be environmentally less preferable. (RDEIR at 6-6, 6-7.) However, as discussed above, the evidence shows repressurization with or without extraction, and there is no clear demonstration that allowing the proposed project will resolve this concern.

EDC-13

6.4.5 Processing PRC 421 Oil at Las Flores Canyon

The RDEIR finds that this alternative would result in greater impacts than the proposed project, in part because the report assumes the three-phase state of oil/gas/water in the pipeline (as opposed to the option of separating out the gas prior to pipeline transportation) and need for a new oil dehydration plant at Las Flores Canyon, and in part because the report understates the importance of complying with the oil and gas processing consolidation policy. The RDEIR also fails to acknowledge the other, practical benefits of processing at Las Flores Canyon and the reduced impacts that would occur due to the site's location away from populated areas and sensitive coastal habitats.

EDC-14

Conclusion

EDC and our clients appreciate the recirculation of the DEIR for the Venoco PRC 421 Recommissioning Project. As discussed above, we continue to seek further clarification regarding the project's effect on repressurization. We also believe that further analysis of the Las Flores Canyon processing alternative is critical given the City of Goleta's policies and concerns regarding processing at the EOF. Finally, the EIR should include specific, enforceable mitigation measures to mitigate the project's greenhouse gas emissions.

Thank you for this opportunity to comment on the RDEIR for this project.

Sincerely,



Linda Krop,
Chief Counsel

Attachments:

- A - Excerpt from transcript of CSLC April 23, 2014 hearing

Responses to Comments

September 24, 2014
EDC letter re RDEIR for Venoco PRC 421 Recommissioning Project
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- B - Excerpt from Venoco's Development Plan Application for "Extended Field Development from Platform Holly," 2001
- C - Excerpt from Draft Environmental Impact Report for the Venoco Ellwood Oil Development and Pipeline (Full Field Development) Project, State Clearinghouse No. 2006061146, CSLC EIR No. 738, 2008
- D - CSLC Calendar Item, August 15, 2014
- E - City of Goleta General Plan/Coastal Land Use Plan, Land Use Element Policies 9.2, 10.1
- F - ExxonMobil Santa Ynez Unit Expansion Project Development Plan (87-DP-32cz) Condition VII Consolidation

CC:

City of Goleta
California Coastal Commission
County of Santa Barbara
Get Oil Out!
Sierra Club, Los Padres Chapter
Citizens Planning Association
Citizens of Goleta Valley

ATTACHMENT A

Excerpt from transcript of CSLC April 23, 2014 hearing

MEETING
STATE OF CALIFORNIA
NATURAL RESOURCES AGENCY
LANDS COMMISSION

RADISSON HOTEL LOS ANGELES AIRPORT
CENTURY MEETING ROOM
6225 WEST CENTURY BOULEVARD
LOS ANGELES, CALIFORNIA

WEDNESDAY, APRIL 23, 2014
1:01 P.M.

JAMES F. PETERS, CSR, RPR
CERTIFIED SHORTHAND REPORTER
LICENSE NUMBER 10063

J&K COURT REPORTING, LLC 916.476.3171

ACTING CHAIRPERSON GORDON: Thank you. Mr. Greig, I would note your resemblance to Rasputin, to goatee.

(Laughter.)

ACTING CHAIRPERSON GORDON: All right. What is before us today is certification of the EIR. With the city's opposition and request for an analysis of the Las Flores option, in addition to EDC and the Channelkeeper, the Controller's office is not ready to certify the EIR today. What we would prefer is that Las Flores be analyzed in addition to the nonconforming status issue having to do with EOF, which hopefully, if this were recirculated, could be done before the end of 2014, a legitimate time frame we hope. That would be our recommendation.

I need to hear from my two colleagues on the Commission.

ACTING COMMISSIONER ORTEGA: I think based on the testimony today, Department of Finance would be fine with that as well.

ACTING COMMISSIONER SCHMIDT: I would just add that maybe we address pressurization, because that's come up a few times. And maybe staff wants to talk about that now, just so we can clarify.

EXECUTIVE OFFICER LUCCHESI: If it's the

very easy to do.

And then with respect to the biological -- other biological resources, we were concerned about the potential use dispersants in oil spill response and impacts to wetlands. I think those were our only other remaining issues, and I think that they could be addressed fairly comprehensively and easily.

ACTING CHAIRPERSON GORDON: Okay. Mr. Greig, do you have any response to that? I'm just trying to be sure that staff has their arms around the issues that we are dealing with right here.

MR. GREIG: Thank you, Mr. Commissioner. No, not really other than to say that if it's the Commissioner's desire -- Commission's desire to send the EIR back for additional review that Venoco would support that. We understand it's in our best interests to have a document that's -- that is adequate and addresses the issues.

ACTING CHAIRPERSON GORDON: Thank you, sir.

All right. Ms. Lucchesi, then let me sum up. So we're going not going to certify the today. We've all agreed on that. We are going to go back and look at the Las Flores Canyon processing issue. We are going to look at the pressurization issue. I think you guys have covered it fairly comprehensively, but take a second look at it and make sure you've covered the issues that were

ATTACHMENT B

Excerpt from Venoco's Development Plan Application for "Extended Field Development from Platform Holly," 2001

56

1 raised today.
2 The same thing with the preexisting use
3 conditions with regard to EOF, and the GH -- the
4 greenhouse gas mitigation issues.
5 If we can do that, and hopefully bring it back
6 before the -- the EIR before the Commission after being
7 recirculated, before the end of -- before the end of 2014,
8 that would be wonderful, fully understanding that
9 sometimes these things are not doable, that there are
10 additional variables that will come up that will postpone
11 it. But that is, I believe, the wish of the Commission,
12 today.
13 Other of my colleagues have any comments?
14 With that, I would like to thank everybody who
15 came here with regard to Item 99, the PRC lease. Thank
16 you it's been very informative.
17 ACTING COMMISSIONER ORTEGA: Item 91.
18 ACTING CHAIRPERSON GORDON: What?
19 ACTING COMMISSIONER ORTEGA: Ninety-one.
20 ACTING CHAIRPERSON GORDON: Oh, 91. I'm sorry.
21 That's it. Item 91. I'm having problems with numbers
22 today for some reason. Thank you, everybody. We are now
23 going to move on to Items 79 and 80 having to do with
24 Redondo Beach.
25 Staff presentation, please.

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- Production profiles anticipated for the South Ellwood Extended Field Development and the "No Project" cases are provided in Tables G-7, G-8 and G-9 of Appendix G;
- Capital Costs for this alternative are included in Table G-10 of Appendix G; and
- Life-of-project estimated OPEX profiles are included in Table G-11 of Appendix G.

Venoco considers the economics of Alternative 2, based upon investments, revenues, operating expenses and commodity prices, relative to the "No-Project" alternative.

Alternative 3 – Current Operations Continue (The No Project Alternative)

Under Alternative 3, current operations would continue as detailed in Appendix A and expanded development of the South Ellwood field would not occur. This alternative is viable, but would not generate the perceived benefits of removing the EOF plant and EMT. The visual discontinuity presented by the plant in the setting of the Bacara Resort and Spa and the Sandpiper Golf Course would remain. Public concerns regarding potential safety and odors at the existing EOF would remain.

Importantly, there have been observed reductions in natural oil and gas seeps from the seabed above the South Ellwood field, which have been attributed to the reduction in reservoir pressure due to depletion of the Monterey Reservoir. It is anticipated that the granting of a lease extension to enable the depletion of portions of the Monterey Formation in the South Ellwood field, which have yet to be tapped by wellbores, will further abate the natural seeps in the La Goleita seep area. Refer to Appendix H for the presentation of existing technical studies of seeps in the South Ellwood area. This further abatement of natural seeps that are sourced in portions of the reservoir as yet untapped will not occur for Alternative 3, the "No Project" alternative.

B.1.3 Project Alternatives Production Comparison

In addition to the evaluation of alternatives considered by Venoco to meet the objective of expanded development of the oil reserves accessible from Platform Holly, Venoco developed a production life comparison for these alternatives. The production life comparison presented in Table B-2 was developed through the extrapolation of projected reservoir production data. Table B-2 shows the expected abandonment year for each alternative component, based upon production rate simulations and current pricing of oil and gas. In all cases, Platform Holly is designed to produce through 2040. The economic limit for production operations will be dependent on commodity prices and actual reservoir performance. Currently predicted sunset dates based on currently projected oil prices and production profiles for various options are discussed in Appendix G, Confidential Materials.

Development Plan Application for Extended Field Development from Platform Holly

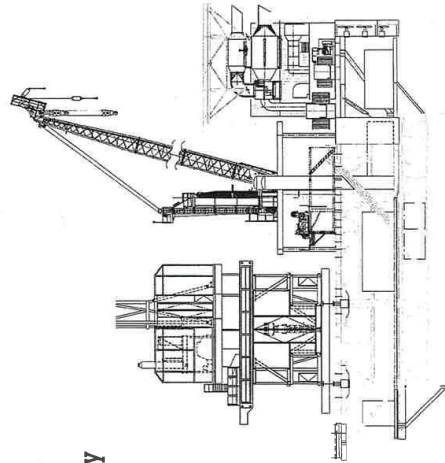
Submitted to:

California State Lands Commission

**County of Santa Barbara
Planning & Development Department
Energy Division**

and the

**County of Ventura
Resource Management Agency
Planning Division**



December 2001

B.2 LEASE BOUNDARY EXTENSION

Pursuant to Section 6872.5 of the Public Resources Code, Venoco proposes to extend the boundaries of its existing oil and gas leases to encompass the eastward section of the South Ellwood field as shown on Drawing 2171-A-515. The proposed project meets the conditions detailed in PRC 6872.5 that allow for the State Lands Commission to make these adjustments. Specifically these are:

Excerpt from Draft Environmental Impact Report for the Venoco Ellwood Oil Development and Pipeline (Full Field Development) Project, State Clearinghouse No. 2006061146, CSLC EIR No. 738 (2008)

1. The lease boundary adjustment will effectuate a more efficient utilization of State resources.
2. The proposed project will not increase the number of platforms.
3. The proposed project will not require the construction or major modification of a refinery.
4. The proposed project is the environmentally least damaging feasible alternative for the extraction and production of the affected resources.
5. The proposed project will continue to support a reduction in the source of natural seep emissions.

In addition, the adjustment of the lease boundaries pursuant to PRC 6872.5 will result in 20 percent of the additional revenues paid to the State to be paid to the County of Santa Barbara as allowed in Section 6817 of the Public Resources Code. Based on the State Lands Commission estimate of recoverable reserves, the County's 20% share of revenues would be equivalent to revenues from 2 million barrels of oil.

**TABLE B-2
PRODUCTION LIFE COMPARISON (ABANDONMENT YEAR)**

Facility	Preferred Project	Production Scenario		
		Alternative 1	Alternative 2	Alternative 3
Platform Holly *	2039	~2030	2032	2038
ECOF **	2005	~2030	2005	2005
EWT	2005	2005	2005	2005
ROSF	N/A	N/A	N/A	N/A

* Platform Holly design life will be to at least 2040. Actual abandonment dates will depend on reservoir performance and commodity prices at the time.

** Note that stated 2005 life for ECOF does not refer to the sales gas booster compression system, which will remain at the ECOF site for the duration that Platform Holly is in operation.

3.3 ALTERNATIVES EVALUATED IN THE EIR

This section provides the descriptions of the alternatives evaluated in the EIR. A comparison of the production life under the various alternatives is provided in Table 3-2. In all cases, Platform Holly is designed to produce through 2040. The EMT would be abandoned and decommissioned in all cases except the No Project Alternative in which the facilities would be abandoned at the time of the offshore and onshore lease expirations.

**Table 3-2
Production Life Comparison (Abandonment Year)**

Facility	Proposed Project	Project Alternative			
		No Project	No EOF Modifications	Processing on Holly	LFC Processing: Offshore Gas and Onshore Oil Pipelines
Platform Holly*	2040	2040	2040	2040	2040
EOF	2040	2040	2010**	2010	2010
EMT/Line 96	2010	2013-16***	2010	2010	2010

* Platform Holly design life will be to at least 2040. Actual abandonment dates will depend on reservoir performance and commodity prices at the time.
 ** Some processes at the EOF under this alternative such as the sales gas booster compression system, crude oil storage and pumping, and electrical substation, would remain at the EOF site for the duration that Platform Holly is in operation.
 *** The offshore lease with SLC expires in 2013 and the onshore lease with UCSB expires in 2016. Alternate transportation options would be pursued at that time.
 Source: Venoco Application, February 2006.

3.3.1 No Project Alternative

Description

Under the No Project Alternative, production from Platform Holly and the EOF would continue under current operations; the lease boundary extensions beyond the existing oil and gas lease boundaries would not occur; drilling up to 40 new wells from Platform Holly would not occur; an onshore pipeline would not be constructed; the proposed modifications to the EOF and to Platform Holly would not be performed; and, decommissioning of the EMT would not occur in the near term. As the EMT offshore lease with CSLC expires in 2013 (should the currently proposed lease extensions be granted) and the onshore lease with UCSB expires in 2016, it is assumed that the EMT would be decommissioned as described in Section 2.0, Project Description, as a result

June 2008

3-9

Venoco Ellwood Full Field Development Project EIR

Draft
 for the
Environmental Impact Report
Venoco Ellwood Oil Development and Pipeline (Full Field Development) Project

State Clearinghouse No. 2006061146

CSLC EIR No. 738

Lead Agency:
 California State Lands Commission

Prepared by:
 California State Lands Commission
 Marine Research Specialists
 Science Applications International Corporation

June 2008

ATTACHMENT D

CSLC Calendar Item, August 15, 2014

CALENDAR ITEM
C67

A Statewide

08/15/14
Bid Log 2014-06
PRC 3242.1
W 30119.2
RA# 24513
A. Abeleda
E. Gillies

S Statewide

CONSIDER GRANTING AUTHORITY TO THE EXECUTIVE OFFICER TO SOLICIT STATEMENTS OF INTEREST FOR CONSULTANT SERVICES, NEGOTIATE FAIR AND REASONABLE PRICE, AWARD AND EXECUTE AGREEMENTS FOR PREPARATION OF ENVIRONMENTAL DOCUMENTATION AND MITIGATION MONITORING FOR THE PROPOSED SOUTH ELLWOOD FIELD PROJECT BY VENOCO, INC. OFFSHORE OF GOLETA, SANTA BARBARA COUNTY

PARTY:

California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

BACKGROUND:

Venoco, Inc. (Venoco or Applicant) has requested that the California State Lands Commission (CSLC) adjust the eastern boundary of offshore Oil and Gas Lease PRC 3242.1 and has applied to the CSLC to implement the South Ellwood Field Project (Project) in Santa Barbara County. Currently the boundaries of PRC 3242.1 do not encompass all of the South Ellwood Field, specifically the eastern portion of the field. Adjusting the eastern boundary of PRC 3242.1 would increase the lease area by approximately 5,327 acres to a total of 9,648 acres.

PROPOSED PROJECT:

If the CSLC chooses to adjust the eastern lease boundary of PRC 3242.1, Venoco proposes to redrill up to 6 existing wells into the adjusted lease area for oil production. Venoco does not expect the proposed additional oil production to extend the life of Platform Holly.

PROPOSED ACTIVITY:

Based on the information that Venoco has provided, in consultation with the other California responsible and/or trustee agencies for the whole project, and in accordance with Public Resources Code section 21067 and the California Code of Regulations, Title 14, section 15051, the Commission has determined that it has the principal responsibility for carrying out or approving the Project, which may have a significant

CALENDAR ITEM NO. **C67** (CONT'D)

effect upon the environment, and is therefore the lead agency under the California Environmental Quality Act (CEQA).

Consideration of this proposed Project will require environmental documentation, and possibly monitoring, in accordance with CEQA. The Executive Officer requests delegation of authority to engage a consultant for this purpose. Consultant selection shall be conducted in accordance with the procedures as specified in Commission Regulations and in the State Contract Manual, on the basis of demonstrated competence and qualifications for the types of services to be performed, and at a fair and reasonable price. All costs shall be recovered from the Project applicant.

The environmental documentation will address potential impacts to sensitive habitat of state- and federally listed species, cultural resources, and potential impacts from other proposed Project activities. For sensitive areas which cannot be avoided, the environmental documentation will provide measures to reduce impacts as much as possible. The Commission staff may recommend that a monitoring plan with appropriate guidelines be adopted to ensure that any proposed mitigation measures be accomplished.

OTHER PERTINENT INFORMATION:

1. The staff recommends that the Commission find that the subject proposal solicitation does not have a potential for resulting in either a direct or a reasonably foreseeable indirect physical change in the environment, and is, therefore, not a project in accordance with CEQA.

 Authority: Public Resources Code section 21065 and California Code of Regulations, Title 14, sections 15060, subdivision (c)(3), and 15378.
2. Approval of this item by the Commission does not constitute approval of the proposed Project; it only authorizes consultant contracts for environmental review.

STATUTORY AND OTHER REFERENCES:

- A. Public Resources Code section 6106 (Delegation to execute written instruments)
- B. State Contracts Manual section 11.00 A & E method (rev. 10/05)
- C. Public Contract Code section 6106
- D. Government Code section 4526
- E. California Administrative Code, Title 2, Article 13 sections 2980.0 - 2990.0
- F. Government Code section 19130
- G. California Administrative Code, Title 14, section 15045

CALENDAR ITEM NO. **C67** (CONT'D)

IT IS RECOMMENDED THAT THE COMMISSION:

1. Find that the subject proposal solicitation is not subject to the requirements of CEQA pursuant to California Code of Regulations, Title 14, section 15060, subdivision (c)(3), because the subject activity is not a project as defined by Public Resources Code section 21065 and California Code of Regulations, Title 14, section 15378.
2. Find that the services are of limited duration and are of such urgent, temporary and occasional nature that the delay in their implementation under civil service would frustrate their very purpose as specified in Government Code section 19139, subdivision (b)(10).
3. Find that the selection of consultants under this process does not affect small businesses as defined in Government Code section 11342.610, because they will be accorded equal opportunity to submit statements of qualifications and performance data.
4. Find that the selection of consultants under this process for professional services of architectural, landscape architectural, engineering, environmental, land surveying or construction project management services will be consistent with procedures and policies adopted by the Commission as specified in Government Code section 4526 and California Code of Regulations, Title 2, sections 2980 - 2980.9.
5. Authorize the Executive Officer or her designee to solicit proposals, negotiate a fair and reasonable price, award and execute contracts for environmental documentation and mitigation monitoring in accordance with State policies and procedures.
6. Authorize the Executive Officer or her designee to enter into an agreement with Project applicant to recover costs incurred in the consideration of this Project.

ATTACHMENT E

City of Goleta General Plan/Coastal Land Use Plan, Land Use Element Policies
9.2, 10.1

- d. Transient lodging units such as hotels that are operated as hotel condominiums, time-shares, or under a fractional ownership model shall be a permitted use regulated by mechanisms such as owner-occupancy limits, to ensure that these accommodations are available to the general public.
- e. Approval of any proposal for transient lodging units such as hotels that are operated as hotel condominiums, time-shares, or under a fractional ownership model shall limit occupancy by owners of individual units to 30 or fewer consecutive days for any single stay and no more than 90 total days in any calendar year. All transient lodging units in above-mentioned forms of ownership shall be made available for transient occupancy use by the general public through the hotel reservation system at times when units are not occupied.
- f. Any expansion or alteration of existing development shall be required to maintain or expand the extent of existing coastal access facilities, including parking and vertical access to the beach. "Maintain or expand" is clarified to include flexibility, if at least one of the following is met:
 1. To provide better protection of coastal resources;
 2. To maximize public access; and/or
 3. If natural processes impede existing access.
- g. Any expansion or alteration of existing development shall be required to protect environmentally sensitive habitats and archaeological resources, including provision of the buffers set forth in the Conservation Element. *(Amended by Reso. 08-30, 6/1/08)*

LU 9.2

Site #2 – Coastal Recreation. [GP/CPI] This parcel, occupied as of 2005 by the Venoco EOF, is designated in the Open Space/Active Recreation use category. The requirements applicable to this site are as follows (see Figure 2-2):

- a. The Recreation designation shall continue the nonconforming status of the existing use. The use was nonconforming at the time of incorporation of the City of Goleta. Its nonconforming status dates to the early 1990s when the property's zoning was changed by the County of Santa Barbara to the Recreation District as part of a plan to consolidate onshore oil and gas processing at the Las Flores Canyon site in the unincorporated area west of Goleta.
- b. The intent is that in the long-term use of the property for oil and gas processing shall be terminated. The processing of hazardous materials and the risks associated with air emissions make this location, which is adjacent to Bacara Resort and Sandpiper Golf Course and near Ellwood School and the residential neighborhoods of Santa Barbara Shores and Winchester Commons, unsuitable for oil and gas processing in the long term.
- c. Until such time as the oil and gas processing use is terminated, any modifications or alternations of the existing facilities shall be in accordance with the provisions of LU 10.1 and shall be designed to improve air quality, reduce environmental impacts and hazards, and improve safety for nearby lodging, recreational, and residential uses.
- d. Upon termination of the oil and gas processing use, the priority use for the site shall be coastal-dependent and coastal-related recreational uses that are conducted primarily outdoors or limited to small-scale structures. Adequate on-site parking shall be provided to serve all recreational uses (see related Policy OS 2).

229 acres, is owned by the City. These lands are subject to deed restrictions that require the use of the property to be restricted in perpetuity to passive recreational activities and habitat protection. The criteria applicable to these parcels are as follows (see Figure 2-2):

- a. All future actions shall be consistent with the primary purposes of (1) preserving and enhancing the properties' sensitive habitats, including habitats for monarch butterflies, various raptors, and western snowy plovers, as well as vernal pools, riparian areas, native grasslands, coastal scrub, and other sensitive aquatic and terrestrial habitats and (2) preserving or improving the past level of access and use by the public.
- b. Any development of structures shall be limited to a public restroom facility to be located at the public parking lot at Hollister Avenue.
- c. An extensive coastal access trail system shall be maintained, as shown in Figure 3-2 of the Open Space Element. The trails shall include segments of the California Coastal Trail and the Juan Bautista de Anza Historic Trail.
- d. Any trail improvements shall be designed to maintain the natural, low-impact appearance of the existing informal trails; surfacing materials shall be limited to compacted fines or native soil materials without binders. The widths of trails shall be the minimum necessary to accommodate the planned types of users.
- e. A public coastal access parking lot, not to exceed 45 parking spaces, shall be maintained at Santa Barbara Shores Park, with vehicular access from Hollister Avenue.
- f. Any ornamental landscaping shall be limited to native species that will maintain the natural appearance of the area and that will not impair or obstruct scenic views from Hollister Avenue to the coastal bluffs, Pacific Ocean, and Channel Islands and preserve views from within the property to the Santa Ynez Mountains.

(See related Policy OS 5 and Figures 3-3 and 3-4.)

Policy LU 10: Energy-Related On- and Off-Shore Uses [GP/CP]

Objective: To promote the discontinuation of onshore processing and transport facilities for oil and gas, the removal of unused or abandoned facilities, and the restoration of areas affected by existing or former oil and gas facilities within the city.

LU 10.1 Oil and Gas Processing Facilities (Venoco Ellwood Onshore Oil and Gas Processing Facility). [GP/CP] As of 2005, the city had one existing oil and gas processing facility situated within its boundaries, the Venoco-owned EOF, which is a nonconforming use. The EOF and other oil and gas processing facilities generate emissions of air pollutants, pose safety hazards to nearby areas, create visual impacts, and create risks to marine and land resources associated with spills, leaks, or pipeline ruptures. The following standards shall apply to oil and gas processing facilities:

- a. The City supports County policies regarding consolidation of oil and gas processing in the South Coast Consolidation Planning Area at Las Flores

Canyon in the unincorporated area west of Goleita. No new oil and gas processing facilities shall be permitted within Goleita.

- b. The Venoco EOF site is an inappropriate location for processing of oil and gas because of the public safety and environmental hazards associated with this type of use and its close proximity to residential neighborhoods, Ellwood School, Bacara Resort, and environmentally sensitive habitat areas. The site is designated in the Open Space/Active Recreation use category on the Land Use Plan map and shall continue to be a nonconforming use.



Venoco Ellwood Onshore Oil and Gas Processing Facility

- c. The EOF shall continue to be subject to the rights and limitations applicable to nonconforming uses under California law. No modifications or alterations of the facility or other actions shall be authorized that would result in the expansion of the permitted throughput capacity of the EOF. The existing maximum permitted capacity shall not be exceeded, except for very minor increases that may be incidental to actions designed to improve safety or reduce environmental impacts.
- d. Until the EOF use is terminated, the priority shall be to insure that the facility strictly meets or exceeds all applicable environmental and safety standards.

LU 10.2 Decommissioning of the Venoco Ellwood Onshore Oil and Gas Processing Facility. [GP/CP] The following requirements shall apply to the cessation of operations and decommissioning of the facility:

- a. Within 12 months of cessation of operations, the existing owner/operator shall submit an Abandonment Plan application for City review and approval. The Abandonment Plan shall include a detailed description of all decommissioning work and site restoration, including, but not limited to, remediation of soil and groundwater contamination if required by the City or County Fire Department. Removal of all oil and gas facilities and debris from the site shall be required, except where such removal would result in greater adverse impacts than abandonment in place. Disposition of all materials shall be at a properly licensed disposal site and in compliance with any applicable requirements. The estimated cost of the decommissioning work shall be deposited to an escrow account no later than the time the Abandonment Plan is submitted to the City.
- b. An Abandonment Plan shall also be required as part of any request for expansion of production levels for oil or gas. This Abandonment Plan shall be subject to a requirement for the owner/operator to provide a sinking fund or other financial instrument or surety that would pay for the full costs of decommissioning, including any required soil or groundwater remediation.

ATTACHMENT F

ExxonMobil Santa Ynez Unit Expansion Project Development Plan (87-DP-32cz)
Condition VII Consolidation

CONDITIONS OF APPROVAL

ExxonMobil Santa Ynez Unit
Expansion Project
87-DP-32cz

(Modified on July 25, 2001 with 87-DP-032cz (RV05) Synergy Project)
(Modified on February 19, 2003 with 87-DP-032cz (RV06) Offshore Power Cable Repair &
Enhancement Project)

Latest revision: 02/19/03
Printing date: 07/27/09

Las Flores/Corral Canyon property available to other developers for the construction of additional permitted oil and gas-related facilities. In the event that such necessary facilities are not permissible pursuant to the County's consolidation policies, ExxonMobil shall reduce its throughput on a pro-rata basis to accommodate such other developers.

The intent of this condition is to ensure the efficient and maximum use of oil and gas-related facilities in order to avoid the construction of redundant facilities.

VII-2. Terms for Shared Facility Use

Prior to approval of the Final Development Plan and at any time thereafter, as requested by the County, ExxonMobil shall submit to the Director of the Planning and Development Department terms, including financial terms, under which other producers in the area would be permitted to enter and use either the facilities or property in the canyons for oil and/or gas processing or storage facilities, or ancillary facilities including but not limited to electrical substations, power generating facilities, water treatment facilities, wastewater loading facilities, and NGL/LPG loading facilities. ExxonMobil shall submit the requested information to the Director of the Planning and Development Department within thirty (30) days of such request or by a date mutually agreed upon by ExxonMobil and the Director of the Planning and Development Department. If these terms are determined to be unacceptable to potential users of the facility and if agreement cannot be reached, the County shall reserve the right to impose additional conditions as described above to amend the permit. The intent of this condition is to ensure the efficient and maximum use of oil and gas transportation and processing facilities. *(Modified May 4, 1994; It-2 Review)*

VII-3. DELETED

VII-4. Oil Storage Capacity

Oil storage tanks, up to a maximum of 650,000 barrels, shall be permitted only in Corral Canyon on the proposed fill pad.

VIII. REMOVAL OF EXISTING FACILITIES

VIII-1.OS&T Discontinuance and Removal

ExxonMobil shall discontinue use of the OS&T within 30 days after the time that onshore oil facilities are fully operational and debugged. In any event, ExxonMobil shall remove the OS&T within one year of initial start-up of oil processing facilities. These time limits may be extended by the County upon a showing of good cause. The intent of this condition is to require the earliest practical removal of the OS&T.

VIII-2.OS&T SALM Removal

VI-4. NGL Unloading Station

In accordance with the approved NGL Unloading Station project description (87-DP-32AM03), ExxonMobil is permitted to import NGLs from the POPCO Las Flores Canyon Gas Plant to ExxonMobil's Stripping Gas Treating Plant (SGTP) via unloading facilities constructed at the LPG Storage Pad. This authorization shall be valid until September 15, 1997, after which time all truck unloading shall cease, except for: unloading NGLs from overweight ExxonMobil trucks; or unloading NGLs from ExxonMobil trucks carrying product, loaded at ExxonMobil's SYU facilities, that does not meet sales specification; or unloading NGLs from POPCO's facilities when it is infeasible to receive NGLs via a pipeline from POPCO because of upset conditions or facility turn-arounds. Any request to import NGLs or any other gas liquids from any source other than POPCO shall be reviewed by the Planning Commission as a revision to ExxonMobil's FDP. The volume of NGLs permitted to be imported by truck until September 15, 1997 is 438,000 barrels of NGLs per year (annual average). ExxonMobil shall report the volume of NGLs imported to the SGTP to the Planning and Development Department (P&D) annually through the Operations EQAP and at any time upon reasonable request from P&D. *(Added July 21, 1994; Amended July 16, 1996; Amended May 21, 1997.)*

VI-5. NGL Pipeline Connecting POPCO to ExxonMobil

By September 15, 1997, ExxonMobil shall construct and operate a pipeline, or use a pipeline constructed and operated by others, that connects POPCO's facilities to ExxonMobil's facilities for the purpose of shipping NGLs to ExxonMobil for blending in the crude oil shipped by ExxonMobil, and for incidental further processing necessary to accomplish blending. In no case shall ExxonMobil unload NGLs shipped via truck from POPCO's facilities to ExxonMobil after September 15, 1997, with exceptions noted in Condition VI-4. *(Added July 21, 1994; Amended July 16, 1996; Amended May 21, 1997.)*

VII. CONSOLIDATION

VII-1. Consolidation and Co-location

ExxonMobil shall make its facilities and property available for consolidation and co-location of oil and gas facilities on a non-discriminatory and equitable basis. County retains the right to verify that the use of the facilities and property is conforming with County policies regarding consolidation and to impose additional permit conditions where necessary to assure these policies are being fulfilled.

Consistent with the approved policy resolution regarding the consolidation of oil and gas processing facilities, in the event that the need for such facilities is demonstrated by other developers to the Planning Commission, ExxonMobil shall make available to such other developers any excess capacity of the SYU project facilities. In the event that sufficient excess capacity does not exist within the SYU project facilities to serve the needs of such other developers as demonstrated to the Planning Commission, ExxonMobil shall make its

Linda Krop, EDC

**Oral comments submitted at Public Meeting on Revised PRC 421
Recommissioning Project Recirculated Draft EIR, September 15, 2014 (Session 1).**

Thank you and good afternoon. My name is Linda Krop. I'm the chief counsel of the Environmental Defense Center appearing today on behalf of Get Oil Out, the Sierra Club, Citizens Planning Association and Citizens for Goleta Valley. First of all, I want to thank the State Lands Commission staff for holding a local hearing. And I would also like to thank the Commission itself for requiring some revisions and additional analysis in the Environmental Impact Report.

EDC-15

I am going to focus my comments on three issues. The first relates to the alternative of processing at LFC which is very important to our community because everyone acknowledges the significant impacts of processing on the pier, which is in the coastal zone. But we are also concerned about processing at the Elwood Onshore Facility, which was rezoned for recreational use 24 years ago. And we have grave concerns about expanding the use of that facility and maintaining its industrial use.

The additional discussion in the Environmental Impact Report identifies a couple options for use of the LFC but only analyzes one of them. And I will explain what I'm talking about. A lot of the impacts that were identified in the EIR relate to the fact that the product would be transported in a three-stage state, oil, gas and water. The EIR identifies and describes another option which would be separate the gas before transporting the project but doesn't analyze that. And we would like some additional information about that option because it may have two benefits. It may decrease the impacts associated with the pipeline transportation, and it may also reduce the concerns about capacity for processing at LFC. So we would like to see that option fleshed out more.

EDC-16

With respect to capacity at LFC, the EIR includes one sentence stating there is no capacity in the existing facilities and thus consistent with the consolidated status of the site. There would be a need to build a new oil dehydration facility and co-locate those facilities. Without facts regarding the capacity that exists at the existing facilities, we don't know if that's the only option. What we would like to see added to the EIR is information regarding the capacity levels at the existing facilities at the LFC processing site as well as projections over the life of the 421 project.

EDC-17

Finally, we have some advice for the presentation of the LFC alternative. The purpose of the County's consolidation policy, which is now partly embedded in the City's General Plan down here, is a focus on sites, more so than facilities. When the consolidation policy was adopted, there was an expectation that there might be a proliferation of these industrial facilities dotting the coast. So the County designated two consolidated sites with the

EDC-18

understanding that there may be co-located facilities within those sites. But the emphasis was on the sites rather than the facilities. There is some language in the EIR that seems to undermine that by indicating that it would be better to use an existing facility at Ellwood than to co-locate new facilities at the LFC site. And we think that is not consistent with the intent of the consolidation policy. It is better to co-locate the facilities at a designated consolidated site than to use an existing nonconforming facility.

The second issue I want to address is the repressurization issue. Again, we appreciate the additional information. It appears pretty clear now that there are a couple potential sources of repressurization, the poorly abandoned wells as well as aquifer influx. What we're still not clear on is how the production will affect those unrelated causes and specifically looking at some of the previous evidence of repressurization both with and without production, but also the concern that Venoco is not required to produce until there's no repressurization. And Venoco is not responsible for the aquifer influx or the poorly abandoned wells. And I think Steve will appreciate me saying that. Venoco will produce as long as the project is economically viable. And so we're concerned that the repressurization could continue regardless of whether or not this project goes forward or not.

EDC-19

The third and final issue I wanted to address is that of greenhouse gas emission mitigation. This was an issue that we commented to you on before the State Lands Commission in April. And the Commissioners did request more specificity regarding mitigation for the project greenhouse gas emissions. We believe it is abundantly feasible to do that because, according to the EIR, the project won't result in very high levels of greenhouse gas emissions. And the EIR indicates some ways in which those emissions could even be mitigated on site and offers some examples. The mitigation measure, however, is for Venoco to later submit a greenhouse gas emission reduction plan to the State Lands Commission staff. And there is plenty of case law out there saying that if it is feasible to include the specific mitigation measures in the EIR, that is preferable because then the lead agency or responsible agency has the responsibility to implement those measures as enforceable conditions on project approvals. In the *Communities for Better Environment versus City of Richmond* case it addresses this exact same issue where the EIR identified some specific measures to reduce greenhouse gas emissions but left it to Chevron to come up with a future plan. And the court said, no, it was feasible to come up with some specific measures, and that way they can be monitored and enforced as part of the monitoring and reporting program and as project conditions. That one seems like a pretty easy one to be able to address in the Final EIR.

EDC-20

Thank you very much.

RESPONSE TO COMMENT SET 7: EDC

- EDC-1 Comment acknowledged. The Recirculated Draft EIR and the Final EIR contain substantial discussion and analysis of the EOF, mitigation of the Project's GHG emissions, and substantial documentation of the repressurization issue. However, additional text has also been added to the Final EIR and more information is provided in these responses to comments, including the master responses (see master response MR-3). Please refer to responses to specific comments below.
- EDC-2 Please refer to MR-1 for discussion on the Project duration for the PRC 421 Recommissioning Project and Platform Holly.
- EDC-3 Pursuant to State CEQA Guidelines section 15124, subdivision (b), the EIR provides "a statement of objectives sought by the proposed project" as set forth by Venoco, the project Applicant. The objective also includes the "underlying purpose of the project" consistent with State CEQA Guidelines Section 15124, subdivision (b), as proposed by Venoco. This underlying purpose is also consistent with and required by the State's lease agreement with Venoco. Venoco's stated objective in implementing this Project is, "to return State Oil and Gas Lease PRC 421 to production and process the production at the EOF." Although processing oil at the EOF is a secondary objective of the Project, with the primary objective being production of PRC 421 oil, it is still part of Venoco's stated objective for this Project. However, this EIR analyzes alternatives that do not include processing oil at the EOF.
- EDC-4 The South Ellwood Field Project proposal has been incorporated into the list of cumulative projects, and relevant cumulative discussion. Please see Section 3.0, Cumulative Impacts Methodology, of the Final EIR. For the purposes of this EIR, operations at Platform Holly, which have been ongoing for decades, are considered part of the existing environmental baseline and discussed within relevant environmental impact analysis sections. Therefore, operations at Platform Holly are not considered under cumulative effects.
- EDC-5 The EIR clearly (1) acknowledges that repressurization is an ongoing natural phenomenon that will occur with or without the Project, (2) provides the best available known information about repressurization, the relative benefits of the Project in reducing repressurization, and the related potential risk of a future release of oil and the severity of such a release, and (3) recognizes that while the Project would only partially alleviate potential impacts associated with repressurization, it would provide the CSLC staff with the means to collect essential data needed for long-term planning to address this issue. Please refer to master response MR-3 for discussion on repressurization.
- EDC-6 Please refer to master response MR-5 for discussion on GHGs and relevant mitigation. Court case *Communities for a Better Environment v the City of Richmond* (2010) 184 Cal.App.4th 70 was reviewed in preparation of this Final

EIR. In the EIR for the Chevron Energy Renewal Project, GHG emission impacts are characterized as unknown and mitigation for GHG emissions proposed a generalized goal of complete reduction of GHG emissions with undefined and untested general goals. The Recirculated Draft EIR for the Project identifies Project-related GHG emission estimates using CalEEMod modeling data listed in the Technical Air Quality Report in Appendix D and provides mitigation requiring the formulation of a GHG emissions reduction program with participation in an accredited regulatory program or equivalent prior to approval of the Project, and annual mandatory GHG reporting. Achievement of mitigation for reduction of GHGs is not required to be an onsite measure, as onsite mitigation would be infeasible for many projects. Rather, the EIR sets forth feasible enforceable options for the Applicant to implement a program of GHG reductions to reduce emissions to zero. Consistent with State guidance on this matter, the CSLC, Santa Barbara County APCD, and the City of Goleta would retain full authority over approval of such a program. See also master response MR-5.

EDC-7 Environmental impact analysis for the No Project Alternative considers and discusses existing conditions, as well as reasonably foreseeable expectations in Section 5.3.1, No Project Alternative. Under this alternative, processing at the EOF would not occur and Venoco would resume production processing on the PRC 421 piers as stipulated in its existing oil and gas lease. Existing conditions at the time the NOP was prepared include Venoco's possession of a valid lease from the CSLC and Venoco's obligation to resume production under the conditions similar to those in existence in 1994, (i.e., processing on the piers). Although the wells were shut-in at the time of the NOP, Venoco's resumption of production includes the installation of modern production and safety technologies to comply with current industrial and environmental standards. A comparison of the No Project Alternative and the proposed Project is provided in the EIR for the decision makers' consideration.

EDC-8 The No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative would only be reasonably achievable with the quitclaim of Venoco's Lease PRC 421 by the CSLC, as Venoco has a contractual right to produce oil from the lease premises. The EIR does not disclose nor imply that this alternative is infeasible; rather, it discloses that there would be an economic cost to the State to compensate Venoco's interest taken. Although the EIR discloses this issue to provide decision-makers with information regarding the matter of the contractual obligations, the EIR fully describes the potential impacts of implementing this Alternative and provides a comparison of impacts from this alternative with the proposed Project and other alternatives. While the No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative would potentially be more consistent with the City of Goleta General Plan and Santa Barbara County Coastal Land Use Plan, the purpose of an EIR as defined by State CEQA Guidelines section 21061 is to identify physical effects to the environment. This alternative may result in more adverse impacts to the

physical environment due to repressurization. Please refer to MR-3 for discussion on repressurization.

- EDC-9 The EIR fully discusses land use and policy issues associated with use of the EOF, as well as air quality and hazard issues associated with the proposed Project. PRC 421 and the EOF are located between 2,000 to 4,000 feet from adjacent habitable structures (e.g., Bacara Resort and Spa); both PRC 421 and the EOF are subject to rigorous regulation and inspection, and the EOF has been substantially upgraded over the last 10 to 15 years. In terms of the consolidation policies, the EIR provides an objective analysis of the relative environmental impacts of implementing the proposed Project and the Processing PRC 421 Oil at LFC Alternative. The EIR clearly sets forth the intent of the 1987 Consolidation Policies and then describes the environmental consequences of pursuing those policies for this Project. The EIR fully comports with the requirements of State CEQA Guidelines section 15126.6 to describe a reasonable range of alternatives to the proposed Project, such as processing at LFC. The EIR describes this Alternative at a relatively high level of detail and sets forth probable impacts in order to permit comparison to the proposed Project. Please refer to MR-4 for additional discussion of the LFC Alternative.
- EDC-10 Separating gas prior to transporting to LFC is described on page 5-35 of the EIR and is a consequence of this alternative if the new pipeline to LFC cannot operate with the three-phase state, known as “tightlining.” If tightlining is not possible, then, as the EIR describes, additional infrastructure would be required on the piers for gas separation, including a 1,000 to 1,500-barrel breakout tank, and installation of a flare and oil shipping pump. Separating gas at the piers is essentially processing production on the piers in a configuration that would have much greater impacts than the No Project Alternative that provides a less environmentally damaging means to process (i.e., separating gas) on the piers. The purpose of the Processing PRC 421 Oil at LFC Alternative is to remove the processing of oil (including the separating of gas) at the pier or near the shore zone and the associated impacts of such activities within the surf zone.
- EDC-11 This Alternative is based on the best available information available regarding the LFC facilities obtained by Venoco in consultation with the LFC facility operator, ExxonMobil. Please refer to master response MR-4 for discussion.
- EDC-12 The purpose of an EIR is to identify significant effects or changes to the physical environment as a result of a project, to identify reasonable alternatives, and to identify ways to mitigate or avoid significant environmental effects. The EIR sets forth the Processing PRC 421 Oil at LFC Alternative as a reasonable alternative to the proposed Project that includes processing at LFC, describes this alternative at a relatively high level of detail, and addresses potential environmental impacts. The EIR also discloses and describes the consolidation policies. However, for the purposes of an

alternatives analysis under CEQA, an EIR is not required to delve deeply into the purpose and scope of the consolidation requirements that apply to LFC in order to identify effects on the physical environment.

- EDC-13 The key project objective is to return PRC 421 to production, not to address repressurization, which would be a secondary benefit of restoring production, although this benefit could be short- to mid-term. The alternatives analysis is appropriately focused on those alternatives capable of partially or wholly meeting project objectives, as is appropriate under CEQA. Under the No Production/ Quitclaim of State Oil and Gas Lease PRC 421 Alternative, Venoco would not be required to pressure test; absent some form of production, pressure testing would not be feasible. Please refer to comment CG-2 regarding the project objective and MR-3 regarding repressurization.
- EDC-14 Comment acknowledged. The EIR thoroughly describes impacts of the proposed Project, as well as those of the LFC Alternative. Refer to MR-4 for further discussion of the LFC Alternative.
- EDC-15 Please refer to Master Comments MR-3 through MR-5, and to response to comments EDC-16 through EDC-20.
- EDC-16 Please see response to comment EDC-10.
- EDC-17 Please refer to MR-4 for discussion related to the LFC alternative and available processing capacity at existing facilities.
- EDC-18 Please refer to response EDC-9 for discussion regarding analysis of the consolidated facility and to MR-4 for discussion related to the LFC alternative.
- EDC-19 The existence of poorly abandoned wells is not a source of repressurization. Please refer to MR-3 for discussion related to repressurization.
- EDC-20 Please refer to MR-5 for discussion related to GHGs and related mitigation.

COMMENT SET 8: GET OIL OUT! (GOO) – CARLA FRISK***Oral comments submitted at Public Meeting on Revised PRC 421 Recommisioning Project Recirculated Draft EIR, September 15, 2014 (Session 2).***

First of all, I want to thank you guys for sending me a hard copy for Get Oil Out. It was helpful. I read parts of it and am working on it. That was one of my comments at the other hearing, and I just want to say I appreciate that. We also want to thank you guys for once again coming down to have this workshop in Goleta so people can have an opportunity to come. I understand there were other people here earlier. So, I apologize in advance if I am going to repeat things that they said. That's the way it is. Anyway, there are really two key items that I want to address tonight. And like I said, I know others testified. Linda Krop, who is our EDC who is our legal counsel on this, testified. And I am guessing I will repeat some of the things she and others said.

GOO-1

I think there are really the two critical issues that need to go delved into just a little more. I think the State Land Commissions staff and the consultants did a great job expanding the information that was really needed for the public to understand some of these more technical issues, particularly, repressurization of the Vaqueros Formation. I don't think we really had any kind of inkling about what was happening and why it was happening before. And now I think we have a much better idea. Thank you for that. However, there are still some missing pieces to that puzzle that we would like to see in the Final EIR. So with regards to the information on the aquifer influx, the report focuses on the hows and whys but it really doesn't discuss the bigger picture. In other words, if the project is approved, what happens when it's abandoned? We have this situation where we have these old abandoned wells, and that's the concern because you've got this expectation that the formation will continue to repressurize as long as there is water, I guess. That's what it sounds like to me. The question is can you get 100 percent of the oil out, and probably the answer to that no. On page 4-58 it states this project is the environmentally superior option because of the risk of significant oil spills and leaks in the absence of this project. That's not really the question we should be asking. The question we should be asking is how can we get -- deal with this bigger issue. Because this is really just a Band-Aid. This is just a Band-Aid for a problem that was caused by the drilling of oil and gas in these old abandoned facilities that were shown earlier on the slide. So, the way I understand it, if I read the EIR right, through this aquifer influx, nature is trying to basically regain its balance, its original situation at roughly 1525 psi. So it seems that the process can never cease as long as there are these nearby poorly abandoned wells, that nature will continue to try to use its influx to bring that up, that balance it had before. And we will continually be threatened by these wells being not abandoned in a way we would like to have them abandoned today. The EIR needs to really take that next step, the Final EIR, and determine are there other ways to relieve this

GOO-2

repressurization. In other words, could we take water out? And how much would that be and how would you do that? If we could, if there are other ways to deal with this issue, then I think this project would be looked at in a different light.

Secondly, what would be the most likely scenario regarding repressurization if the project goes forward once it's completed? In other words, is it -- it is unlikely that 100 percent of the oil would be recovered. So if there are no other alternatives to address repressurization problems, is it going to be -- do we really have to go back and re-abandon those wells? What are our options for the long term? That's really not included in the EIR. I know it is not specifically related to this project but in a way it is. It is really part of the big picture. Without this information how can the State Lands Commission properly analyze the impact of this project in view of that and adequately determine what mitigation measures will be needed to address this issue in the long term. Merely monitoring repressurization status is hardly adequate. Venoco stands to make money, just like any oil company would, on this project. It needs to adequately address this situation and mitigate before the leases are abandoned and returned to the State. Otherwise, this problem will be left like many others have been in the past, with the citizens and the responsibility of the State, with the responsibility of the citizens to fix this problem with no financial resources.

**GOO-2
cont.**

The second point I want to make is that reprocessing at LFC, this alternative really has to be taken more seriously. If the city of Goleta -- the city of Goleta has not yet made a decision as to whether processing at the EOF is consistent with land use policies. If the City's decision is it is not, that leaves only one alternative which is on the piers. And what kind of option is that? I think everybody agrees that is like the worst possible option. Of course, there is the new full field application that has been submitted. What is the effect of that? We should be analyzing this project not in a vacuum. Every year the Ellwood Onshore Facility, which is already an aging facility, gets a year older, and every year it seems like the alternatives for production at Platform Holly - - excuse me. The lifetime, the estimates for the production of Platform Holly are extended.

GOO-3

The question is now we're out at 2054, I believe, from the EIR. Do we really want the EOF, a nonconforming use for all the reasons that staff indicated, to be in business in 2054. I would venture that is not what the County had in mind when they had rezoned the property to recreation. In fact, the goal was to discontinue the use of the EOF. And that doesn't necessarily coincide with the completion of Platform Holly.

GOO-4

So, the report mentions the possibility of removing the gas from the oil/gas/water mix and leave the water and oil together to send that to LFC, but it doesn't really analyze that scenario. It really just sticks with the three-

GOO-5

way mix. We would like to see that looked at a little more closely. The County's consolidation policies favor the use of consolidation sites over the continued use of a nonconforming use. I don't think that is clearly enough stated. Taking this oil to LFC provides a reasonable third option and complies with the City's -- or the County's land use policies, especially given the substantial risk represented by the pier alternative.

**GOO-5
cont.**

I think that's what needs to be looked at is those two alternatives. There's issues with both of them but I think the issues with the piers is much greater since we don't know what the City is going to -- what finding the City is going to make on that.

This project appears to be based on a lot of assumptions which may not be correct, i.e., one, that the processing at the EOF is legally feasible. The City hasn't weighed in on that.

GOO-6

Two, that the assumption that the EOF will be available for the lifetime of this project and Platform Holly. We don't know that.

GOO-7

Number three, the assumption that processing at the EOF, again a nonconforming use, is preferable to co-locating other facilities at LFC. In fact, discontinued use of the EOF in favor of LFC is the right long-term solution to this problem of where to take all the oil from the Elwood field. Shouldn't we be looking -- we shouldn't be looking at this issue in a vacuum.

GOO-8

Finally, our attorney when we submit our written comments and probably earlier today was covered some of the more technical issues related to this, particularly deficiencies in the document related to greenhouse gas emissions. And so I'm not going to go into that further but incorporate those concerns by reference. And they will be in the written comments that you get next week. I think that's it.

GOO-9

RESPONSE TO COMMENT SET 8: GOO – CARLA FRISK

- GOO-1 Comment acknowledged.
- GOO-2 For discussion on repressurization after well abandonment please refer to master response MR-3.
- GOO-3 Discussion on the Processing PRC 421 Oil at LFC Alternative is detailed in master response MR-4. The South Ellwood Field Project proposal by Venoco has been incorporated into the list of cumulative projects, and relevant cumulative discussion. Please see Section 3.0, Cumulative Impacts Methodology, of the Final EIR.
- GOO-4 While the City of Goleta encourages the processing of oil and gas production at LFC in its General Plan, it is not a requirement for projects that resume existing production, such as PRC 421. As stated in Section 2.2 of the EIR, the EOF would be decommissioned when the production life of Platform Holly ends, regardless of the status of Lease PRC 421. In the event that production from Lease PRC 421 has not ended by the time production ends on Platform Holly, the EOF must still be decommissioned and may not be used to process production from Lease PRC 421. Please see master response MR-1 for further discussion on the duration of the Project and production at Platform Holly.
- GOO-5 As stated, under the Processing PRC 421 Oil at LFC Alternative, no processing of oil/gas/water emulsion would occur within the surf zone at Pier 421-2 (i.e., gas would not be separated from oil and water at the pier), consistent with City of Goleta policies, and the emulsion produced at PRC 421 would remain in a three-phase state (oil/gas/water) and be transported via pipeline to LFC for processing. Impacts associated with the separation of gas from the oil/gas/water emulsion at Pier 421-2 prior to the transportation of oil product are analyzed more closely in the No Project Alternative in Section 5.3.1. Under the No Project Alternative, if the Commission first determines that adequate corrective measures have been taken and operations may be resumed, 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 and a new Liquid-Liquid Cyclone Separator at Pier 421-2 to separate produced gas and water from oil. As noted in the EIR, separation of gas under the No Project Alternative would increase potential impacts compared to the proposed Project, in part because of the new oil separation equipment on Pier 421-2 (see Section 5.3.1), as well as increased activity required on Pier 421-2 and the potential for releases from separation equipment on the pier (see Section 6.4.2). The EIR identifies the proposed Project as environmentally superior to both the Processing PRC 421 Oil at LFC Alternative, which also has greater environmental impacts when compared to the proposed Project due to construction and operation of 9.7

miles of new pipeline from the EOF to the Receiving Station in LFC and construction and operation of up to 1.5 acres of new oil processing facilities at LFC, and the No Project Alternative. See also response to comment EDC-10.

- GOO-6 The EIR discusses the proposed Project's potential consistency with the City of Goleta General Plan regarding the use of the EOF and provides a range of alternatives that do not rely upon the EOF. As required by CEQA, this EIR analyzes the Project as proposed by the Applicant, including the proposed use of the EOF. The City of Goleta will need to determine if use of and minor improvements to the EOF are consistent with City policy and ordinances. The CSLC will consider the proposed Project and its alternatives along with input from the public and interested agencies.
- GOO-7 Comment acknowledged. Production from lease PRC 421 would be complete before the end of the production life of Platform Holly, which currently uses the EOF. See master response MR-1 for further discussion on Project duration and production at Platform Holly.
- GOO-8 Comment acknowledged. In comparison to the proposed Project, the Processing PRC 421 Oil at LFC Alternative would have substantially more adverse environmental impacts due to the construction and operation of 10.2 miles of new pipeline, more infrastructure on Pier 421-2, and new oil processing facilities at LFC (see Section 6.4.5).
- GOO-9 Comment acknowledged.

COMMENT SET 9: SANTA BARBARA CHANNELKEEPER (CK)



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September 24, 2014

Eric Gillies, Assistant Chief
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RE: Revised PRC 421 Recommissioning Recirculated Draft EIR Comments

Please accept the following comments on the Revised Draft Environmental Impact Report (DEIR) for the Venoco Inc. PRC 421 Recommissioning Project, which are hereby submitted by Santa Barbara Channelkeeper. Santa Barbara Channelkeeper is a local non-profit environmental organization dedicated to protecting and restoring the Santa Barbara Channel and its watersheds through science-based advocacy, education, field work and enforcement.

Channelkeeper is pleased to see that Venoco is working to consolidate their oil development resources and that some of our recommended mitigation measures were incorporated into the revised DEIR. However, Channelkeeper and our many members who reside and/or recreate in the project vicinity continue to have concerns about the potential environmental impacts associated with the proposed project.

After reviewing the revised DEIR, Channelkeeper continues to have the following concerns:

- The project would have significant, unavoidable impacts in an area that hosts several endangered and threatened species and is in immediate and close proximity to many Environmentally Sensitive Habitat Areas.
- The project relies on infrastructure that has a history of requiring continuous repairs to address leaks. Additionally, Venoco has a history of accidents and violations at their operations in the area and at the Ellwood site specifically. We therefore question Venoco's ability to ensure that oil and hazardous materials will not reach the marine and terrestrial environment.

Additionally, Channelkeeper has the following new concerns:

- Real Time Transient Monitoring (RTTM), compact separators, and other Best Available Technologies for pipeline leak detection should be analyzed as options for the proposed project and the Las Flores Canyon (LFC) alternative. The DEIR analyzes the projects based on volumetric detection technology but other technologies may improve leak detection and would reduce environmental impacts.
- The DEIR fails to evaluate Venoco's proposed South Ellwood Field project as a relevant cumulative project.¹ This project should be added to Figure 3-1 and Table 3-1 and all cumulative impact subsections of the Environmental Impact Analysis chapter should be reassessed.
- The impact analysis of the LFC alternative should be reframed to more accurately portray the intent of local policy objectives.

CK-1

¹CSLC meeting 8/15/14: Calendar item C67

http://archives.sl.c.ca.gov/Meeting_Summaries/2014_Documents/08-15-14/Items_and_Exhibits/C67.pdf

Endangered/Threatened Species and Sensitive Habitats

The DEIR indicates that the proposed project could have significant, unavoidable impacts to terrestrial and marine biological resources. Several endangered and threatened species, including the tidewater goby, steelhead trout, snowy plover, California Least tern, and Belding’s Savannah Sparrow, utilize the area immediately within and adjacent to the proposed project site. These species would be extremely vulnerable to any impacts during construction or if an oil spill occurred. There are also several Critical Habitat designations for endangered species within the project vicinity, including Bell Creek for tidewater goby, Tecolote Creek for steelhead trout, and the shoreline from Devereux Slough to Ellwood for snowy plover. Additionally, the project site is immediately adjacent and in close proximity to several Environmentally Sensitive Habitat Areas (ESHAs). Tecolote Creek and Lagoon, Bell Canyon Creek and Lagoon, the Devereux Slough, Naples Reef, and all marine areas offshore of Goleta within State waters have received this special designation to demonstrate and protect their ecological importance and vulnerability. Naples Reef and the waters surrounding Campus Point (whose western edge is less than one mile from the project site) have additional protection as State Marine Conservation Areas.

CK-2

Any impact to these areas and species could be significant because of their vulnerability. The DEIR indicates that an oil spill would have significant, unavoidable impacts on these marine and terrestrial resources. Additionally, while mitigation measures may reduce some impacts during construction, the DEIR acknowledges that “incidental disturbance by equipment, indirect construction effects, and impacts from accidental fuel or oil releases are possible” (page 4-218). The Goleta General Plan and Comprehensive Land Use Plan acknowledge the vulnerability of these habitats, mandating that “ESHAs shall be protected against significant disruption of habitat values, and only uses or development dependent on and compatible with maintaining such resources shall be allowed within ESHAs or their buffers” (page 4-253). It is clear that the proposed project would be in violation of this mandate as there may be significant impacts to these sensitive habitats. The California State Lands Commission (CSLC) must evaluate whether this project is worth the potential impacts to these sensitive resources.

Venoco’s History and Project Site History

Channelkeeper is wary of Venoco’s history of accidents and non-compliance in our region and at the project site specifically. The DEIR indicates that two of the four blowouts that have occurred from Pacific Outer Continental Shelf oil and gas projects since 1992 came from Platform Gail in 2000 and 2004, when the platform was owned by Venoco (page 4-85). In 2009, one barrel of oil spilled from Platform Holly, and in 2010, a leak from a pipe at Platform Gail released 63 gallons of oil.^{1,2} Additionally, it took over a decade, and significant from Channelkeeper and the Regional Water Quality Control Board, for Venoco to finally and adequately clean up areas of the Carpinteria Oil and Gas Processing Facility that were contaminated with DDT and other toxic chemicals.³ Recent problems include seven Notices of Violation issued by the Santa Barbara County Air Pollution Control District, including unauthorized venting of produced gas, exceeding allowable flare limits, failing to provide 24 hour notice prior to degassing, exceeding boat use limits, flare operational violations, failure to monitor engine emissions, and failure to perform required engine testing. Five of these problems occurred in the proposed project’s vicinity.⁴ The Ellwood Facility also failed to

CK-3

¹ <http://www.independent.com/news/2009/jun/25/platform-holly-spills-oil-santa-barbara-coast/>

² <http://www.vcstar.com/news/2010/oct/22/63-gallons-of-oil-spilled-off-platform-gail/>

³ Carpinteria Valley Association. 2010. Channelkeeper and Carpinteria: A Success Story. *CV Action*. 47(1): 3.

⁴ <http://www.sbcpd.org/apcd/boardfiles/03-13-novs-feb.pdf>

submit an annual report as required by the General Industrial Stormwater permit in 2009 and was found to be in violation of said permit by the Central Coast Region Water Quality Control Board.⁵

Venoco's history of accidents and non-compliance, combined with historical issues at the project site, could predispose this project to significant adverse impacts. The piers within PRC 421 have had a history of leaking, degrading and requiring frequent repairs. Emergency repairs were required in 2001, 2004, and 2011, all while Venoco owned the lease (page 4-46). All repairs were made because of directives from the Santa Barbara County Air Pollution Control District or CSLC, not through Venoco's own admission (pages 2-4 and 2-5). As effects from climate change become more prominent, Pier 421-2 and its associated infrastructure will only face greater pressure from increased wave action and more severe storms, requiring even more repairs.

CK-3 cont.

The infrastructure involved in the proposed project is old and will require continuous maintenance. Relying on Venoco to quickly identify any potential issues and act preemptively is risky given their history of recalcitrance, accidents, and non-compliance.

Best Available Technology for Leak Detection

The DEIR indicates that leak detection along pipelines under the LFC alternative would be less accurate than the proposed project because oil would be transported in a multiphase form. This assertion plays a large role in the DEIR's determination that processing at LFC is more impactful than the proposed project. However, there are available technologies that can improve leak detection in multiphase pipelines. The DEIR only analyzes volumetric based leak detection. An analysis by Alaska's Department of Environmental Conservation reveals that Real Time Transient Modeling (RTTM) can address some of the issues associated with multiphase leak detection compared to volume balance models:

“Real time transient modeling is capable of dealing with this transient storage effect, albeit at degraded sensitivities, whereas volume balance methods may misinterpret loss to and gain from the slackline as a leak from or false input to the pipeline.”⁶

CK-4

Additionally, compact separators and other technologies can be used to improve leak detection by removing the majority of the gas before it is transported by pipeline. While the DEIR indicates that this separation is possible, it fails to analyze this option.

Chapter 4, CE 1.6(d) and CE 1.8 of Goleta's General Plan state that projects that may impact ESHAs should implement “mitigation measures to avoid or lessen impacts to the maximum extent feasible” and that “development adjacent to an ESHA shall minimize impacts to habitat values or sensitive species to the maximum extent feasible.” Additionally, Article 7, Section 30262 (7)(A) of the Coastal Act states that “pipelines used to transport this oil shall utilize the best achievable technology to ensure maximum protection of public health and safety and of the integrity and productivity of terrestrial and marine ecosystems.” Channelkeeper therefore feels that the best available technology for leak detection should be incorporated into the project and be analyzed for the proposed project and the LFC alternative.

⁵ http://www.waterboards.ca.gov/centralcoast/board_info/agendas/2009/oct/item7/stfrpt_7.pdf

⁶ <http://dec.alaska.gov/spar/ipp/docs/ldetect1.pdf>

South Ellwood Field Project

The CSLC determined that Venoco’s revised application for their proposed South Ellwood Field Project was complete in July 2014. As a result, this project should be included as a relevant cumulative project in the revised PRC 421 DEIR and should be added to Figure 3-1 and Table 3-1 (pages 3-2 through 3-5). The South Ellwood Field Project, as proposed, would result in increased oil production in the area, increased processing at the EOF (or processing at LFC), and additional environmental impacts as Venoco plans to redrill up to six wells from Platform Holly.

The City of Goleta’s General Plan specifically addresses this project in Chapter 2, LU 10.3(b) stating, “In the event that extended field development from Platform Holly is approved, the City supports the processing of oil and gas production at the South Coast Consolidation Planning Area at Las Flores Canyon.” This indicates that if the South Ellwood Field Project is approved, oil and gas from Platform Holly should be processed at LFC. Thus, if PRC 421 oil is processed at the EOF as proposed, rather than at LFC, oil from PRC 421 could be the only oil processed at the EOF. This would in fact prolong the life of the EOF as the non-conforming facility would otherwise be shut down as a result of not processing oil from Platform Holly. Alternatively, approval of processing PRC 421 oil at the EOF would make it more likely that oil from Platform Holly would continue to be processed at the EOF, rather than at the preferred, consolidated LFC facility. This project therefore has significant bearing on the analysis of environmental impacts and the use of the EOF and requires that all cumulative impact subsections of the Environmental Impact Analysis chapter be reanalyzed and that the Alternative Analysis be reframed (discussed in greater detail below).

CK-5

Framing of LFC Impacts vs. EOF Impacts

While the DEIR does analyze the impacts of processing oil at the consolidated LFC facility, it fails to weigh those impacts against the continued use of the EOF. This is especially significant in relation to the South Ellwood Field project. In the impact analysis of the LFC alternative there is much emphasis placed on potential impacts from the new pipeline and additional facilities needed at the LFC site. While using an existing facility may initially appear to have fewer impacts than building new facilities, reframing the analysis to more accurately reflect local policies may reveal that continuing use of the non-conforming EOF may be more impactful.

Coastal Act, County Coastal Land Use Plan, and City of Goleta General Plan policies are all clear that consolidation of oil facilities is a priority.^{7,8,9} The LFC facility was designated as the consolidation site to support these policies. While the LFC may need additional upgrades, County Land Use Policy 6-6c, Condition 1, acknowledges that the County shall “consider expansion of facilities at consolidated sites” in order to support their consolidation policies. This statement indicates that some expansion of facilities, as long as they are a designated consolidation facility, might be more acceptable than using an existing non-consolidated, non-conforming facility.

CK-6

Additionally, the specific objective of the City of Goleta’s LU 10 policy in the General Plan is “to promote the discontinuation of onshore processing and transport facilities for oil and gas.” The General Plan goes on to say that “the Venoco EOF site is an inappropriate location for processing of oil and gas because of the public safety and environmental hazards associated with this type of use and its close proximity to residential neighborhoods, Ellwood School, Bacara Resort, and environmentally sensitive habitat areas.” These two statements illuminate the purpose of the

⁷ Coastal Act. Article 7, Section 30262 (2).

⁸ Santa Barbara County. Coastal Land Use Plan. Policy 6-6c.

⁹ City of Goleta. General Plan/Local Coastal Plan. LU 10.

consolidation policy: to ultimately eliminate processing at the EOF, the only remaining non-conforming oil processing facility on the South Coast.

The proposed project would be in greater conflict with this objective when the South Ellwood Field project is included in the analysis. As mentioned above, the approval of processing PRC 421 oil and gas at the EOF may impact how processing occurs for the proposed South Ellwood Field project and the extended, continued use of the EOF. It may be more environmentally beneficial, and more in line with city, county, and state policies, to have Venoco bypass the EOF for the proposed project, thus encouraging processing at the consolidated LFC facility and decommissioning of the EOF under the South Ellwood Field project if it were to be approved. We hope that the Final EIR is updated to include an analysis of the above issues.

CK-6 cont.

Conclusion

As described in detail above, Santa Barbara Channelkeeper has several concerns regarding the proposed project. The potential significant adverse impacts to sensitive habitats and species are magnified when paired with Venoco's history in the region and the site's history of need for repair. Channelkeeper also has concerns regarding implementation of Best Available Technology for pipeline leak detection and is apprehensive of precedent-setting decisions that may continue the non-conforming use of the EOF.

Thank you for the opportunity to comment on the revised DEIR for the PRC 421 Recommissioning Project; we appreciate your attention to the issues and concerns we raise and trust you will address them before certifying the EIR. Please feel free to contact us via email at jennad@sbck.org or telephone at 805.563.3377 ext.5 should you have any questions.

Sincerely,



Kira Redmond
Executive Director



Jenna Driscoll
Watershed and Marine Program Associate

RESPONSE TO COMMENT SET 9: SANTA BARBARA CHANNELKEEPER

- CK-1 Please refer to responses to specific concerns in responses to comments CK-2 through CK-6 below.
- CK-2 The EIR includes a range of mitigation measures intended to protect the environment, including sensitive species and habitats, from potential harm related to Project implementation. However, no mitigation is available that would reduce the probability of every adverse Project effect to zero. Thus, the EIR identifies 16 significant and unavoidable impacts, 13 of which are related to effects of potential oil spills. Adoption of a Statement of Overriding Considerations would be required if the CSLC approves the Project.
- CK-3 Venoco's history of regulatory compliance, accident frequency, and emergency response will be considered by the CSLC when deciding whether or not to approve the Project. The existing repaired seaward-facing walls on the caissons of Piers 421-1 and 421-2 are designed and engineered to protect the seaward-facing side of the caissons from severe winter storm damage. MMs S-2a and S-2b would require Venoco to: (1) develop and submit to CSLC staff design plans, certified by a professional civil/structural engineer, for the non-seaward-facing caisson walls that address the potential for failure of these walls from high-magnitude, low-frequency events including storms for the Project duration; (2) perform caisson repairs in accordance with approved design plans prior to recommencement of oil and gas production; and (3) require regular winter storm season monitoring and response.
- CK-4 There are three-phase modeling programs with transient response features available (e.g., "OLGA"). However, in communications the Applicant has had with leak detection system vendors, including OLGA (Schlumberger), ATMOS, and EFA (Ed Farmer Associates), all have stated that the compositional changes expected from the well source as well as inherent phase changes that will occur along the route make this a particularly challenging application. The use of real-time transient models has the potential to offer better accuracy; but at this time no vendor has agreed to furnish a specific quantitative estimate. The EIR states in Section 2.5.2, Maintenance and Safety of Line 96, that the existing Line 96 leak detection accuracy is estimated to fall in the +/- 5 percent range over a 4-hour period, and +/- 1percent range over a 24-hour period. For the PRC 421 emulsion line the pipeline pressure/composition is much more variable. As such, the maximum accuracy of the leak detection system is expected to be +/- 15 percent over a 4-hour period. Flow upsets (including slug flow) could further reduce accuracy to +/- 40 percent until flow equilibrium is reestablished.
- CK-5 The South Ellwood Field Project proposal has been incorporated into the list of cumulative projects, and relevant cumulative discussion. Please see Section 3.0, Cumulative Impacts Methodology, of the Final EIR. While the City of Goleta encourages the processing of oil and gas production at LFC in its

General Plan, it is not a requirement for resumption of production at existing facilities and at this point in time, the feasibility of using LFC facilities as an alternative for the recently proposed South Ellwood Field Project has not been analyzed pursuant to CEQA and is speculative. As stated in Section 2.2, Proposed Project, the EOF will be decommissioned when the production life of Platform Holly ends, regardless of the status of Lease PRC 421. In the event that production from Lease PRC 421 has not ended by the time production ends on Platform Holly, the EOF must still be decommissioned and may not be used to process production from Lease PRC 421. Please refer to master response MR-1 for further discussion on the duration of the Project and production at Platform Holly.

- CK-6 The purpose of an EIR as defined by State CEQA Guidelines section 21061 is to identify significant effects or changes to the physical environment as a result of a project, to identify reasonable alternatives, and to identify ways to mitigate or avoid significant environmental effects. While the EIR discusses the potential consistency issues of the proposed Project with the City of Goleta and Santa Barbara County adopted plans and policies, the Processing PRC 421 Oil at LFC Alternative would have substantially more adverse impacts to the physical environment due to the construction and operation of 10.2 miles of new pipeline, more infrastructure on Pier 421-2, and new oil processing facilities at LFC (see Section 6.4.5). Also see master response MR-4 for further discussion.

The South Ellwood Field Project proposal has been incorporated into the list of cumulative projects, and relevant cumulative discussion. Please see Section 3.0, Cumulative Impacts Methodology, of the Final EIR. However, specific impacts of the South Ellwood Field Project to the EOF, the relationship of PRC 421, and consistency with applicable plans and policies would be addressed in a separate environmental review process.

COMMENT SET 10: INGEBORG COX, MD

September 20, 2014

Comments for the Recirculated DEIR for the revised 421 Recommissioning Project.

CSLC EIR number: 732 SCH Number: 2005061013

From: Ingeborg Cox MD, MPH

Some existing structures at Pier 421-2 that would be recommissioned as part of this project were constructed in 1928. **(4-40)** They are **86 years old**.

IC-1

The Project would prolong the use of the aging caisson on Pier 421-2, which could collapse and lead to the release of hazardous materials and oil from within the caisson. **(4-76)**

I have these questions after reading the recirculated DEIR.

In a time of drought why can Venoco increase the pump speed which would result in more water being produced in order to maximize oil production? **(ES-13)** What type of water are they using to even consider making these claims? If it is drinking water, is oil more important?

IC-2

According to the County of Santa Barbara Energy Division website the permitted capacities for produced water for the EOF are **8,200 barrels of water** per day.

No as-built plans were provided by Venoco for the seawall and deteriorating older portions of the caissons and **no load calculations** are available for the new walls; therefore the stability of the piers, caissons and seawall is impossible to fully ascertain. **(4-79)** The 2000 Thomas and Beers structural engineering report also referenced the lack of as-built plans.

IC-3

In the **FEIR from January 2014** a letter of Glenn S. Russell, PhD, Director of the Santa Barbara County Planning and Development, dated December 19, 2013, mentions:” County Land Use Policies (CLUP) 6-6A require that oil and gas....be processed at consolidated onshore facilities to avoid the proliferation...of redundant processing facilities along the coast. These Policies are codified in the County’s Article II Coastal Zoning Ordinance Sections 35-154 through 35-158. **The EOF is recognized in the DEIR as a legal nonconforming site which is not designated for consolidated processing.**”

IC-4

The DEIR states on page **4-100**: **“Additional processing at the EOF** would incrementally increase the risk of a hazardous material release and subsequent release of oil into the marine environment, no matter how low the probability, **this impact would be significant** and unavoidable”.

IC-5

Why does the CSLC want to run the risk with no as-built plans, rising sea levels due to global warming and structures more than 80 years old, and a seawall that may or may not have followed standard Santa Barbara County construction practices?

Also, with **no as-built plans available for this aging facility how can the structural stability for the life of the Project operation be ascertained?** Why is the CSLC reviewing a project with no as-built plans and still considering the EOF which is NOT designated for consolidated processing?

IC-6

Also it appears that **earthquake loading** has NOT been considered in the design of this structure **(4-79)**. We have had recent seismic activity in Isla Vista and also in Napa. Earthquake loading has to be considered.

IC-6
cont.

Movement along an offshore fault in the Santa Barbara Channel or in more distant faults could also result in a large wave event. The **wave height could reach as high as 40 feet**, could overtop the piers and access road and potentially compromise the structural integrity of PRC 421-1 or 421-2 caissons. **(4-40)**.

The **well cellar within the caisson** has a volume of approximately 213 barrels of oil **(8,946 gallons)**. It is believed to have sand and other materials packed around it BUT its actual condition and construction are unknown **(4-78)**. If the construction is unknown why is it stated that the well cellar would serve as containment within the caisson?

IC-7

This is not just a recommissioning project; it appears that PRC 421 needs more safeguards than that. Also to be considered is the worst-case discharge volume for the South Ellwood Field which is 3,000 barrels (126,000 **gallons**) according to the report. Isn't Holly part of the South Ellwood Field?

IC-8

Which other oils are being transported in Line 96? On **page 4-136** it is mentioned that the PRC 421 oil represents only **3.61 percent** of the total oil transported through the pipeline, **most of which** is from Platform Holly, which produces **4,000 Barrels of Oil per day (BOPD)** (**168,000 gallons** per day).

IC-9

Also the design of the repairs done and the project **include an assumption** that subsurface conditions for the repair were **accurately characterized by one soil boring** that was completed **approximately 80 feet north of the structure** in the access road as part of the 2001 repair project.**(4-40)**

Is one soil boring taken at that distance enough? One sample is not even enough to give data for a statistical calculation. The documentation for this project is not available, what are the consequences in the long run if the project is allowed? Can CSLC allow the risk of a major oil spill along our coast?

IC-10

The project infrastructure would be at risk of being damaged in a seismic event. A seismic event could also damage sections of the pipeline connecting Pier 421-2 to Line 96 as well as Line 96 itself. **(4-76)**

Where is the pump of PRC 421-2 currently located? Why is the new Electrical Submersible Pump (ESP) being placed at a **depth of about 2,960 feet** below sea level? **(4-76)**

IC-11

There have been **four blowouts** from Pacific Outer Continental Shelf (OCS) oil/gas projects since 1992. **Two of which** occurred in 2000 and 2004 from **Platform Gail**, which is currently operated by Venoco. Both were due, at least in part, to **human error**. **(4-85)** If an oil spill occurred at PRC 421 Bell Canyon Creek and Deveraux Slough estuaries would be affected, **(4-85)** and also the residents living nearby.

IC-12

Why does the **current Emergency Action Plan (EAP)** for South Ellwood NOT contain any procedures for response to a release at PRC 421? **(4-87)** Is this normal procedure? If not, why was it allowed until now?

IC-13

“The crude oil that would be produced by the Project and transported through Line 96 would not be a source of acute toxic impacts to human receptors if released and is not expected to be a source of odors that would be a nuisance to the public”. (4-126) However, according to an Arthur D. Little Quantitative Risk Assessment (QRA) for Venoco’s Holly and Ellwood Facility (June 9, 2000) the gas pipeline from Platform Holly emerges from underground and connects with the Venoco facility at the southern end of the plant. It appears that this is near the area where PRC 421 oil will join Holly oil.

A rupture in the gas pipeline could lead to a major release. The resulting release of untreated gas from Platform Holly, would contain methane and **hydrogen sulfide up to 20,000 ppm**. Inhalation of 1000ppm can be lethal. Other consequences are flammable dispersion leading to a possible vapor cloud explosion and toxic dispersion.

IC-14

“The public could also face potentially hazardous conditions if leaks of hydrocarbons and sulfur compounds occurred from the sides of the caisson structures, as happened recently from the side of Pier 421-1 and the seaward side of Pier 421-2”. (4-90) How can you ensure the integrity of a structure without having access to as-built plans or will this structure be rebuilt?

“...repressurization is not a purpose of the Project, but **Project implementation may affect repressurisation**” (1-2) If repressurisation could be affected then this needs to be fully evaluated. The area has had an increase in residential housing and the residents’ safety should come first. If repressurization will be affected, who will be correcting the oil wells that have been abandoned incorrectly?

IC-15

The co-location of the facility at Las Flores needs to be further investigated.

IC-16

Please correct: Page 3-3 Bacara Resort and Spa Expansion is not pending.

IC-17

Ingeborg Cox - Oral comments submitted at Public Meeting on Revised PRC 421 Recommissioning Project Recirculated Draft EIR, September 15, 2014 (Session 1).

Most likely I will send you all my comments, but I will right now do some of the highlights. All right. Thank you. Existing structures at Pier 421 that would be decommissioned as part of this project, as we know, were constructed in 1928. They are 86 years old. In a time of drought why can't Venoco increase the pump speed which would result in more water being produced in order to maximize oil production? What type of water are they going to use, to even consider making these claims? If it is drinking water, is more oil more important? No.

IC-18

As-built plans were provided by Venoco for the seawall and deteriorating all the portions of the caissons and no load calculations are available for the new walls. Therefore, the stability of the piers, caissons and seawall at the time is impossible to fully ascertain. With no plans available for this aging facility, how can the structure stability for the life of the project operation be ascertained?

IC-19

Also, it appears that earthquake loading has not been considered in the design of the structure. We have had recent seismic activity in Isla Vista and also in Napa. Moving along an offshore fault in the Santa Barbara Channel or a more distant fault could result in a large wave event. These wave heights could reach as high as 40 feet.

The well cellar within the caisson has a volume of approximately 8946 gallons. But it's actual condition and construction are unknown. If the construction is unknown, why is it stated that the well cellar would serve as containment within the caisson?

IC-20

Also, are the oil wells that were not abandoned correctly going to be corrected by Venoco? The design of the repairs done in the project include an assumption that the subsurface conditions for the repair were accurately characterized by only one soil boring that was completed approximately 80 feet north of the structure. One sample is not even enough to give data for a statistical calculation. The project infrastructure would be at risk of being damaged in a seismic event. We have had recent seismic activity, like I stated, in Isla Vista and in Napa.

IC-21

What I would like to find out is where is the pump of PRC 421-2 currently located? Because the new electric submersible pump is going to be placed at the depth of about 2960 feet below the sea level.

IC-22

There have been two blowouts from before in the area. One was in 2000 and the other in 2004 from Platform Gale, which is currently operated by Venoco. Both were due to human error. If an oil spill occurred at PRC 421, Bell

IC-23

Canyon Creek and Devereux Slough Estuary would be affected.

Also, why does the current emergency action plan for South Elwood not contain any procedures for response to a release at PRC 421? Is this normal procedure? And if not, why was it allowed until now?

IC-24

Apparently a gasoline -- apparently the gas pipeline from Platform Holly emerges from underground and connects with the Venoco facility at the southern end of the plant. It looks like this is near the area where PRC 421 oil will join Holly oil. A rupture in the gas pipeline could lead to a major release. Other consequences are flammable dispersion leading to a vapor cloud explosion and toxic dispersion. If this can have deleterious effect for the residents, can this have deleterious effects for the residents nearby and why was this site chosen? Also, this area is besides the Bell Creek, which is an ESHA.

IC-25

I agree with the previous speaker to further investigate the co-location of the facility at LFC. And I will be sending you further comments. Thank you.

IC-26

RESPONSE TO COMMENT SET 10: INGEBORG COX, MD

- IC-1 Comment acknowledged. A number of infrastructure upgrades have been completed on Piers 421-1 and 421-2 and additional improvements are proposed for Pier 421-2. Please see Section 2.0, Project Description, of the Final EIR for more information on these improvements. Also noted on page 4-314 of the EIR, the historic structures have been modified considerably since 1928 and the reconstructed structures to their present configuration occurred sometime between 1979 and 1987. In addition, both the caissons and the pier structures are inspected annually by a California registered civil/structural engineers. Impacts related to hazardous materials are described in Section 4.3, Hazardous Materials.
- IC-2 Water produced from extraction of PRC 421 oil would not be considered potable water due to residual oil and potential mineral content. Also, production of oil and produced water from the combined production of Platform Holly and PRC 421 would remain within permitted processing and disposal limits for the EOF.
- IC-3 The geological stability of the PRC 421 pier locations is described in Section 4.1, Geological Resources, of the EIR and potential impacts related to stability are described in Impact GEO-1, Seismic and Seismically Induced Hazards. MMs are provided to evaluate seismic loading, field-verify subsurface conditions, inspect facilities after seismic events, and cease production during tsunami warnings (MM GEO-1a to MM GEO-1d). The seaward-facing wall of Pier 421-2, as well of portions of the east- and west-facing walls, has been substantially reinforced through repairs conducted in 2011. The Project also includes repair of the walls that were not repaired in 2011.
- IC-4 Please refer to master response MR-2 for discussion regarding the nonconforming status of the EOF.
- IC-5 Comment acknowledged. The Project was selected as the Environmentally Superior Alternative because it presents a lower risk of oil spill, and incorporated infrastructure upgrades would improve safety, compared to the continued shut-in of the PRC 421 wells. The EIR includes a range of MMs intended to protect the environment and area residents from potential harm related to a potential release of hazardous materials.
- IC-6 Earthquake loading would be considered for the design of infrastructure upgrades for Pier 421-2 that would improve the stability of Pier 421-2. MM S-2a, Design Review/Wave Loading Evaluation, requires Venoco to develop design improvement plans that account for wave loading and earthquake conditions, in accordance with California Building Code, to support Project facilities through the production life. The revised design plans would be reviewed and certified by a professional civil/structural engineer and submitted to CSLC staff for approval. Caisson repairs would be performed in accordance

with approved design plans prior to recommencement of production at Pier 421-2. Additionally, please also refer to master response MR-2 for discussion on the infrastructure at the EOF. While no as-built plans of Pier 421-2 are included in this EIR, a plot map of the EOF is available at: www.sbcountyplanning.org/energy/documents/projects/Venoco-PlotPlan.pdf.

- IC-7 As discussed in Section 4.2, Safety, the well cellar would require improvements to ensure its condition and suitability to prevent any migration of oil from Pier 421-2 in the event of an accidental release. MM S-4a, Containment, would ensure the well cellar is equipped for containment of leakages. The well cellar would be tested by Venoco to determine whether it is leaking, and coated with a rubber type liner or other sealant to prevent migration from the cellar walls or bottom to surrounding areas. If the well cellar is leaking, an engineering evaluation would be performed to determine the best method to achieve containment, which may include replacement with a double wall cellar or retrofit with a membrane coating capable of containing oil and preventing migration. The revised design, which includes these improvements, would be reviewed and certified by a registered engineer and submitted to the CSLC staff for approval, and Venoco would construct all approved improvements prior to recommencing production.
- IC-8 Platform Holly is within the South Ellwood Oil Field. The worst-case planning volume for South Ellwood Field has been updated to 30,811 barrels; this number reflects the most recent and accurate data. Please see Section 4.2, Safety.
- IC-9 Oil from Platform Holly makes up the remainder of the oil transported via Line 96 (96.39 percent).
- IC-10 In Section 4.1, Geological Resources, MM GEO-3, Perform Subsurface Evaluation, requires an evaluation of soils performed by a Geotechnical Engineer prior to construction. Further discussion on impacts related to seismic events are discussed in Section 4.1.
- IC-11 Well 421-2 is not currently active. Installation of the ESP at 2,960 feet below sea level is to reach the depth at which oil can be accessed in the Vaqueros Reservoir. This depth also protects the equipment from wave action and avoids creating a noise source on the surface.
- IC-12 The EIR includes a range of MMs intended to protect the environment and area residents from potential harm related to oil spills. However, no mitigation is available that would reduce the probability of every adverse Project effect to zero. Thus, the EIR identifies 16 significant and unavoidable impacts, 13 of which are related to effects of potential oil spills. Adoption of a Statement of Overriding Considerations would be required if the CSLC approves the Project.

- IC-13 The existing Emergency Action Plan (EAP) applies to the South Ellwood Oil Field as PRC 421 has been shut in for more than a decade. This EIR contains mitigation (MM S-5b, Develop Emergency Action Plan (EAP)/Update to South Ellwood Field EAP) requiring Venoco to incorporate response procedures specific to the new system prior to the initiation of operation, as well as requiring an update of the South Ellwood Field EAP.
- IC-14 Please refer to Section 2.0 of the EIR, Project Description, for a list of proposed upgrades to Pier 421-2 infrastructure.
- IC-15 Please refer to MR-3 for discussion on repressurization.
- IC-16 Please refer to MR-4 for further discussion on processing at LFC.
- IC-17 Table 3.1 in Section 3.0, Cumulative Impacts Methodology, of the Final EIR has been revised to reflect the withdrawn status of the Bacara Resort and Spa Expansion.
- IC-18 Please refer to response to comment IC-2.
- IC-19 Please refer to response to comments IC-3.
- IC-20 Please refer to response to comment IC-7.
- IC-21 Please refer to response to comment IC-6.
- IC-22 Please refer to response to comment IC-11.
- IC-23 Please refer to response to comment IC-12.
- IC-24 Please refer to response to comment IC-13.
- IC-25 Please refer to response to comment IC-12.
- IC-26 Comment acknowledged. Please refer to MR-4 for further discussion on processing at LFC.

COMMENT SET 11: ED AND SUSAN DOUGHERTY

From: Susie Dougherty [cruzantimes@yahoo.com]
Sent: Thursday, September 04, 2014 3:39 PM
To: Comments, CEQA@SLC
Subject: Venoco

Yes, please say yes to Venoco. We need the oil and the wages and taxes earned from their oil. ESD-1

Ed and Susan Dougherty
285 N. Kellogg Ave.
SB, CA 93111

RESPONSE TO COMMENT SET 11: ED AND SUSAN DOUGHERTY

ESD-1 The commenter's support for the proposed Project is noted and will be provided to the decision-makers prior to a decision on the Project.

COMMENT SET 12: MICHAEL LOPEZ

***Oral comments submitted at Public Meeting on Revised PRC 421
Recommissioning Project Recirculated Draft EIR, September 15, 2014 (Session 1).***

My name is Michael Lopez. I'm with -- affiliated with Local 114, the Plumbers and Pipefitters Local in Santa Barbara County. The only thing I want to say is the last speaker talked about responsibility to the community. One thing I appreciate Venoco's procedural methodologies and what goes on in Santa Barbara County, such a highly regulated -- there is no place more regulated than this area. That part of being in service to the community is providing safe jobs and producing material in the most safest methodologies possible. And I don't know of any other place that can do that better than, as you folks are attested to with your hard work, in Santa Barbara County. We are in support of that project and hope it moves forward. Thank you.

ML-1

RESPONSE TO COMMENT SET 12: MICHAEL LOPEZ

ML-1 Comment acknowledged. The commenter's support for the proposed Project is noted and will be provided to the decision-makers prior to a decision on the Project.

COMMENT SET 13: BARBARA MASSEY

Oral comments submitted at Public Meeting on Revised PRC 421 Recommissioning Project Recirculated Draft EIR, September 15, 2014 (Session 1).

Good afternoon. Barbara Massey. I wanted to point out, first of all, that the EOF is the onshore facility and not the offshore facility. That's part of the reason we're upset with it. I would like to say, also, I agree with both Linda Krop and Dr. Cox. When the State Lands Commission staff revised the inadequate FEIR, they realized unless they changed the no project alternative, they could not get the recommissioning approved. At that point they declared the, quote, Venoco is obligated to resume production and processing of oil from Pier 421 under conditions similar to those in existence in 1994. Why wasn't Venoco obligated to do this in 2013 and it is now? Define the conditions in existence in 1994 and do these conditions meet current standards? By asking -- By saying that Venoco is obligated to resume production, staff has made the State responsible for paying Venoco if Venoco is not allowed to proceed. This is against the best interests of the State and the taxpayers. The State Lands Commission is supposed to be representing the interest of the citizens of the State and not the oil industry.

BM-1

Why was Holly's production life extended from 20 years in December of 2013 to 40 years in the January 2014 FEIR and in this document? I would like to have this explained.

BM-2

On page 1-1 it states, "Operations shall not resume until authorization of resumption of operations has been made by the Commission." I would like to know when this was done. It seems a waste of time to review and comment on the new DEIR because no matter what facts are presented to the State Lands Commission, it will find a way for this project to be approved. The citizens of the State deserve better.

BM-3

RESPONSE TO COMMENT SET 13: BARBARA MASSEY

BM-1 Venoco holds an existing lease from the CSLC that contains contractual obligations on the parts of both Venoco and the State of California. The EIR also describes all Project-related impacts and a wide range of alternatives. The CSLC and other decision-makers will be required to consider all of this information in determining whether the proposed Project should be approved.

BM-2 Please refer to MR-1 for discussion on the Project duration.

BM-3 The CSLC has not yet authorized the resumption of operations at Well 421-2 and will consider all of the information in this EIR, including public comments, when deciding what action to take on the proposed Project.

COMMENT SET 14: D.A. METROV

From: Metro [webadmin@bragg.com]
Sent: Thursday, September 04, 2014 2:54 PM
To: Comments, CEQA@SLC
Subject: Revised PRC 421 Recommissioning Recirculated DEIR Comments

Please do not let Venoco further develop, or re-develop, or otherwise mar our beautiful beaches, oceans, and off-shore regions with industrial oil projects. | DM-1

D. A. Metrov
Web & Video Administrator
Bragg Live Foods
www.bragg.com
199 Winchester Canyon
Santa Barbara, CA 93117
(805) 968-1020 Ex. 109



RESPONSE TO COMMENT SET 14: D.A. METROV

DM-1 The commenter's opposition to the proposed Project is noted and will be provided to the decision-makers prior to a decision on the Project.

COMMENT SET 15: NANCY VASQUEZ AND WILLIAM VASQUEZ

From: Nancy Vasquez [nancyvasquezconsulting@gmail.com]
Sent: Monday, July 28, 2014 1:40 PM
To: Comments, CEQA@SLC
Cc: William Vasquez
Subject: Re: Re-commissioning the Sandpiper Oil Processing unit - VENECO - PRC 421

To Eric Gillies

California State Lands Commission

100 Howe Ave. STE 100-South

Sacramento, CA 95825

[\(916\) 574-1890](tel:9165741890)

Dear Mr. Gillies,

I wanted to go on record to strongly oppose the possible re-commissioning of the State Oil and Gas Lease PRC 421, currently under consideration and proposed by VENECO Corp. This is in reference to the facility at the Southern end of the Sandpiper Golf Course.

We use this coast line for recreation and love the beauty. We want to preserve it for our children and future Goleta residents, not more oil production.

Thank you for your help to insure that my comments are properly documented.

Sincerely,

Nancy Vasquez Ph: [805-968-1724](tel:8059681724)
Homeowner, Goleta, CA

NWV-1

Responses to Comments

On Mon, Jul 28, 2014 at 7:55 AM, William Vasquez <willyv@wvasquez.com> wrote:

To Eric Gillies

California State Lands Commission

100 Howe Ave. STE 100-South

Sacramento, CA 95825

[\(916\) 574-1890](tel:(916)574-1890)

Dear Mr. Gillies,

I wanted to go on record to strongly oppose the possible re-commissioning of the State Oil and Gas Lease PRC 421, currently under consideration and proposed by VENECO Corp. This is in reference to the facility at the Southern end of the Sandpiper Golf Course.

The Goleta area has seen historic growth over the past 10 years, with even more growth planned. People use this stretch of the coast line for daily recreation, and use the entire area for hiking, biking, walking their dogs and generally “getting away” from the city atmosphere.

Creating a new operation here, on the beach, will certainly create disruption to the area’s use, and will certainly enrage more of the community due to limiting their access to the area.

Thank you for your help to insure that my comments are properly documented.

Sincerely,

Will Vasquez Ph: [805-685-9546](tel:805-685-9546)

Homeowner, Goleta, CA

NWV-2

RESPONSE TO COMMENT SET 15: NANCY VASQUEZ AND WILLIAM VASQUEZ

NWV-1 The commenter's opposition to the proposed Project is noted and will be provided to the decision-makers prior to a decision on the Project.

NWV-2 Please refer to the response to comment NWV-1. Please note that the PRC 421 piers already exist on the beach and resumption of operations would not disrupt access in the area that currently exists. A benefit of the proposed Project would be that Pier 421-1 would be decommissioned and removed therefore lessening the amount of infrastructure on the beach.

COMMENT SET 16: VENOCO INC.



VIA EMAIL (CEQAcomments@slc.ca.gov)

September 23, 2014

Eric Gillies
Project Manager
California State Lands Commission
100 Howe Avenue, Suite 100-South

Re: Recirculated Draft Environmental Impact Report for the Revised PRC 421
Recommissioning Project (SCH No. 2005061013) (“Draft EIR”)

Dear Mr. Gillies,

Venoco, Inc. (“Venoco”) desires to provide comments to the California State Lands Commission (“Commission”) regarding the greenhouse gas (“GHG”) portion of the above-referenced Draft EIR.

We would like to incorporate herein the comments submitted to the Commission on April 8, 2014 by Gilchrist & Rutter, attorneys representing Venoco, a copy of which is attached to this letter for your convenience. The letter clearly explained that the Commission cannot legally set a zero emissions threshold for GHG emissions either generally or for one particular type of industrial use. Any such threshold is prohibited under the California Environmental Quality Act.

The Draft EIR states several times that “SBCAPCD does not currently have a formally adopted GHG threshold” and “as of the publication of this EIR there are no county thresholds for GHG emissions from projects”. This is not the time to recommend something that could have wide ranging consequences without thorough legal analysis.

Although Venoco objects to the Commission’s use of a zero GHG emissions threshold and will oppose any future use of such a threshold, Venoco will not oppose the Draft EIR as written because opposition to the EIR will only delay the benefits of the project to Venoco and the State of California.

Sincerely,

Ian Livett
Vice President, Southern California Operations

VEN-1

LAW OFFICES
GILCHRIST & RUTTER
PROFESSIONAL CORPORATION

WILSHIRE PALISADES BUILDING
1299 OCEAN AVENUE, SUITE 900
SANTA MONICA, CALIFORNIA 90401-1000

TELEPHONE (310) 393-4000
FACSIMILE (310) 394-4700
E-MAIL: acnorlan@gilchrstrutter.com
DIRECT DIAL: 310.460.4476

April 8, 2014

VIA E-MAIL (JENNIFER.LUCCHESI@SLC.CA.GOV) AND U.S. MAIL

Jennifer Lucchesi
Executive Director
California State Lands Commission
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202
Facsimile: 916-574-1810
E-Mail: jennifer.lucchesi@slc.ca.gov

Re: Venoco, Inc. Project 421/Final Environmental Impact Report
Threshold for Judging Significance of GHG Impacts

Dear Ms. Lucchesi:

We represent Venoco, Inc. with respect to issues raised by the above-referenced Environmental Impact Report ("EIR") under the California Environmental Quality Act ("CEQA").¹

This letter is specifically addressed to the State Lands Commission's decision, as the lead agency for the EIR, to use a "zero emissions threshold for GHG emissions above baseline" to determine if the project would have a potentially significant impact on the environment. (Final EIR, p. 4-129.) Although CEQA Guidelines § 15064.4 does grant a lead agency discretion to choose a threshold and a methodology for determining the significance of a project's impacts, this particular threshold was *specifically rejected* by the California Natural Resources Agency ("Natural Resources") for use in determining the significance of greenhouse gas ("GHG") emission impacts in its newly adopted CEQA Guidelines precisely because CEQA does not allow for setting either a *de minimis* threshold or a "one molecule rule" to judge the significance of a project's impacts or determine whether its impacts would be cumulatively considerable.

As you know, Senate Bill 97 required California to adopt new CEQA Guidelines for analyzing the significance of a project's GHG emissions under CEQA. Ultimately, Natural Resources adopted the new GHG CEQA Guidelines in 2010. As a policy matter, Natural Resources decided that the CEQA Guidelines would assess GHG emissions as a cumulative

¹ References to "CEQA" are to the California Public Resources Code §§ 21000 *et seq.* References to the "CEQA Guidelines" are to 14 California Code of Regulations §§ 15000 *et seq.*

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Jennifer Lucchesi
April 8, 2014
Page 2

impact² and as an air pollutant,³ due to the global nature of the effect of GHG emissions. These policy decisions are critical for two reasons: (1) based on established CEQA case law specifically addressing cumulative impacts, neither a zero or "net zero," nor a *de minimis* threshold can be used for determining whether a project's GHG emissions are cumulatively considerable; and (2) different thresholds cannot be used to determine whether the GHG emissions from one type of project are cumulatively considerable versus those from another type of project.

When adopting the GHG CEQA Guidelines, Natural Resources clearly stated that it *could not legally* set a zero net emissions threshold for GHG emissions because CEQA does not allow for setting either a *de minimis* threshold or a "one molecule rule" to judge the significance of a project's impacts or determine whether its impacts would be cumulatively considerable, citing *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, 120-21 ("*CBE*") as authority.⁴ As the *CBE* court explained, a *de minimis* standard is inconsistent with CEQA because it measures "a proposed project's *de minimis* incremental impact relative to the existing cumulative impact, rather than focus[ing] on the combined effects of these impacts." (*CBE, supra*, at p. 121.) As it further explained, setting the threshold at zero is also inconsistent with CEQA, *as that "would be akin to no environmental effect ... [and] '[a]n EIR should not discuss impacts which do not result in part from the project evaluated in the EIR'... [or] 'significant cumulative impacts caused by other projects alone.'"* (*Id.*; emphasis added.)

CBE was a Third District Court of Appeal decision that, in turn, relied on decisions from the Fifth District and Second District Courts of Appeal setting aside EIRs that implicitly or explicitly relied on a *de minimis* threshold for determining that a project's impacts were not cumulatively considerable. (*CBE, supra*, at pp. 118-120.) Therefore, as Natural Resources recognized, *CBE's* holdings reflect widely accepted CEQA doctrine.

Moreover, by also treating GHG emissions as air pollutant emissions in the GHG CEQA Guidelines, Natural Resources ensured that these emissions would be analyzed under CEQA like any other air pollutant. Analyses of air pollutant impacts in EIRs typically rely on thresholds promulgated by the regional air districts. Those thresholds do not change depending upon the source of the emissions, because air pollutant emissions from all sources ultimately combine to determine the air quality in any given region or basin. (Indeed, this EIR treats this project's air emissions like those of any other project's *except* for its GHG emissions.) For this reason,

² See Notice of Proposed Action, p. 10; Natural Resources, *Final Statement of Reasons for Regulatory Action* (2009) ("*Final Statement of Reasons*"), p. 17.

³ *Id.*, p. 11.

⁴ *Final Statement of Reasons*, pp. 25-26.

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PROFESSIONAL CORPORATION

Jennifer Lucchesi
April 8, 2014
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legally, no distinction can be drawn between an industrial source emitting one ton of carbon dioxide and a commercial source emitting one ton of carbon dioxide – the impact on global climate change is the same irrespective of the source of the carbon dioxide emission. A threshold must be supported by substantial evidence if used to determine the significance of an environmental impact.⁵ No substantial evidence can support setting a lower threshold for an industrial source than for a commercial source.

Consequently, while the California State Lands Commission has discretion to set a threshold for GHG emissions for general use, it cannot legally set a zero emissions threshold for those emissions either generally or for one particular type of industrial use. For this reason, the EIR's use of a zero emissions threshold for determining the significance of GHG emissions is contrary to CEQA, and renders the EIR legally flawed.

We look forward to working with you to reach a solution to this issue that allows the project to move forward on a timely basis.

Very truly yours,

GILCHRIST & RUTTER
Professional Corporation



A. Catherine Norian
Of the Firm

cc: Terry L. Anderson, Esq.
Mr. Steve Greig
Ms. Cassie Gilson
[395375.5/5231.001]

⁵ *Final Statement of Reasons*, pp. 84-85.

RESPONSE TO COMMENT SET 17: VENOCO INC.

VEN-1 Please refer to MR-5 for discussion related to GHG emission thresholds.

California State Lands Commission

**PART III –
REVISIONS TO
RECIRCULATED
DRAFT EIR
(JULY 2014)**

Final Environmental Impact Report for the
Revised PRC 421 Recommissioning Project, November 2014

EXECUTIVE SUMMARY

1 BACKGROUND AND PROJECT LOCATION

2 The objective of this Executive Summary is to provide a brief description of Venoco,
3 Inc.'s (Venoco's) proposed Revised PRC 421 Recommissioning Project (Project). The
4 Project would be conducted along the southern coast of California, adjacent to and
5 within the City of Goleta, Santa Barbara County (Figure ES-1). The Executive Summary
6 introduces the purpose of the ~~Recirculated Draft~~ Final Environmental Impact Report
7 (EIR) and key components of the Project activities, identifies significant environmental
8 effects that would result from implementation of the Project, lists feasible mitigation
9 measures (MMs) that would avoid or minimize those significant environmental effects,
10 and summarizes Project alternatives. Please refer to the EIR text for a complete
11 description and discussion of the Project, alternatives, thresholds used to determine
12 significance of impacts, potentially significant environmental effects, and MMs.

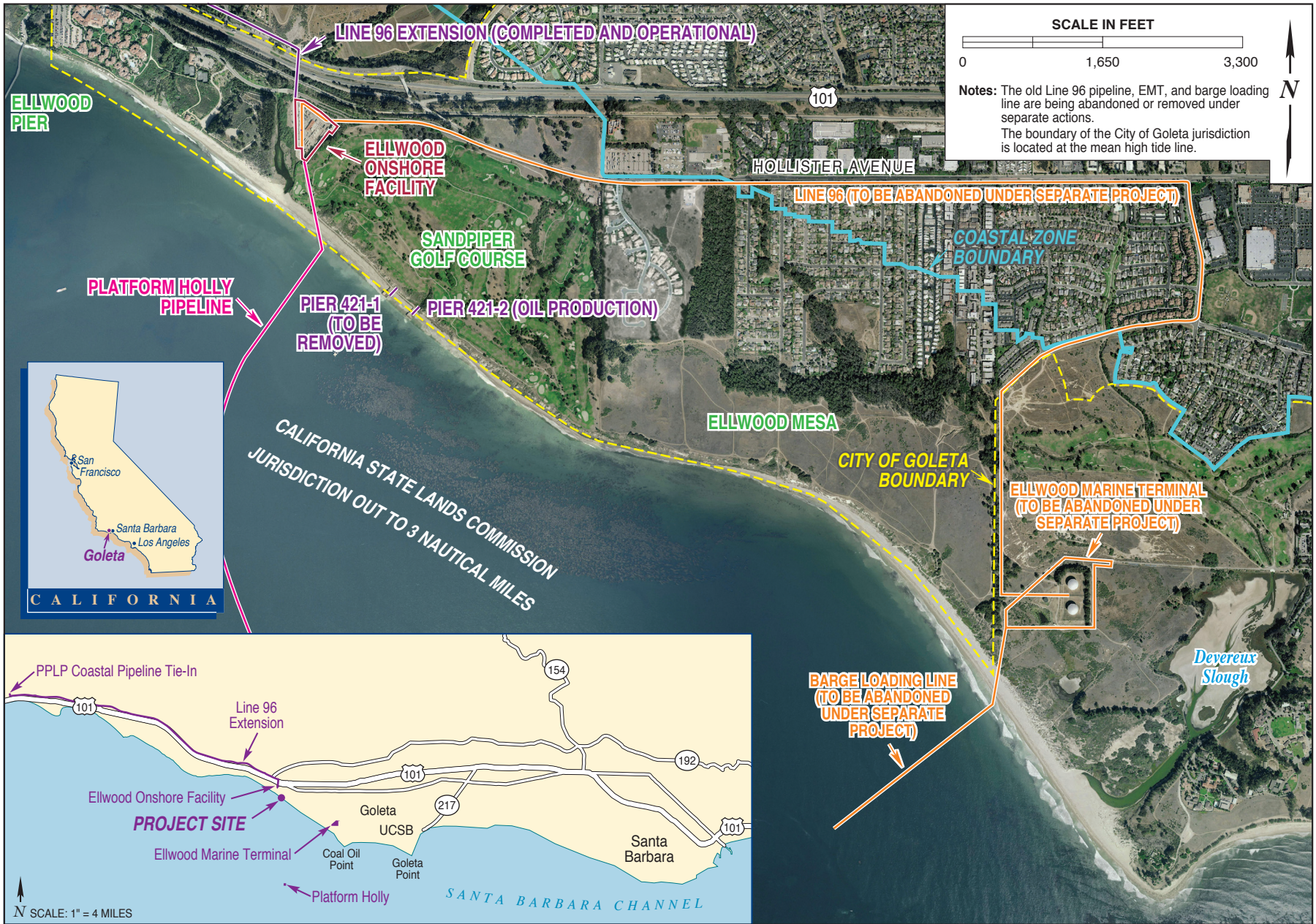
13 The California State Lands Commission (CSLC) is the Lead Agency for preparation of
14 this EIR pursuant to the California Environmental Quality Act (CEQA; Pub. Resources
15 Code, § 21000 et seq.), because Venoco, a privately held, independent oil and gas
16 company and the operator of State Lease PRC 421 (PRC 421) has submitted an
17 application to the CSLC to return PRC 421 to oil production from an existing shoreline
18 well (Well 421-2) with the production processed at the Ellwood Onshore Facility (EOF).
19 Table ES-1 provides a timeline of the PRC 421 lease.

20 As proposed, Venoco would:

- 21 • Recommission Well 421-2, located offshore in CSLC jurisdiction, using an
22 existing pier (Pier 421-2) that straddles the City of Goleta's and CSLC's
23 jurisdiction, located southeast of what is commonly known as Haskell's Beach;
- 24 • Separate, at the existing EOF in the City of Goleta, water and gas from crude oil
25 emulsion extracted from Well 421-2; no processing or separation would occur on
26 Pier 421-2; and
- 27 • Decommission a second well (Well 421-1), which is located on an adjacent pier
28 (Pier 421-1) on Haskell's Beach, and remove Pier 421-1 and the caisson and
29 facilities that support Well 421-1.¹ Well 421-1 and caisson are located in CSLC
30 jurisdiction. Pier 421-1 straddles the City of Goleta's and CSLC's jurisdiction.²

¹ Well 421-1 was historically used as a water and gas injection well during past production of PRC 421; Pier 421-1 was historically used for the processing and storage of the Well 421-2 product.

² Section 2.0, Project Description, of this EIR and the State Lease 421 Recommissioning Plan Project Description (Venoco 2013; Appendix G of this EIR) provide Project details, including a discussion of PRC 421 recommissioning, associated upgrades to Venoco's existing facilities, and construction of limited supporting infrastructure.



Project Location

FIGURE
ES-1

Table ES-1. PRC 421 Timeline

1928 to early 1940s	1928	The Ellwood Oil Field was discovered by Barnsdall Oil Company. Construction of piers to develop the Field began.
	1929	The Surveyor-General, the CSLC's predecessor agency, issued the original oil and gas lease, Lease No. 89, for what is now Lease PRC 421.
		From 1929 to early 1940s, the Ellwood Oil Field was developed by wells drilled from manmade piers; 74 wells were drilled on seven separate state oil and gas leases.
1940s to 1993		From the 1940s to the 1990s, 35 more wells were drilled on the remaining oil and gas leases for a total of 109 wells, all producing from Vaqueros sandstone formation in the Ellwood Field, including two wells in what is now Lease PRC 421.
	1949	The CSLC terminated Lease No. 89 and issued PRC 421 to Bankline Oil Company. PRC 421 continued the exclusive right to the lessee to produce oil and gas from the lease premises. In the years to follow, a series of lease assignments and corporate name changes occurred.
	1959	The CSLC extended the PRC 421 lease term to the existing lessee, Signal Oil and Gas Company, for <i>"five (5) years, and for so long thereafter as oil or gas is produced in paying quantities or the Lessee shall be conducting producing, drilling, deepening, repairing, redrilling, or other necessary lease or well maintenance operations on the leased lands."</i>
		By 1993, all but Wells 421-1 and 421-2 had become uneconomic to produce and were plugged, abandoned and their piers removed. Based on California Department of Conservation's Division of Oil, Gas, and Geothermal Resources (DOGGR) well records and knowledge of historical abandonment practices, many of the original 74 orphan wells were abandoned in ways that do not meet modern standards.
1994 to date (PRC 421 is and remains shut-in)	1994	The existing lessee, Mobil, shut down operations in May after an onshore oil spill from the transportation pipeline. Mobil subsequently repaired the pipeline and remediated saturated soil affected by the spill. PRC 421 has remained shut-in, except for emergency purposes during a 10-month period in 2000-2001 (see below), since 1994.
	1997	The CSLC reassigned Lease PRC 421 from Mobil to Venoco.
	2000 to 2001	A methane gas leak was detected at Well 421-1 and oil seepage was detected around the Well 421-2 wellhead. CSLC staff directed Venoco to obtain all necessary permits and conduct well repairs to eliminate any pollution or public safety risk. Entry into Well 421-1 and Well 421-2 to conduct repairs, however, could not commence safely until pressure, built up in the well bores since the wells were shut-in in 1994, was relieved. In order to relieve the pressure, a temporary pipeline was installed from the wells to the Ellwood Onshore Facility (EOF) to relieve well bore pressure. The period of pressure relief was about 10 months, during which a total of approximately 17,000 barrels of oil flowed from the well to the EOF.
	2013 to 2014	Venoco seeks CSLC authorization (Venoco 2013; Appendix G) to: <ul style="list-style-type: none"> 1) return PRC 421 to oil production from the existing Well 421-2; and 2) process PRC 421 crude oil emulsion at the EOF.

1 This ~~Recirculated Draft Final~~ EIR replaces a Final EIR that the Commission deferred
 2 action on and directed staff to fully evaluate the Processing PRC 421 Oil at Las Flores
 3 Canyon (LFC) Alternative (Calendar Item 91, April 23, 2014).³ The EIR is ~~being~~ was
 4 recirculated pursuant to State CEQA Guidelines section 15088.5, subdivision (a),
 5 because significant new information has been added to the EIR as summarized in Table
 6 ES-2.

Table ES-2. New Information Added to this ~~Recirculated Draft Final~~ EIR

Section 5.0, Project Alternatives Analysis	To facilitate review of the Processing PRC 421 Oil at LFC Alternative, the EIR has been reorganized to combine and discuss all Project alternatives in a new Section 5.0, Project Alternatives Analysis, which includes: <ul style="list-style-type: none"> • Alternatives selection and screening methodology; • Alternatives eliminated from further consideration; and • Impact analyses of each alternative considered.
Processing PRC 421 Oil at LFC Alternative	This Alternative has been moved from the Alternatives Eliminated from Further Consideration subsection (January 2014 version) to the Alternatives Evaluated in this Recirculated Draft Final EIR subsection (Section 5.3.4).
No Project Alternative	Whereas Venoco’s proposed Project includes processing PRC 421 oil at the EOF, the No Project Alternative is redefined as Commission authorization (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: <ul style="list-style-type: none"> • 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). • Under the No Project Alternative, Venoco may produce the lease by processing oil on Pier 421-2 and using Well 421-1 on Pier 421-1 for produced water disposal. This is not a “project” as defined in CEQA section 21065,⁴ because the Commission has

³ The CSLC previously prepared, but did not certify, a Final EIR (January 2014) based on Venoco’s (2013) project description and a Draft EIR (August 2007) based on Venoco’s (2004) project description.

⁴ CEQA section 21065 defines “Project” as “an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, **and** (*emphasis added*) which is any of the following:
 (a) An activity directly undertaken by any public agency.
 (b) An activity undertaken by a person which is supported, in whole or in part, through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.
 (c) An activity that involves the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies.”

Table ES-2. New Information Added to this Recirculated Draft Final EIR

	<p>already issued Lease PRC 421 to Venoco. In contrast, the Commission’s discretionary action for the Project evaluated in this EIR covers: moving the location of oil processing from Pier 421-2 to the EOF; abandoning Well 421-1; and decommissioning Pier 421-1.</p> <ul style="list-style-type: none"> • 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 below.
No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative	This alternative would require the State to take an affirmative action to terminate and quitclaim 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.
Vaqueros Reservoir Repressurization	This discussion has been augmented to clarify the issue. The discussion was also moved from the background information in Section 2.0, Project Description (in the January 2014 Final EIR), to Section 4.2, Safety, since repressurization is not a purpose of the Project, but Project implementation may affect repressurization.

1 SUMMARY OF PROJECT OBJECTIVES, PURPOSE AND NEED

2 State CEQA Guidelines section 15126.6, subdivision (a) requires that a range of
3 reasonable alternatives to the proposed Project be described and analyzed that feasibly
4 attains most of the basic objectives of the Project. Therefore, in order to explain the
5 need for the proposed Project, and to guide in development and evaluation of
6 alternatives, Venoco was asked to define its project objectives. Venoco identified the
7 following objective for the Project:

- 8 • To return State Oil and Gas Lease PRC 421 to production and process the
9 production at the EOF.

10 Production estimates for PRC 421, based on current projections, are as follows.

- 11 • Estimated production during the first month is 150 barrels of oil per day (BOPD)
12 due to anticipated repressurization of the reservoir that has likely occurred from
13 the well having been shut-in since 1994. Instantaneous production is not
14 expected to exceed 500 BOPD.⁵
- 15 • After two years, production is anticipated to taper off to approximately 50 BOPD,
16 matching the well’s last 10 years of continuous historical production.
- 17 • The estimated productive life of PRC 421 is 20 years, which is less than the
18 production life of Platform Holly-EOF estimated at a minimum of 40 years.

⁵ The instantaneous production estimate of 500 BOPD is a best estimate based on reservoir modeling performed by Venoco, and thus is expressed as being “not expected” to exceed 500 BOPD.

1 **ORGANIZATION OF EIR**

2 This EIR is presented in several sections as provided below.

- 3 • **Section 1.0 – Introduction** provides an Introduction to the EIR.
- 4 • **Section 2.0 – Project Description** describes the proposed Project, its location,
5 layout and facilities, and presents an overview of its operation and schedule.
- 6 • **Section 3.0 – Alternatives and Cumulative Impacts Methodology** describes
7 alternatives to the proposed Project carried forward for analysis and the
8 alternatives that were considered but eliminated from detailed evaluation, and
9 identifies the projects that were analyzed for their potential cumulative effects.
- 10 • **Section 4.0 – Environmental Impact Analysis** describes existing
11 environmental conditions, Project-specific impacts and MMs associated with the
12 environmental issue areas listed below, and the impact analysis of the
13 alternatives carried forward for detailed analysis. Section 4.0 also evaluates the
14 cumulative impacts of the proposed Project.

4.1 Geological Resources	4.9 Public Services
4.2 Safety	4.10 Transportation and Circulation
4.3 Hazardous Materials	4.11 Noise
4.4 Air Quality and Greenhouse Gases	4.12 Aesthetic/Visual Resources
4.5 Hydrology, Water Resources, and Water Quality	4.13 Cultural, Historical, and Paleontological Resources
4.6 Marine Biological Resources	4.14 Energy and Mineral Resources
4.7 Terrestrial Biological Resources	4.15 Socioeconomics and Environmental Justice
4.8 Land Use, Planning, and Recreation	

- 15 • **Section 5 – Project Alternatives Analysis** describes the alternatives screening
16 methodology, alternatives rejected from full consideration, alternatives carried
17 forward with impact analyses.
- 18 • **Section 6 – Other Required CEQA Sections and Environmentally Superior
19 Alternative** addresses other required CEQA elements including significant and
20 irreversible environmental and growth-inducing impacts, comparison of the
21 Project and alternatives, and identification of the environmentally superior
22 alternative.
- 23 • **Section 7 – Mitigation Monitoring Program (MMP)** presents the MMP.
- 24 • **Section 8 – Report Preparation Sources and References** lists the persons
25 involved in preparation of the EIR and the reference materials used.

26 The EIR also contains ~~10~~12 appendices.

- 27 • **Appendix A** – contains the EIR distribution list of agencies/organizations and
28 individuals that will receive a copy of the EIR.

- 1 • **Appendix B** – includes a copy of the NOP, copies of all comment letters
2 received in response to the NOP, and an index where comments are addressed
3 in the ~~Recirculated Draft~~ Final EIR (if applicable).
- 4 • **Appendix C** – includes a technical review of safety concerns related to the
5 proposed Project, including repressurization of the reservoir.
- 6 • **Appendix D** – includes air quality and greenhouse gas emission calculations.
- 7 • **Appendix E** – contains a technical review of dispersant use in spill response.
- 8 • **Appendix F** – includes a listing of Best Management Practices (BMPs) specific
9 to the Project that would reduce potential environmental impacts.
- 10 • **Appendix G** – includes Venoco’s revised Project Description for the PRC 421
11 Recommissioning Project with detailed drawings.
- 12 • **Appendix H** – includes MMs from the Line 96 EIR (Santa Barbara County 2011)
13 related to the oil pipeline associated with proposed PRC 421 operations.
- 14 • **Appendix I** – includes impacts and MMs from the Line 96 EIR (Santa Barbara
15 County 2011) relevant to the construction of the oil emulsion pipeline to LFC as
16 part of the Processing PRC 421 Oil at LFC Alternative.
- 17 • **Appendix J** – includes a summary of the monitoring reports from the
18 construction of the Line 96 pipeline.
- 19 • **Appendix K** – includes a summary of the historic improvements made at the EOF.
- 20 • **Appendix L** – provides a history of wetland mitigation performed for impacts
21 caused by the PRC 421 access road.

22 DESCRIPTION OF PROPOSED PROJECT

23 The State Lease 421 Recommissioning Plan (Venoco 2013; Appendix G) details the
24 recommissioning of PRC 421, including upgrades to Venoco’s existing facilities and
25 construction of limited supporting infrastructure. In addition to the CSLC, the City of
26 Goleta, California Coastal Commission (CCC), and other agencies identified in Section
27 1.3.1, Responsible and Coordinating Agencies/Permitting, also have authority over
28 elements of the Project. A Joint Review Panel (JRP), composed of staffs of the CSLC,
29 City of Goleta, CCC, and chaired by the CSLC, was formed to oversee the EIR process.

30 Important Project components are summarized below.

- 31 • Pier 421-2 and Well 421-2. PRC 421 production would occur only on Pier 421-2
32 from Well 421-2.
- 33 • Pier 421-1 and Well 421-1. Following the return to production of Well 421-2,
34 Venoco would plug and decommission Well 421-1, and would remove Pier 421-

1 1, the caisson, connecting piping between Pier 421-1 and Pier 421-2, and any
2 other ancillary supporting facilities that is not required to support the Project.

- 3 • Pipelines and Cables. An existing 6-inch outer-diameter pipeline would be
4 extended at either end to the EOF and to Pier 421-2, and used as a protective
5 sleeve (hereafter referred to as a “line”) for a new 3-inch flowline inserted inside
6 the existing line. Power for Well 421-2 equipment would be provided through a
7 new power cable with 1,500 volts of alternating current (VAC) and a new 480
8 VAC cable. A communication cable for safety and security systems monitoring
9 would also be installed in the trench with the power cables.
- 10 • EOF. Oil/gas/water emulsion pumped from Pier 421-2 would be sent to the EOF
11 and commingled with production from Platform Holly prior to processing using
12 existing equipment. The combined Platform Holly and PRC 421 production would
13 remain within the existing Platform-Holly-to-EOF permitted production limits
14 (13,000 BOPD dry basis).
- 15 • Project Life. The proposed Project is estimated at 20 years and would not extend
16 the life of the EOF which is estimated at 40 years as required to serve Platform
17 Holly; in the event that Platform Holly production ceases and Platform Holly is
18 decommissioned, PRC 421 production would also cease and its facilities would
19 be decommissioned.
- 20 • Hydraulic Fracturing not Part of Project. The use of hydraulic fracturing or
21 “fracking” of PRC 421 is not proposed as part of this Project, and Venoco has
22 submitted a statement that it will not use these techniques at PRC 421. Any
23 future proposal by the Applicant for hydraulic fracturing of wells on PRC 421 will
24 be subject to the environmental review as required by regulations pertaining to
25 hydraulic fracturing in effect at that time. The Applicant will be required to seek
26 required agency approval from the CSLC, among other necessary agency
27 approvals prior to any fracturing operation of any nature within PRC 421.
28 Therefore, hydraulic fracturing is not included in the environmental analysis for
29 this Project and will not be considered by the CSLC or other agencies with permit
30 authority over the Project.

31 Pier 421-2

32 The Project would require the following recommissioning activities for Pier 421-2:

- 33 • Installation of:
 - 34 ○ a new electrical submersible pump (ESP) deep inside the casing of Well
 - 35 421-2 and of associated stainless steel equipment enclosures;
 - 36 ○ a new power cable from the EOF to the ESP;
 - 37 ○ well safety equipment;
 - 38 ○ connecting piping and installation of a pig launcher connection;

- 1 ○ production metering and process monitoring equipment within the EOF;
- 2 ○ direct buried power and communications cables and provisions for
- 3 process monitoring and control between Pier 421-2 and the EOF;
- 4 ○ new decking and railings on Pier 421-2;
- 5 ○ a communication system between Pier 421-2 and the EOF;
- 6 ○ a surveillance camera mounted on Pier 421-2 that would monitor the piers
- 7 and would provide live video feed displayed in the EOF Control Room;
- 8 ○ one new 3-inch oil flowline (inside the upgraded existing 6-inch line)
- 9 connecting Pier 421-2 to the EOF for processing;
- 10 • Repair of an existing buried produced liquid pipeline; and
- 11 • Reactivation of Well 421-2, with a capacity to produce a peak of up to 500 BOPD
- 12 of crude oil.

13 Pier 421-1

14 Following the return of oil production from PRC 421 into the EOF, the Project includes
 15 the decommissioning of Well 421-1, the removal of Pier 421-1, and the removal of all
 16 connecting/supporting ancillary piping and facilities that are not required to resume
 17 operations at Well 421-2 and the EOF. Venoco would apply to decommission and
 18 abandon Well 421-1 within 90 days of receipt of all permits required for the
 19 recommissioning of PRC 421. Before decommissioning Well 421-1, Venoco would be
 20 required to:

- 21 • file a written notice of intent to commence such work with the City of Goleta and
- 22 the California Department of Conservation, Division of Oil, Gas, and Geothermal
- 23 Resources (DOGGR) (in accordance with Pub. Resources Code, § 3203); and
- 24 • submit an Abandonment and Restoration Plan covering decommissioning of the
- 25 well and facilities (required in Cal. Code Regs., tit. 14, § 1776, subs. (e) and (f)).

26 All structures to be removed and the underlying sand would be evaluated for the
 27 presence of hazardous materials, including asbestos, polychlorinated biphenyls (PCBs),
 28 metals, polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene,
 29 xylene and other oil-related byproducts. Prior to well decommissioning or pier removal
 30 activities, Venoco would notify the CSLC, CCC, DOGGR, City of Goleta, County of
 31 Santa Barbara Fire Department Fire Prevention Division (FPD), Santa Barbara County
 32 Air Pollution Control District (SBCAPCD), and Clean Seas of pending well work.

33 This Project component would involve the sequence of events listed below, some of
 34 which may occur concurrently. Some variation may occur, depending upon unidentified
 35 site conditions and contractor(s) selected to do the work:

- 36 • Installation of onshore work area fencing to exclude the contractor from working
- 37 in the adjacent Environmentally Sensitive Habitat areas and to confine the

- 1 construction activity and related equipment storage to existing disturbed
2 surfaces;
- 3 • Plugging of Well 421-1, likely with a combination of cement plugs and
4 mechanical bridge plugs;
 - 5 • Removal of the 8-foot-tall chain-link fencing and barbed wire that blocks entry to
6 the well-head on Pier 421-1;
 - 7 • Removal of caissons that surround Pier 421-1. These caissons are concrete and
8 sheet pile, sand filled structures, each of which is approximately 68 feet wide, 42
9 feet long and 20 feet tall;
 - 10 • Final abandonment of the well casing/conductors in accordance with DOGGR
11 regulations and approvals;
 - 12 • Removal of metal railing and wood planking on pier;
 - 13 • Removal of 25 white steel piles and supporting cross beams;
 - 14 • Removal of cables;
 - 15 • Removal of all piping and interconnections between Pier/Well 421-1 and
16 Pier/Well 421-2, and any other ancillary facilities associated with Pier 421-1 and
17 Well 421-1;
 - 18 • Sand remediation;
 - 19 • Reinforcement of seawall at the access road and placement of rock boulder rip
20 rap for approximately 75 feet on the seaward side of seawall to match existing rip
21 rap currently on both sides of pier;
 - 22 • Redistribution of sand to restore natural contours of the beach; and
 - 23 • Work site restoration, habitat restoration, and cleanup.

24 Pipelines

25 An existing wrapped and coated 6-inch-diameter line runs from Pier 421-1 along a
26 Venoco right-of-way (ROW) approximately 1,300 feet along the old seawall to a point
27 just south of the 12th tee of Sandpiper Golf Course, turns north into the Platform Holly
28 pipeline ROW, and extends another 500 feet (Figure 2-2). The pipeline terminates at an
29 abandoned interconnection with the old Line 96 ROW in an existing gravel access road
30 between Bell Canyon Creek on the west and the EOF on the east in property owned by
31 the Sandpiper Golf Course.

32 Historically, the PRC 421 product was pumped from a well located on Pier 421-2, piped
33 to and processed on Pier 421-1, then transported to market via Line 96. Line 96, which
34 now transports processed product from the EOF, has since been relocated to a new
35 alignment north of the EOF, leaving the 421 6-inch pipeline temporarily disconnected

1 from the product transport system. As part of the Project, two new pipeline connections
2 are required on the existing PRC 421 6-inch line as described below.

- 3 • At the shoreline, the 6-inch line currently terminates at Pier 421-1 where the
4 pumped product from Pier 421-2 was originally stored and processed. This
5 portion of the line would be extended to bypass Pier 421-1 and connect directly
6 with Pier 421-2.
- 7 • The northern portion of the 6-inch line, which currently terminates at an
8 abandoned interconnection with the old Line 96 southwest of the EOF fence line,
9 would be extended to connect the existing pipeline alignment with the EOF
10 facility. The re-routed pipeline alignment would enter into the EOF facility, then
11 continue to the east into the EOF to connect the PRC 421 product line with the
12 Platform Holly oil pipeline for processing. This connection point would occur
13 downstream of the existing Platform Holly oil pig receiver, located well inside of
14 the EOF where the Platform Holly oil pipeline changes into an 8-inch header. The
15 421 pipeline would tie into this existing 8-inch header, above ground.

16 To ensure integrity of the existing 6-inch line between PRC 421 and the existing
17 terminus of the pipeline, located just south of the EOF fence line, a new internal pipe
18 lining will be installed, as described in detail below under Section 2.3.4, Construction
19 Details. The existing 6-inch line would then be hydrotested to 100 pounds per square
20 inch gauge (psig). The impressed current cathodic protection system on the Platform
21 Holly pipelines would be enhanced to include the PRC 421 6-inch line to protect the line
22 against external corrosion.

23 A new 3-inch flowline would be inserted inside the existing 6-inch line. This pipe would
24 be made of a type of high density polyethylene (HDPE) with a layer of metal or
25 fiberglass mesh imbedded within. Because it is non-conductive and immune to galvanic
26 electrochemical effects, this pipe would not corrode like metal piping and is also
27 impervious to many aggressive chemicals as well as scale build-up. The flowline would
28 be designed with a maximum operating pressure of 275 psig and a minimum hydrotest
29 pressure of 425 psig and be rated for continuous operation at temperatures up to 130°
30 Fahrenheit (F). At a minimum, the flowline would hold the indicated test pressure for a
31 period of not less than 8 hours. Hydrotest water would be provided by the Goleta Water
32 District connection located at the EOF and drained back to the EOF when finished. The
33 returned hydrotest water would be introduced into the oil processing system for
34 treatment and disposal.

35 A leak detection sensor would be installed on the 6-inch line. The sensor would detect
36 the presence of hydrocarbon in the annular space between the 6-inch line and the 3-
37 inch flowline. In the event of a leak, the ESP well would be automatically shut in and an
38 alarm would sound at the EOF.

1 Electric Cables

2 Electricity would be provided to Pier 421-2 via two cables buried within a 30-inch-deep,
3 12-inch-wide, 2,500-foot-long trench located within the existing access easement
4 through Sandpiper Golf Course and down the access road. The ESP at Well 421-2
5 would receive power through a buried and armored 200-kilovolt ampere (KVA) power
6 cable with between 1,100 and 1,800 VAC. In addition, a smaller 480 VAC cable would
7 be installed to provide electrical power for metering, well instrumentation, and control
8 systems. A utility power receptacle and an integral communication cable for data
9 transfer would also be installed. The delivery voltage of the utility power would be 480
10 VAC, and a small step-down transformer would be installed in the Well 421-2 electrical
11 panel to drop the voltage down to 120 VAC. The utility power outlet would be located
12 inside the power panel, and would be a heavy-duty, 20 ampere “Arktite” plug receptacle.

13 Modifications Adjacent to and Within the EOF

14 The Project includes processing of produced oil/gas/water emulsion at the EOF. The
15 following modifications would be required at the EOF to process PRC 421 product.

- 16 • Realignment of the 421 pipeline alignment at the existing 421 pipeline
17 termination point (located outside the EOF as shown on Figure 2-3) to connect to
18 the EOF. At the fence line, the new pipeline would continue underground within
19 the EOF and connect above-ground with the existing Platform Holly oil pig
20 receiver located inside the EOF (where the Platform Holly oil pipeline changes
21 into an 8-inch header). A 3-inch flowline would be installed within the length of
22 the re-aligned 6-inch 421 pipeline.
- 23 • Installation, at the connection point, of pressure sensors, pressure gauges, and a
24 flowmeter sensor to monitor production from Well 421-2. The flowmeter and its
25 related electronics would fit within an area approximately 45 cubic feet in size.
- 26 • Installation of a programmable logic controller (PLC) near the flowmeter sensor
27 to provide communication with the existing control room at the EOF and control
28 of the PRC 421 well and pipeline.
- 29 • Installation of a transformer on a small (approximately 2 feet by 4 feet) equipment
30 foundation to be located at the southwest corner of EOF, near the PLC.
- 31 • Installation of buried power and communication cables from the southwest corner
32 of the EOF to the Pier 421-2 wellsite.
- 33 • Installation of a temporary pig launcher at the connection point for future cleaning
34 of the 3-inch flowline.
- 35 • Installation of an electrical motor control panel in the EOF control room (see
36 Remote Monitoring System for PRC 421 under Section 2.4.2 for further details).
37 Power cable connections would occur within existing conduits in the EOF.

- Installation of a security surveillance camera on Pier 421-2 and the technology to display a live video feed in the EOF control room.

3 Operations

Venoco estimates that, based on current projections and the proposed ESP sizing for Well 421-2, the productive life of Well 421-2 would be at least 20 years. However, the price of oil may dictate that the Project would continue to be economically feasible beyond the Applicant's estimate. Venoco stated in its application for the Project that production at Well 421-2 would not extend the life of the EOF (Appendix G). The life of the EOF is tied to production from Platform Holly, which Venoco currently estimates will continue for at least 40 years. For PRC 421, Venoco estimates that:

- the instantaneous oil production rate would not exceed 500 BOPD, while the monthly average oil production rate at the wellhead would not exceed 150 BOPD over the life of the well;
- the gas production rate would not exceed 70 thousand cubic feet per day (Mcf/d);⁶ and
- water breakthrough would occur shortly after the start of continuous production and gradually increase until it would no longer be economically viable to produce the well.

Estimated flush production is approximately 150 BOPD the first month due to the well having been shut-in, and would converge on approximately 50 BOPD after two years matching the last 10 years of continuous historical production. As the water cut (the portion of the pumped fluid that is composed of water) increases through time, Venoco would increase the pump speed which would result in more water being produced in order to maximize oil production.

Oil, gas and water from PRC 421 would be commingled with oil and gas from Platform Holly within the EOF before being processed at the EOF and before being transported through Line 96 to market, and would flow from the EOF to the Plains All American Pipeline, LP (PAAPLP) Coastal Pipeline west of LFC until the end of PRC 421's production life (Illustration ES-1).

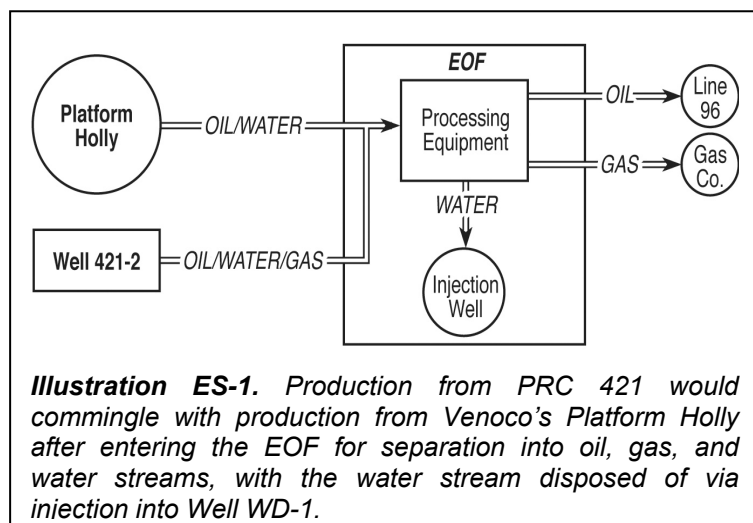


Illustration ES-1. Production from PRC 421 would commingle with production from Venoco's Platform Holly after entering the EOF for separation into oil, gas, and water streams, with the water stream disposed of via injection into Well WD-1.

⁶ The gas production rate was too small to measure during the tests conducted in 2001.

1 Operation of Line 96 will continue beyond the life of PRC 421 until the production life of
2 oil from Platform Holly ends. The Line 96 oil pipeline is owned and operated by Ellwood
3 Pipeline, Inc., a subsidiary of Venoco. Oversight, management, and routine
4 maintenance of the pipeline are undertaken by current staff and contractors of Ellwood
5 Pipeline, Inc. No increase in staffing is proposed or required as part of this Project. No
6 oil storage facilities would be available for the production from PRC 421. Therefore, oil
7 produced from the Project would be commingled with the Platform Holly production,
8 processed through the EOF, and transported through Line 96 to the PAAPLP Coastal
9 Pipeline located west of LFC. The 6-inch Line 96 oil transport pipeline has a throughput
10 capacity of 13,000 BOPD, as limited by the processing permit limit at the EOF.

11 **SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

12 The Project would generate potentially significant environmental impacts associated
13 with the following issue areas: geological resources; safety; hazardous materials;
14 hydrology, water resources, and water quality; marine biological resources; terrestrial
15 biological resources; land use, planning, and recreation; public services; and
16 aesthetics/visual resources. With the implementation of MMs specified in this EIR, a
17 number of these impacts would be reduced to Less than Significant, but several impacts
18 would remain Significant and Unavoidable even after all appropriate and feasible MMs
19 are applied. Specifically, the Project is expected to have Significant and Unavoidable
20 impacts associated with:

- 21 • Safety (see Section 4.2);
- 22 • Hydrology, Water Resources, and Water Quality (see Section 4.5);
- 23 • Marine Biological Resources (see Sections 4.6);
- 24 • Terrestrial Biological Resources (see Sections 4.7);
- 25 • Land Use, Planning, and Recreation (see Section 4.8);
- 26 • Public Services (see Section 4.9); and
- 27 • Aesthetics/Visual Resources (see Section 4.12).

28 Table ES-3 at the end of this Executive Summary presents a summary of impacts and
29 MMs for the Project, organized by resource area.

30 **SUMMARY OF ALTERNATIVES TO PROPOSED PROJECT**

31 CEQA requires identification and evaluation in an EIR of a reasonable range of
32 alternatives to a proposed project, including, if feasible, alternative locations. Pursuant
33 to the State CEQA Guidelines section 15126.6, subdivision (a), the EIR need only
34 consider a range of feasible alternatives that will foster informed decision-making and
35 public participation; therefore, while an EIR need not consider every conceivable
36 alternative, an EIR must include sufficient information about each alternative to allow
37 meaningful evaluation, analysis, and comparison with the proposed project. The range
38 of potential alternatives that must be considered, and thus the range presented in this

1 EIR, is limited to those that would feasibly attain most of the Project objectives while
2 avoiding or substantially reducing any of the significant effects of the proposed Project.
3 Alternatives that were considered but rejected are identified and accompanied by brief,
4 fact-based explanations of the reasons for rejection. Among the factors that may have
5 been used to eliminate alternatives from detailed consideration, as permitted by CEQA,
6 are (1) a failure to meet most of the project objectives, (2) infeasibility, or (3) inability to
7 avoid significant impacts (State CEQA Guidelines § 15126.6, subdivision (c)).
8 Alternatives considered for evaluation in this EIR are summarized below.

9 **No Project Alternative**

10 Whereas Venoco's proposed Project includes processing PRC 421 oil at the EOF, the
11 No Project Alternative is defined as Commission authorization (pursuant to Cal. Code
12 Regs., tit. 2, div. 3, ch. 1, § 2121) that Venoco has taken adequate corrective measures
13 to repair the infrastructure associated with PRC 421, such that Venoco is obligated to
14 resume production and processing of oil from PRC 421 under conditions similar to those
15 in existence in 1994, when the well was shut-in for corrective action.^{7,8} Elements of the
16 No Project Alternative are based on the following:

- 17 • The Commission assigned the PRC 421 lease to Venoco in July 1997, which
18 provides Venoco the legal right to produce the lease (lease originally issued in
19 1929; see Table 2-1 for lease history) and
- 20 • If the Commission authorizes that adequate corrective measures have been
21 taken and operations may be resumed, Venoco may produce PRC 421 by
22 processing oil on Pier 421-2 and using Well 421-1 on Pier 421-1 for produced
23 water disposal.

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

29 There was no detectable gas production when Well 421-2 produced in 2001 for a short-
30 term period to conduct emergency depressurization. However, the GLCS is designed
31 based on typical properties for California oils at the well depth, for which the gas-oil ratio
32 is estimated to be 100 standard cubic feet per stock tank barrel (SCF/STB). The GLCS

⁷ This regulation 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."

⁸ 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.

1 is a compact vertical vessel with a tangential nozzle located near the top that subjects
2 incoming fluids to a hydraulically created vortex and centrifugal forces, causing the
3 heavier liquid particles to separate and thus obtaining split liquid and gas streams. The
4 LLCS, which is used to separate out the water, is a similar vessel that would be installed
5 next to the GLCS.

6 The well on Pier 421-1 would be returned to service as a water and gas injection well
7 using injection equipment to reinject and dispose of water and gas that are separated
8 from the gross fluid produced out of Well 421-2. The new ESP in Well 421-2 would
9 provide enough pressure to inject oil into Line 96 at up to 1,440 pounds psig, and an
10 additional pump would be installed after the GLCS to inject up to 1,000 barrels of water
11 per day (BWPD) into Well 421-1. To prevent reverse flow from the well, Venoco would
12 need to install a flow safety valve (FSV) as part of the wellhead piping. New wood-plank
13 decking would be installed for safety and aesthetic purposes. Oil production from Pier
14 421-2 would be directly transported into Line 96 at a tie-in point at the EOF. Once the oil
15 ties into Line 96, it would be commingled with Holly production and transported to LFC
16 where Line 96 ties in with the PAAPLP pipeline system.

17 Resumption of production under this alternative would include the following:

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

1 As part of this alternative, the existing 6-inch line would be hydrotested to 100 psig and
2 internally lined with a new plastic coating. The 6-inch line would be protected against
3 external corrosion by enhancing the impressed current cathodic protection system on
4 the Platform Holly pipelines to include the PRC 421 6-inch shipping line. After the
5 upgrades to the 6-inch pipeline preparation are complete, a new 2-inch steel coiled or
6 non-metallic (e.g., fiberglass) flowline would be inserted inside the existing 6-inch line to
7 transport oil to Line 96. Additionally, a double-walled line would replace an existing 2-
8 inch flowline between Well 421-2 and Well 421-1. Two new 2-inch flowlines (one for
9 water and gas, one for oil) would be installed inside the new double-walled line.
10 Electricity would be provided to Pier 421-2 via two cables buried within a 30-inch-deep,
11 12-inch-wide, 2,500-foot-long trench located within the easement through Sandpiper
12 Golf Course and down the access road.

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

20 **No Production/Quitclaim State Oil and Gas Lease PRC 421**

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

31 CSLC staff indicated that the pressure build-up could potentially cause oil releases into
32 the coastal environment as the increased pressure would place pressure on historic
33 abandoned wells in offshore areas of the reservoir or possibly lead to additional
34 releases of oil from a natural seep. Many of the offshore wells were abandoned in the
35 1940s and 1950s using abandonment and well-capping techniques of that period, which
36 are not adequate by current standards (refer to Section 4.2.1). The structural stability of
37 older abandoned facilities is unreliable and a substantial increase in reservoir pressure
38 could cause a release of oil to the coastal environment.

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

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

22 **Re-injection at Platform Holly Alternative**

23 Under this alternative, production would resume at PRC 421 as described under the No
24 Project Alternative; however, produced water and gas would be sent to Platform Holly,
25 via a 4-inch utility pipeline, for reinjection, and Venoco would decommission Well 421-1,
26 its caisson, and pier on an accelerated schedule. This alternative would also entail
27 installing a 2-inch pipeline that extends from Well 421-2 to Line 96. The new ESP in
28 Well 421-2 would provide enough pressure to inject oil into Line 96 at up to 1,440 psig.
29 A new 2-inch pipeline for transport of water and gas to the 4-inch utility pipeline would
30 be installed within the 6-inch pipeline along with the 2-inch oil pipeline. A 4-inch sub-sea
31 utility pipeline currently extends from the EOF to Platform Holly and is used to provide
32 California Public Utilities Commission (PUC)-grade gas to the platform for use as the
33 flare purge and pilot fuel and fuel for the three Holly drilling generators. Under this
34 alternative, this pipeline would instead be used to ship produced water and gas for
35 disposal at Platform Holly. Therefore, initial disposal of produced water at Platform Holly
36 would require Venoco to cease using the utility line for natural gas and instead use
37 annulus gas produced at Platform Holly which has higher sulfur content than PUC gas.
38 To accommodate the use of (or sweeten) the annulus gas, Venoco would need to install
39 new equipment (hydrogen sulfide [H₂S] scrubbers) and implement operational changes
40 at Platform Holly subject to review and approval by the SBCAPCD and other regulatory

1 agencies. Presuming use of the existing line, this alternative would require that Venoco
2 use gas produced at Platform Holly to power equipment locally. Because this gas has
3 higher sulfur content than the gas currently used at the platform, new equipment (H₂S
4 scrubbers) and operational changes would be required at Platform Holly.

5 The following improvements would be required under this alternative:

- 6 • Installation of new decking and railings on Pier 421-2;
- 7 • Installation of a downhole ESP, stainless steel equipment enclosures, and new
8 oil separation equipment (GLCS and LLCS) on Pier 421-2;
- 9 • Installation and operation of two new 2-inch pipelines, one to transfer oil to Line
10 96 and one to transfer produced water and gas to the 4-inch utility line for
11 reinjection at Platform Holly;
- 12 • Installation of H₂S scrubbers on Platform Holly;
- 13 • Upgrades to the existing 6-inch line from Pier 421-2 to Line 96;
- 14 • Installation and operation of buried power cables to Pier 421-2 to operate the well
15 and associated control systems;
- 16 • Installation of a communication system between Well 421-2 and the EOF;
- 17 • Installation of surveillance cameras on Pier 421-2 that would monitor the pier and
18 provide a live video feed that would be displayed in the EOF Control Room;
- 19 • Installation of a LACT system for PRC 421 oil before introduction to Line 96;
- 20 • Reactivation of the oil well at Pier 421-2, with projected production as indicated
21 for the Project in Section 2.4.1, Volumes and Throughput; and
- 22 • Decommissioning of Pier 421-1 as described for the Project (see Section 2.6,
23 Decommissioning and Removal of Pier 421-1).

24 **Processing PRC 421 Oil at Las Flores Canyon**

25 Under this alternative, the oil/gas/water emulsion would be produced at Pier 421-2,
26 similar to the proposed Project, but instead of transporting the emulsion to the EOF for
27 processing, the emulsion would bypass the EOF and be pumped through a new pipeline
28 to LFC for processing. LFC is designated as a consolidated facility under Santa Barbara
29 County Zoning Code section 35-154 and is currently operated by ExxonMobil. This
30 alternative would require construction of two new pipelines: a 0.5-mile pipeline from Pier
31 421-2 to the EOF and an approximately 9.7-mile pipeline from the EOF to a proposed
32 Venoco LFC Receiving Station (Receiving Station) located at LFC. The EOF to LFC
33 pipeline portion would comprise approximately 8.4 miles from the EOF to LFC parallel to
34 and north of U.S. Highway 101 (Hwy 101) and 1.3 miles up LFC from Hwy 101 to the
35 Receiving Station (Figure 5-2).

1 The pipeline from the EOF to LFC would run parallel to the existing Line 96 pipeline
2 along segments of Calle Real and across a number of private parcels (Figure ES-2).
3 The emulsion produced at PRC 421 would remain in a three-phase state (oil/gas/water)
4 before being processed at LFC. As such, the existing Line 96 pipeline could not be used
5 to transport the PRC 421 emulsion product as it would be incompatible with the
6 processed oil currently transported from the EOF to the PAAPLP Coastal Pipeline for
7 distribution.⁹ This alternative would also require additional infrastructure both at PRC
8 421 and LFC to enable pumping of the PRC 421 emulsion product to LFC, processing
9 of the product at a new LFC facility, and disposal of produced water. Venoco, in
10 consultation with ExxonMobil, provided the following description regarding infrastructure
11 needs at LFC.



FIGURE ES-2. LINE 96 PIPELINE ROUTE

12 Resuming production at PRC 421 under this alternative would entail:

- 13
- 14 • Reactivation of Pier 421-2 and Well 421-2 and installation of improvements at
15 PRC 421, including power and communication cables along the access road and
16 for communication and control systems at the EOF, similar to the Project (refer to
17 Section 2.2, Proposed Project);
 - 18 • Use of chemical injection at Well 421-2 to offset the effects of cooling along the
19 pipeline route and provide pipeline corrosion protection, including installation of
up to four chemical injection tanks and pumps located near the wellhead;

⁹ 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.

- 1 • Decommissioning and abandonment of Pier 421-1 and Well 421-1 (refer to
2 Section 2.6, Decommissioning and Removal of Pier 421-1);¹⁰
- 3 • Installation of a new 3.826-inch pipeline with cathodic protection extending
4 approximately 0.5 mile between PRC 421 and the tie-in adjacent to the EOF, with
5 the existing 6-inch pipeline abandoned in place or removed;
- 6 • Installation of a new 3.826-inch pipeline with cathodic protection from the tie-in
7 south of and adjacent to the EOF extending approximately 8.4 miles parallel to
8 and north of Hwy 101 to LFC, and 1.3 miles north within the LFC property along
9 Corral Canyon Road to the proposed new Receiving Station at LFC;
- 10 • Construction of a new oil dehydration plant and oil and water storage tanks on up
11 to 1.5 acres at LFC; and
- 12 • Construction of a Class II Underground Injection well at LFC.

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

16 **ALTERNATIVES NO LONGER CONSIDERED**

17 Several alternatives were considered, but were determined to be infeasible or did not
18 clearly offer the potential to reduce significant environmental impacts. These
19 alternatives were eliminated from further evaluation in the EIR and include the following
20 (refer to Section 5.2 for explanation):

- 21 • Drilling from the EOF
- 22 • Drilling from Platform Holly
- 23 • Condensed Production Schedule
- 24 • Offshore Oil Processing on Platform Holly
- 25 • Transportation of Production by Truck
- 26 • Recommissioning Using Historic Production Methods
- 27 • No Production Alternative with Pressure Testing
- 28 • Alternative Energy Sources

29 **COMPARISON OF PROPOSED PROJECT AND ALTERNATIVES AND** 30 **ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

31 State CEQA Guidelines section 15126.6, subdivision (e)(2) states, in part, that an EIR
32 shall identify an environmentally superior alternative among the other alternatives “*if the*
33 *environmentally superior alternative is the ‘No Project’ alternative*” (emphasis added).
34 Table ES-4 compares the proposed Project impacts with those of the alternatives. In

¹⁰ This assumes that a Class II Underground Injection well can be constructed at LFC.

1 addition, Table ES-5 provides a summary of additional environmental impacts for the
2 Processing PRC 421 Oil at Las Flores Canyon Alternative that are beyond the scope of
3 impacts relative to the Project and other alternatives. Based on the analysis contained
4 within the EIR, the CSLC has determined that the proposed Project is the
5 Environmentally Superior Alternative.

6 **No Project Alternative**

7 This alternative would have greater environmental impacts when compared to the
8 proposed Project, as oil produced from PRC 421 would be processed in the shore zone
9 on Pier 421-2 instead of at the EOF, thus resulting in potential for greater environmental
10 impacts related to surf zone accidental spills. Further, under this alternative, Pier 421-1
11 would not be removed and the well on Pier 421-1 would be returned to service as a
12 water and gas injection well using existing injection equipment to reinject and dispose of
13 water and gas that are separated from the gross fluid produced out of Well 421-2. This
14 alternative would result in fewer environmental benefits related to aesthetics when
15 compared to the proposed Project, as Pier 421-1 would not be removed. Impacts to
16 Marine Biology, Water Quality, Safety, and Land Use, Planning and Recreation would
17 remain significant with this alternative, and would be substantially increased in severity
18 due to the location of the separation-processing component of the Project in a
19 vulnerable location in the shore zone environment where it would be exposed to wave
20 action and other potentially damaging conditions.

21 By retaining the separation process at Pier 421-2 rather than moving it to the EOF as
22 proposed, this alternative would increase activity and equipment required on Pier 421-2
23 and result in the potential for releases from separation equipment on the pier. While the
24 amount of oil that could be released is relatively small, the creation of this potential
25 hazard is important given the proximity of highly sensitive coastal resources such as
26 Tecolote Creek, Devereux Slough, nearby rocky intertidal habitat and kelp beds, and
27 recreational uses. This alternative would also be less consistent with adopted City of
28 Goleta land use policy as it would result in separation or processing of oil in the surf
29 zone. Because processing would occur on Pier 421-2, there would be an incremental
30 increase in risk of an oil spill in the surf zone and this alternative would not substantially
31 reduce or avoid any of the impacts identified for the proposed Project. Furthermore, Pier
32 421-1 would not be removed and Well 421-1 decommissioned. Therefore, this
33 alternative would not be environmentally superior to the proposed Project.

34 **No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative**

35 This alternative would avoid all Project-related construction and operational impacts
36 compared to the proposed Project. However, this alternative is not environmentally
37 superior because of the potential, significant risk that oil may be released into the

1 coastal environment under the conditions stated below (see the reservoir
2 repressurization discussion in Section 4.2.1, Safety).

- 3 • The PRC 421 wells are immediately and permanently shut in. Prior to
4 abandonment of the wells, CSLC reservoir engineers do not pressure test the
5 reservoir (a process that requires temporary oil production).
- 6 • The PRC 421 reservoir repressurizes over time.
- 7 • Reservoir pressurization causes oil to leak at the sites of historic wells
8 abandoned under antiquated standards or from a natural seep.

9 **Reinjection at Platform Holly Alternative**

10 This alternative is similar to the No Project Alternative described above; however,
11 produced water would not be injected in Well 421-1, but would be piped to Platform
12 Holly for reinjection. Similar to the proposed Project, Pier 421-1 would be
13 decommissioned since the well would not be used for water injection. Because
14 processing would still occur on Pier 421-2, there would be a continued risk of an oil spill
15 in the surf zone and this alternative would not substantially reduce or avoid any of the
16 impacts identified for the proposed Project; therefore, similar to the alternative above,
17 this alternative would not be environmentally superior to the proposed Project.

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

19 This alternative would reduce the risk of an environmental release or fire related to
20 processing of PRC 421 crude at the EOF. However, this alternative would have greater
21 environmental impacts when compared to the proposed Project due to construction and
22 operation of (1) 9.7 miles of new pipeline from the EOF to the Receiving Station in LFC,
23 and (2) up to 1.5 acres of new oil processing facilities at LFC. While construction-related
24 impacts for the new pipeline and processing facility would be short term, they would be
25 substantially more severe compared to the limited construction impacts associated with
26 the Project. Regarding operational impacts, the new 9.7-mile-long pipeline system
27 would require the use of three-phase operation (i.e., oil/gas/water emulsion), which
28 requires a pressure-based (rather than volumetric) leak detection system that would
29 decrease leak-detection capabilities and increase the probability of a larger-sized spill if
30 the pipeline ruptured or leaked. This alternative also introduces potential impacts
31 associated with spills or releases from the 1.3-mile-long portion of pipeline and new LFC
32 processing facility into and along Corral Canyon Creek that would not occur under the
33 proposed Project. The potential for a release of oil or hazardous materials from Pier
34 421-2 would be similar to the Project and would remain significant and unavoidable
35 since this alternative would still entail production of oil at this location; however,
36 potential impacts would be incrementally increased due to the need for and presence of
37 four chemical tanks ranging from 55 to 350 gallons on Pier 421-2 as such tanks could
38 be damaged or subject to other causes of leaks.

1 Impacts to Safety, Water Quality, Marine Biology, Terrestrial Biology, Public Services,
2 Aesthetic/Visual Resources, and Land Use, Planning and Recreation would remain
3 significant and unavoidable under this alternative. These impacts are mostly related to
4 the potential of an environmental release of oil or hazardous materials during operation
5 and the resulting impacts to the environment. These potential impacts would be more
6 severe due to the increased risk of an environmental release under this alternative and
7 the increased area in which such a release could occur. Construction of a new EOF to
8 LFC pipeline would result in additional significant and unavoidable impacts to water
9 quality and to marine and terrestrial biological resources if a release of drilling fluids
10 during horizontal directional drilling under streams occurred. The addition of new
11 facilities in an area that is underserved for fire protection would remain a significant and
12 unavoidable impact; however, the impact under this alternative would be greater since
13 there would be additional facilities constructed within the fire service area. By moving oil
14 processing from the EOF to LFC, this alternative would increase Land Use impacts
15 related to use of redundant facilities and potential exposure of Corral Canyon Creek and
16 other Gaviota area streams to increased risk of spills more severe than under the
17 Project. While Land Use impacts related to expanding processing of oil at the EOF
18 would not occur consistent with City of Goleta General Plan Policy LU 10.1, restarting
19 oil processing on Pier 421-2 and potential impacts to coastal waters would result in
20 continued inconsistencies with LU 10.4, and this impact would remain significant and
21 unavoidable under this alternative. Because this alternative would introduce new
22 environmental impacts, increase the severity of others, and result in many similar
23 significant and unavoidable impacts to those that would occur under the proposed
24 Project, this alternative would not be environmentally superior to the proposed Project.

25 **KNOWN AREAS OF CONTROVERSY OR UNRESOLVED ISSUES**

26 All proposals related to the development and transportation of oil and gas reserves in
27 the Santa Barbara Channel generate controversy and receive a high level of public
28 scrutiny. This is due to the sensitive nature of marine resources and the potential for
29 safety impacts to the local population. In addition, the 1969 Santa Barbara Channel oil
30 spill is considered by many to be a seminal event in the environmental movement and is
31 often cited as an example of the negative aspects of offshore oil and gas development.
32 The Project would lead to a relatively short-term increase in oil production and
33 transportation within Santa Barbara County compared to existing conditions. As such,
34 the Project has generated a high level of public interest.

Table ES-3. Summary of Environmental Impacts and MMs – Proposed Project

Impact	Impact Class ¹	Recommended MMs
Section 4.1 Geological Resources		
GEO-1: Seismic and Seismically Induced Hazards.	LTSM	GEO-1a. Include Seismic Loading Evaluation GEO-1b. Field-Verify Subsurface Condition Assumptions GEO-1c. Seismic Inspection GEO-1d. Tsunami Preparedness The Project also incorporates by reference MM GEO-4c (Seismic Inspections) contained in the certified Line 96 Modification Project EIR
GEO-2: Landslide and Slope Failure	LTSM	GEO-2a. Monitor Coastal Bluff and Access Road GEO-2b. Maintain Existing Seawall and Rock Revetment GEO-2c. Inspect and Repair Access Road and Pipeline after Landslide Events
GEO-3: Soil Settlement and Liquefaction	LTSM	GEO-3. Perform Subsurface Evaluation
GEO-4: Corrosion, Weathering, and Erosion	LTSM	GEO-4a. Corrosion Protection Design Specifications GEO-4b. Check Overall Structural Stability against Wind and Wave Action GEO-4c. Evaluate Embedment of Concrete Panels and Lean Concrete Backfill GEO-4d. Inspect Structures During and/or After Storm Events
GEO-5: Erosion-Induced Siltation	LTS	None required
Section 4.2 Safety		
S-1: Release of Oil During Cleanup of 6-inch Pipeline.	LTS	None required
S-2: Exposure of the Public and Environment to Safety Hazards Due to Collapse of the Pier 421-1 or 421-2 Caisson	LTSM	S-2a. Design Review / Wave Loading Evaluation S-2b. Post Storm Inspection, Monitoring and Cleanup
S-3: Exposure of the Public and Environment to Safety Hazards Due to Collapse of or Damage to the Existing Timber Bulkhead or Rip-Rap Seawall	LTSM	S-3. Design Review by Civil/Structural Engineer
S-4: Potential for Release of Oil or Hazardous Materials from Pier 421-2	SU	S-4a. Containment S-4b. Response Drills and Planning S-4c. Casing Pressure Testing S-4d. Regular Facility Inspections S-4e. Quantitative Risk Assessment (QRA)

¹ Impact Class: SU = Significant and unavoidable; LTSM = Less than significant with mitigation; LTS = Less than significant; B = Beneficial.

Table ES-3. Summary of Environmental Impacts and MMs – Proposed Project

Impact	Impact Class ¹	Recommended MMs
		and Implementation of QRA-Recommended Measures
S-5: Potential for Release of Oil or Hazardous Materials from the Crude Oil Flowline	LTSM	S-5a. Install Pipeline Warning Markers S-5b. Develop Emergency Action Plan (EAP)/ Update of South Ellwood Field EAP S-5c. Safety , Inspection and Maintenance of Oil and Gas Pipelines
S-6: Increased Amount of Oil or Hazardous Materials Potentially Released or Fire from Oil Transfer in Line 96	SU	The Project incorporates by reference MM HM-3 (Automated Block Valves on Line 96) from the certified Line 96 Modification Project EIR.
S-7: Increased Processing of Oil and Gas at the EOF	SU	S-5b. Develop Emergency Action Plan (EAP)/ Update of South Ellwood Field None applicable
S-8: Increased Risk of Fire	LTSM	S-8. Fire Prevention and Suppression
S-9: Repressurization Monitoring	B	None required
Section 4.3 Hazardous Materials		
HAZ-1: Exposure of Public or Environment to Hazardous Materials	LTSM	HAZ-1a. Proper Personnel Training HAZ-1b. Conduct a Phase I Environmental Site Assessment (ESA) HAZ-1c. Soil Sampling HAZ-1d. Removal Action Plan HAZ-1e. Performance Security WQ-1a. Avoidance of High Tides and Silt Curtain
HAZ-2: Release of Contaminated Sediment from the Caisson on Pier 421-2 during Operation of the Project	LTSM	Implement MMs HAZ-1b and GEO-4a, GEO-4d, and S-2a, as identified in Sections 4.1 (Geological Resources) and 4.2 (Safety).
Section 4.4 Air Quality and Greenhouse Gases		
AQ-1: Increase in Emissions from Construction	LTS	AQ-1a. Prohibit Unnecessary Truck Idling AQ-1b. Use of Diesel Emission Reduction Measures AQ-1c. Maintain Construction Equipment AQ-1d. Compliance with State Portable Air Toxics Control Measure AQ-1e. Establish On-Site Equipment Staging Area and Worker Parking Lots AQ-1f. Fugitive Dust Management
AQ-2: Increase in Emissions from Operation	LTS	None required
AQ-3: Odor Emissions from Operation	LTS	None required
AQ-4: Project Would Result in a Net Increase in GHG Emissions	LTSM	Implement MM AQ-1a through AQ-1e. AQ-4a. Greenhouse Gas Monitoring and Reduction Strategies
AQ-5: Project Would Contribute to	LTS	None required

Table ES-3. Summary of Environmental Impacts and MMs – Proposed Project

Impact	Impact Class ¹	Recommended MMs
Cumulative Air Quality Impacts		
Section 4.5 Hydrology, Water Resources, and Water Quality		
WQ-1: Temporary Construction Impacts to Marine Water Quality	LTSM	Implement MM HAZ-1a through HAZ-1d . WQ-1a. Avoidance of High Tides and Silt Curtain WQ-1b. Water Quality Certification
WQ-2: Temporary Construction Impacts to Wetlands	LTSM	Implement MM TBIO-1a, TBIO-1b, TBIO-1d, and TBIO-1e . WQ-2. Wetland Delineation, Avoidance and Impact Minimization
WQ-3: Oil Spill Impacts to Surface and Marine Water Quality	SU	Implement all MMs described in Section 4.2 (Safety), <u>Section 4.6 (Marine Biological Resources)</u> and <u>Section 4.7 (Terrestrial Biological Resources)</u> . WQ-3a. Pipeline Monitoring WQ-3b. Storm Water Pollution Prevention Plan (SWPPP) The Project also incorporates by reference MM BIO-3 (update Native Habitat and Special Status Species Protection Plan) and MM HM-3 (Automated Block Valves on Line 96) contained in the certified Line 96 Modification Project EIR
WQ-4: Cumulative Impacts to Marine Water Quality	SU	Each of these projects must meet regulatory requirements designed to reduce the probability and consequences of accidental releases to the environment. However, even the best-designed and implemented MMs, such as safe design of the facilities, oil spill contingency plans, training and drills, and availability of oil spill cleanup means, cannot eliminate all risk of an oil spill.
Section 4.6 Marine Biological Resources		
MBIO-1: Disturbance to Intertidal Organisms during Construction	LTSM	MBIO-1. Avoid Caisson Repair on Pier 421-2 and Removal of Pier 421-1 during Grunion Spawning Season
MBIO-2: Impacts to Marine Organisms from Sediment Resuspension in the Near-Shore Zone due to Disturbance of Sediments during Construction	LTSM	Implement MMs WQ-1a, WQ-1b, HAZ-1c, and HAZ-1-d identified in Sections 4.5 (Hydrology, Water Resources, and Water Quality) and 4.3 (Hazardous Materials).
MBIO-3: Noise Impacts to Marine Life during Caisson Repairs on Pier 421-2 and Decommissioning and Removal of Pier 421-1	LTS	None required
MBIO-4: Oil Spill Impacts to Marine Resources	SU	MBIO-4a. Update Oil Spill Contingency Plan (OSCP) to Address a Spill from Lease PRC

Table ES-3. Summary of Environmental Impacts and MMs – Proposed Project

Impact	Impact Class ¹	Recommended MMs
	SU	421 Oil Production MBIO-4b. Develop a Protection Plan to Keep Birds Roosting on Bird Island from Harm in the Event of an Oil Spill on Lease PRC 421 The Project also incorporates by reference MM BIO-4a (update Emergency Action Plan and Oil Spill Contingency Plan) contained in the certified Line 96 Modification Project EIR.
MBIO-5: Oil Spill Impacts to Commercial and Recreational Fishing	SU	Implement MMs identified in Sections 4.2 (Safety), 4.5 (Hydrology, Water Resources, and Water Quality), and 4.7 (Terrestrial Biological Resources) for contingency planning/spill response.
MBIO-6: Impacts to Kelp Harvesting	LTS	None required
MBIO-7: Cumulative Impacts of an Oil Spill on Marine Resources	SU	Implement MMs MBIO-4a and MBIO-4b .
Section 4.7 Terrestrial Biological Resources		
TBIO-1: Short-Term Construction Impacts to Biological Resources	LTSM	TBIO-1a. Locate Power Cables and Pipeline Outside ESHA TBIO-1b. Project Biological Monitors TBIO-1c. Restoration Plan/Restoration TBIO-1d. Protect Stockpiles of Excavated Material. TBIO-1e. Equipment Use, Storage, and Maintenance TBIO-1f. Biological Enhancement Activities WQ-2. <u>Wetland Delineation, Avoidance and Impact Minimization</u>
TBIO-2: Oil Spill Impacts to Terrestrial Biological Resources	SU	TBIO-2a. Oil Spill Contingency Plan (OSCP) Measures Regarding Protection of Biological Resources TBIO-2b. Oil Spill Contingency Plan (OSCP) Measures Regarding Habitat Protection and Restoration The Project also incorporates by reference MM BIO-4a (update Emergency Action Plan and Oil Spill Contingency Plan) contained in the certified Line 96 Modification Project EIR.
TBIO-3: Cumulative Impacts to Terrestrial Biological Resources	SU	MMs TBIO-2a and TBIO-2b would apply to this impact. The Project also incorporates by reference MM BIO-4a (update Emergency Action Plan and Oil Spill Contingency Plan) contained in the certified Line 96 Modification Project EIR.

Table ES-3. Summary of Environmental Impacts and MMs – Proposed Project

Impact	Impact Class ¹	Recommended MMs
Section 4.8 Land Use, Planning, and Recreation		
LU-1: Conflicts with Goleta GP/CLUP Policies	SU	Implement MMs identified 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) MM LU-1a. Obtain Property Owner Authorizations. MM LU-1b. Obtain Permits Required by Title 15 of Goleta Municipal Code. MM LU-1c. Obtain City Land Use Permit Prior to Development.
LU-2: Oil Releases Could Affect Recreational Activities	SU	Implement MMs identified 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) for properly engineered reinforcement of caisson containment walls and contingency planning/spill response.
LU-3: Oil Releases from Pier 421-2 or Pipelines Could Affect Sensitive Area Resources and Raise Consistency Issues with Adopted Policies	SU	Implement MMs identified 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) for properly engineered reinforcement of caisson containment walls and contingency planning/spill response. The Project also incorporates by reference MM AG-2 (Restoration after a Pipeline Leak) contained in the certified Line 96 Modification Project EIR.
LU-4: Cumulative Impacts of Potential Project-Related Oil Spills on Area Land Use and Recreational Uses	SU	Implement MMs identified 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) for properly engineered reinforcement of caisson containment walls and contingency planning/spill response
Section 4.9 Public Services		
PS-1: Adequacy of Fire Response	SU	PS-1a. Impact Development Fee
PS-2: Operation without an Approved Fire Prevention Plan	LTSM	PS-2a. Prepare Fire Prevention Plan for PRC 421

Table ES-3. Summary of Environmental Impacts and MMs – Proposed Project

Impact	Impact Class ¹	Recommended MMs
Section 4.10 Transportation and Circulation		
TR-1: Construction-Generated Traffic	LTSM	TR-1a. Route Construction Traffic to Avoid Congested Intersections TR-1b. Repair/Upgrade Any Damage to Access Road
TR-2: Operation-Generated Traffic	LTS	None required
TR-3: Increased Potential for Traffic Accidents	LTS	None required
Section 4.11 Noise		
NZ-1: Construction Impacts to Beach Users and Golfers	LTS	NZ-1a. Sound-Control Devices NZ-1b. Additional Best Management Practices NZ-1c. Buffers
NZ-2: Operational Impacts to Beach Users and Golfers	LTS	None required
Section 4.12 Aesthetic/Visual Resources		
VR-1: Visual Effects from Construction Activities at PRC 421	LTSM	VR-1a. Use Laydown Areas for Overnight Storage of Equipment VR-1b. Caution Tape around Materials Placed on Beach VR-1c. Material Removal at Construction Completion VR-1d. Minimal Night Lighting VR-1e. No Night Lighting After 5:00 p.m.
VR-2: Visual Effects from Accidental Oil Spills	SU	Implement MMs identified in Sections 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) for contingency planning and spill response.
VR-3: Visual Improvements due to Removal of Pier 421-1	B	None required
VR-4: Visual Changes to Pier 421-2	LTS	None required
Section 4.13 Cultural Resources		
CR-1: Potential Impacts to Previously Undiscovered Cultural Resources During Construction	LTSM	CR-1. Cultural Resources Monitor
CR-2: Potential Impacts to Cultural Resources Due to Oil Spill and Cleanup Activities	LTS	None required
Section 4.14 Energy and Mineral Resources		
EMR-1: Increase in Electricity Use	LTS	None required
EMR-2: Conflict with State-Adopted Energy Conservation Plans	LTS	None required

Table ES-4. Summary of Environmental Impacts for Proposed Project and Alternatives

Impact	Impact Class ¹²				
	Proposed Project	No Project	Quitclaim Alternative	Reinjection at Platform Holly	Processing PRC 421 Oil at LFC ¹³
Section 4.1 Geological Resources					
GEO-1: Seismic and Seismically Induced Hazards	LTSM	LTSM	NI	LTSM	LTSM
GEO-2: Landslide and Slope Failure	LTSM	LTSM	NI	LTSM	LTSM
GEO-3: Soil Settlement and Liquefaction	LTSM	LTSM	NI	LTSM	LTSM
GEO-4: Corrosion, Weathering, and Erosion	LTSM	LTSM	NI	LTSM	LTSM
GEO-5: Erosion-Induced Siltation	LTS	LTS	NI	LTS	LTS
Section 4.2 Safety					
S-1: Release of Oil During Cleanup of 6-inch Pipeline	LTS	LTS	NI	LTS	NI
S-2: Exposure of the Public and Environment to Safety Hazards Due to Collapse of the 421-1 or 421-2 Caissons	LTSM	LTSM	NI	LTSM	LTSM
S-3: Exposure of the Public and Environment to Safety Hazards Due to Collapse of or Damage to the Existing Timber Bulkhead or Rip-Rap Seawall	LTSM	LTSM	NI	LTSM	LTSM
S-4: Potential for Release of Oil or Hazardous Materials from Pier 421-2	SU	SU	SU	SU	SU
S-5: Potential for Release of Oil or Hazardous Materials From the Crude Oil Flowline	LTSM	LTSM	NI	LTSM	LTSM
S-6: Increased Amount of Oil or Hazardous Materials Potentially Released or Fire/Explosion from Oil Transfer in Line 96	SU	SU	NI	SU	NI
S-7: Increased Processing of Oil and Gas at the EOF	SU	NI	NI	NI	NI
S-8: Increased Risk of Fire	LTSM	LTSM	NI	LTSM	LTSM
S-9: Repressurization Monitoring	B	B	SU	B	B
Section 4.3 Hazardous Materials					
HAZ-1: Exposure of Public or Environment to Hazardous Materials	LTSM	LTSM	SU	LTSM	LTSM
HAZ-2: Release of Contaminated Sediment from the Caisson on Pier 421-2 during Operation of the Project	LTSM	LTSM	NI	LTSM	LTSM

¹² Impact Class: SU = Significant and unavoidable; LTSM = Less than significant with mitigation; LTS = Less than significant; NI = No impact; B = Beneficial

¹³ For the full range of impacts associated with this alternative, see also Table ES-5.

Table ES-4. Summary of Environmental Impacts for Proposed Project and Alternatives

Impact	Impact Class ¹²				
	Proposed Project	No Project	Quitclaim Alternative	Reinjection at Platform Holly	Processing PRC 421 Oil at LFC ¹³
Section 4.4 Air Quality and Greenhouse Gases					
AQ-1: Increase in Emissions from Construction	LTS	LTS	NI	LTS	LTS
AQ-2: Increase in Emissions from Operations	LTS	LTS	NI	LTS	LTS
AQ-3: Odor Emissions from Operation	LTS	LTS	NI	LTS	LTS
AQ-4: Project Would Result in a Net Increase in GHG Emissions	LTSM	LTSM	NI	LTSM	LTSM
AQ-5: Project Would Contribute to Cumulative Air Quality Impacts	LTS	LTS	NI	LTS	LTS
Section 4.5 Hydrology, Water Resources, and Water Quality					
WQ-1: Temporary Construction Impacts to Marine Water Quality	LTSM	LTSM	NI	LTSM	LTSM
WQ-2: Temporary Construction Impacts to Wetlands	LTSM	LTSM	NI	LTSM	LTSM
WQ-3: Oil Spill Impacts to Surface and Marine Water Quality	SU	SU	SU	SU	SU
WQ-4: Cumulative Impacts to Marine Water Quality	SU	SU	SU	SU	SU
Section 4.6 Marine Biological Resources					
MBIO-1: Disturbance to Intertidal Organisms during Construction	LTSM	LTSM	NI	LTSM	LTSM
MBIO-2: Impacts to Marine Organisms from Sediment Resuspension in the Near-Shore Zone due to Disturbance of Sediments during Caisson Repairs	LTSM	LTSM	NI	LTSM	LTSM
MBIO-3: Noise Impacts to Marine Life during Caisson Repairs on Pier 421-2 and Decommissioning and Removal of Pier 421-1	LTS	LTS	NI	LTS	LTS
MBIO-4: Oil Spill Impacts to Marine Resources	SU	SU	SU	SU	SU
MBIO-5: Oil Spill Impacts to Commercial and Recreational Fishing	SU	SU	SU	SU	SU
MBIO-6: Impacts to Kelp Harvesting	LTS	LTS	NI	LTS	LTS
MBIO-7: Cumulative Impacts of an Oil Spill on Marine Resources	SU	SU	SU	SU	SU
Section 4.7 Terrestrial Biological Resources					
TBIO-1: Short-Term Construction Impacts to Biological Resources	LTSM	LTSM	NI	LTSM	LTSM
TBIO-2: Oil Spill Impacts to Terrestrial Biological Resources	SU	SU	SU	SU	SU
TBIO-3: Cumulative Impacts to Terrestrial Biological Resources	SU	SU	SU	SU	SU
Section 4.8 Land Use, Planning, and Recreation					
LU-1: Potential Conflicts with Goleta General Plan/Coastal Land Use Plan (GP/CLUP) and underlying Coastal Act Policies.	SU	SU	B	SU	SU

Table ES-4. Summary of Environmental Impacts for Proposed Project and Alternatives

Impact	Impact Class ¹²				
	Proposed Project	No Project	Quitclaim Alternative	Reinjection at Platform Holly	Processing PRC 421 Oil at LFC ¹³
LU-2: Oil Releases Could Affect Recreational Activities	SU	SU	SU	SU	SU
LU-3: Oil Releases from Pier 421-2 or Pipelines Could Affect Sensitive Area Resources and Raise Consistency Issues with Adopted Policies	SU	SU	SU	SU	SU
LU-4: Cumulative Impacts of Potential Project-Related Oil Spills on Area Land Use and Recreational Uses	SU	SU	SU	SU	SU
Section 4.9 Public Services					
PS-1: Adequacy of Fire Response	SU	SU	NI	SU	SU
PS-2: Operation without an Approved Fire Prevention Plan	LTSM	LTSM	NI	LTSM	LTSM
Section 4.10 Transportation and Circulation					
TR-1: Construction-Generated Traffic	LTSM	LTSM	NI	LTSM	LTSM
TR-2: Operation-Generated Traffic	LTS	LTS	NI	LTS	LTS
TR-3: Increased Potential for Traffic Accidents	LTS	LTS	NI	LTS	LTS
Section 4.11 Noise					
NZ-1: Construction Impacts to Beach Users and Golfers	LTS	LTS	NI	LTS	LTS
NZ-2: Operational Impacts to Beach Users and Golfers	LTS	LTS	NI	LTS	LTS
Section 4.12 Aesthetics/Visual Resources					
VR-1: Visual Effects from Construction Activities at PRC 421	LTSM	LTSM	NI	LTSM	LTSM
VR-2: Visual Effects from Accidental Oil Spills	SU	SU	SU	SU	SU
VR-3: Visual Improvements due to Removal of Pier 421-1	B	NI	NI	B	B
VR-4: Visual Changes to Pier 421-2	LTS	LTS	NI	LTS	LTS
Section 4.13 Cultural, Historical, and Paleontological Resources					
CR-1: Potential Impacts to Previously Undiscovered Cultural Resources During Construction	LTSM	LTSM	NI	LTSM	LTSM
CR-2: Potential Impacts to Cultural Resources Due to Oil Spill and Cleanup Activities	LTS	LTS	LTS	LTS	LTS
Section 4.14 Energy Mineral Resources					
EMR-1: Increase in Electricity Use	LTS	LTS	NI	LTS	LTS
EMR-2: Conflict with State-Adopted Energy Conservation Plans	LTS	LTS	NI	LTS	LTS

Table ES-5. Summary of Environmental Impacts for the Processing PRC 421 Oil at LFC Alternative that are Not Applicable to the Proposed Project or other Alternatives¹⁴

Impact	LFC Alternative Components	
	EOF to LFC Pipeline	LFC Facility
PRC 421 EIR Section 4.1 Geological Resources		
Similar to Line 96 GEO-1 (Slope Failures)	LTS	-
Similar to Line 96 GEO-2 (Erosion of Drainages)	LTSM	-
Similar to Line 96 GEO-3 (Expansive Soils)	LTSM	-
Similar to Line 96 GEO-4 (Faulting and Seismicity)	LTSM	-
Exposure of New Facilities to Seismic Hazards	-	LTSM
Exposure of New Facilities to Landslide and Slope Failure	-	LTSM
Exposure of New Facilities to Soil Settlement and Liquefaction	-	LTSM
Exposure of Soils to Erosion	-	LTSM
PRC 421 EIR Section 4.2 Safety		
Similar to Impact S-6 from this Revised Draft EIR (above) and to Line 96 H-3 (Pipeline Spill Impacts to the Environment)	SU	-
Potential for Release of Oil or Hazardous Materials from LFC Facilities	-	SU
Increased Risk of Fire	-	LTSM
PRC 421 EIR Section 4.3 Hazardous Materials		
Similar to Line 96 WQ-2 (Construction Impact to Waterways; also included in Water Quality)	LTSM	-
Exposure of Public or Environment to Hazardous Materials	-	LTSM
PRC 421 EIR Section 4.4 Air Quality and Greenhouse Gases		
Similar to Line 96 AQ-1 (Construction Emissions)	LTS	-
Increase in Emissions from Construction	-	LTSM
Increase in Emissions from Operations	LTS	LTS
Net Increase in GHG Emissions	LTSM	LTSM
PRC 421 EIR Section 4.5 Hydrology, Water Resources, and Water Quality		
Similar to Line 96 WQ-2 (Construction Impact to Waterways)	LTSM	-
Similar to Line 96 WQ-3 (Horizontal Directional Drilling Impacts to Onshore Waterways)	SU	-

¹⁴ This table summarizes impacts identified in the 2011 Line 96 EIR (as applicable) and analysis performed in this EIR of potential impacts at Las Flores Canyon associated with the Processing PRC 421 Oil at LFC Alternative.

Table ES-5. Summary of Environmental Impacts for the Processing PRC 421 Oil at LFC Alternative that are Not Applicable to the Proposed Project or other Alternatives¹⁴

Impact	LFC Alternative Components	
	EOF to LFC Pipeline	LFC Facility
Similar to Line 96 WQ-4 (Impacts to Onshore Waterways from Potential Facilities Leaks)	SU	-
Construction Impacts to Water Quality	-	LTSM
Operational Impacts to Water Quality	-	SU
Wastewater Injection Impacts to Groundwater Quality	-	LTSM
PRC 421 EIR Section 4.6 Marine Biological Resources		
Similar to Line 96 BIO-2 (Construction Impacts to Sensitive Species)	SU	-
Similar to Line 96 BIO-3 (Construction Impacts to Native Habitats)	SU	-
Similar to Line 96 BIO-4 (Oil Spill Impacts to Biological Resources)	SU	-
Construction Impacts to Marine Biological Resources	-	LTSM
Operational Impacts to Marine Biological Resources	-	LTSM
PRC 421 EIR Section 4.7 Terrestrial Biological Resources		
Similar to Line 96 BIO-2 (Construction Impacts to Sensitive Species)	SU	-
Similar to Line 96 BIO-3 (Construction Impacts to Native Habitats)	SU	-
Similar to Line 96 BIO-4 (Oil Spill Impacts to Biological Resources)	SU	-
Construction Impacts to Sensitive Species and Native Habitats	-	LTSM
Oil Spill Impacts to Biological Resources	-	SU
PRC 421 EIR Section 4.8 Land Use, Planning, and Recreation		
Oil Releases Could Affect Recreational Activities (not included in Line 96 EIR)	SU	-
Similar to Line 96 AG-1 (Loss of Resources, Construction and Soil Disturbance)	LTSM	-
Similar to Line 96 AG-2 (Restoration after a Leak/Spill)	LTSM	-
Similar to Line 96 AG-3 (Loss of Prime Agricultural Land)	LTS	-
Similar to Line 96 AG-4 (Loss of Organic Cultural Land)	LTS	-
Potential Conflicts with Coastal Land Use Plan and underlying Coastal Act Policies	-	SU
Oil Releases Could Affect Recreational Activities	-	SU
PRC 421 EIR Section 4.9 Public Services		
Similar to Line 96 PS-1 (Adequacy of Fire Response)	SU	-
Similar to Line 96 PS-2 (Impacts on Water Utility Sewer)	LTS	-

Table ES-5. Summary of Environmental Impacts for the Processing PRC 421 Oil at LFC Alternative that are Not Applicable to the Proposed Project or other Alternatives¹⁴

Impact	LFC Alternative Components	
	EOF to LFC Pipeline	LFC Facility
Similar to Line 96 PS-3 (Impacts on Sewer)	LTS	-
Similar to Line 96 PS-4 (Impacts on Solid Waste Facilities)	LTS	-
Adequacy of Fire Response	-	SU
Expansion of Onsite Fire Protection Infrastructure	-	LTS
PRC 421 EIR Section 4.10 Transportation and Circulation		
Similar to Line 96 T-1 (Increased Construction Traffic)	LTSM	-
Construction-Generated Traffic	-	LTSM
Operation-Generated Traffic	-	LTS
PRC 421 EIR Section 4.11 Noise		
Similar to Line 96 N-1 (Noise from Pipeline Construction)	LTSM	-
Noise from Construction	-	LTSM
Noise from Operation	-	LTS
PRC 421 EIR Section 4.12 Aesthetics/Visual Resources		
Similar to Line 96 VR-3 (Visual Effects from Pipeline Construction)	LTS	-
Similar to Line 96 VR-4 (Visual Effects of Pipeline Installation)	LTSM	-
Similar to Line 96 VR-6 (Visual Effects from Accidental Oil Spills)	LTS	-
Visual Effects from Construction and Operation	-	LTS
PRC 421 EIR Section 4.13 Cultural, Historical, and Paleontological Resources		
Similar to Line 96 CR-2 (Construction at CA-SBA-139)	LTSM	-
Similar to Line 96 CR-3 (Construction Access to CA-SBA-139)	LTSM	-
Similar to Line 96 CR-4 (Construction Access to CA-SBA-83, CA-SBA-1676, and CA-SBA-1733)	LTSM	-
Similar to Line 96 CR-5 (Oil Spill Impacts)	LTSM	-
Potential Construction Impacts to Cultural Resources	-	LTSM
PRC 421 EIR Section 4.14 Energy Mineral Resources		
Similar to Line 96 EMR-1 (Electricity Use)	LTS	-
Increased Energy Use During Construction and Operation	-	LTS
Potential Construction of New Power Lines	-	LTSM

1.0 INTRODUCTION

1 As Lead Agency under the California Environmental Quality Act (CEQA; Pub.
2 Resources Code, § 21000 et seq.), the California State Lands Commission (CSLC or
3 Commission) has prepared this ~~Recirculated Draft Final~~ Environmental Impact Report
4 (EIR), State Clearinghouse [SCH] No. 2005061013, for the proposed Revised PRC 421
5 Recommissioning Project (Project). The Project reviewed in this EIR is based on an
6 application by Venoco, Inc. (Venoco), the lessee and operator of State Oil and Gas
7 Lease PRC 421 (PRC 421), to:

- 8 • Return oil production from an existing shoreline well (Well 421-2) that was shut-in
9 in 1994, at the CSLC's direction, by the previous lessee;¹ and
- 10 • Process PRC 421 crude oil emulsion at the Ellwood Onshore Facility (EOF) in
11 the City of Goleta, instead of on shoreline piers as was the case when the CSLC
12 assigned the lease to Venoco in 1997.

13 This ~~Recirculated Draft Final~~ EIR replaces a Final EIR that the Commission deferred action
14 on and directed staff to fully evaluate the Processing PRC 421 Oil at Las Flores Canyon
15 (LFC) Alternative (Calendar Item 91, April 23, 2014).² The EIR is being recirculated
16 pursuant to State CEQA Guidelines section 15088.5, subdivision (a), because significant
17 new information has been added to the EIR as summarized in Table 1-1.

18 1.1 PROJECT LOCATION AND BACKGROUND

19 The Project would be conducted along the southern coast of California, adjacent to and
20 within the City of Goleta, Santa Barbara County (Figure 1-1). As proposed by Venoco:

- 21 • Well 421-2 would be recommissioned using an existing pier (Pier 421-2) located
22 on Haskell's Beach, straddling Goleta and CSLC jurisdictions;
- 23 • Water and gas from crude oil emulsion extracted from Well 421-2 would be
24 separated at the existing EOF in the City of Goleta;
- 25 • Venoco would decommission a second well (Well 421-1), located on an adjacent
26 pier (Pier 421-1), which was historically used as a water and gas injection well
27 during past production of PRC 421; and

¹ The CSLC directed the previous lessee, Mobil Exploration and Production, Inc. (Mobil) to suspend operations, following an onshore oil spill from a transportation pipeline, pursuant to CSLC regulations (Cal. Code Regs., tit. 2, div. 3, § 2121), which state:

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.

² The CSLC previously prepared, but did not certify, a Final EIR (January 2014) based on Venoco's (2013) project description and a Draft EIR (August 2007) based on Venoco's (2004) project description.

Table 1-1. New Information Added to this Recirculated Draft Final EIR

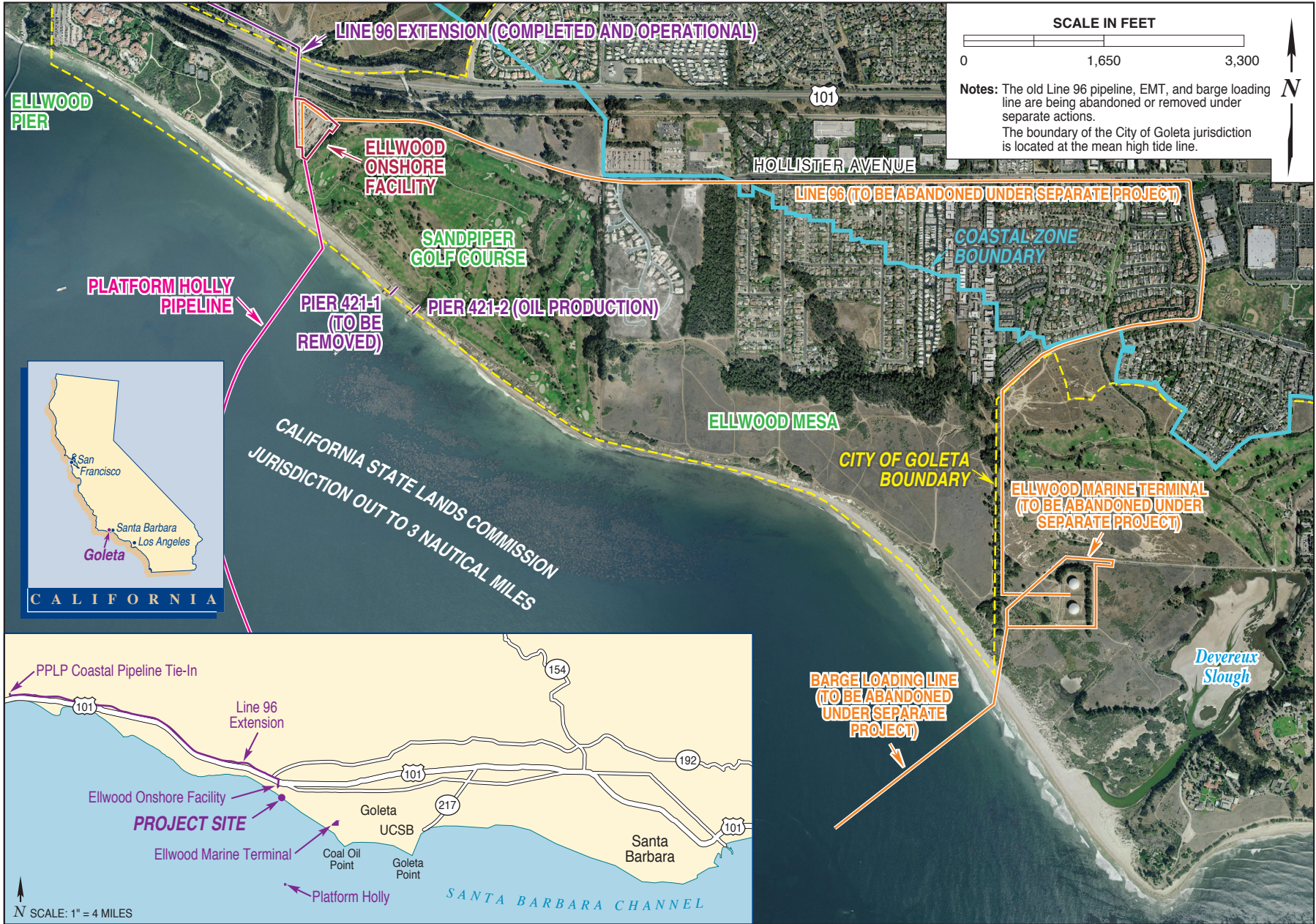
Section 5.0, Project Alternatives Analysis	To facilitate review of the Processing PRC 421 Oil at LFC Alternative, the EIR has been reorganized to combine and discuss all Project alternatives in a new Section 5.0, Project Alternatives Analysis, which includes: <ul style="list-style-type: none"> • Alternatives selection and screening methodology; • Alternatives eliminated from further consideration; and • Impact analyses of each alternative considered.
Processing PRC 421 Oil at LFC Alternative	This Alternative has been moved from the Alternatives Eliminated from Further Consideration subsection (January 2014 version) to the Alternatives Evaluated in this Recirculated Draft Final EIR subsection (Section 5.3.4).
No Project Alternative	Whereas Venoco's proposed Project includes processing PRC 421 oil at the EOF, the No Project Alternative is redefined as Commission authorization (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: <ul style="list-style-type: none"> • 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). • Under the No Project Alternative, Venoco may produce the lease by processing oil on Pier 421-2 and using Well 421-1 on Pier 421-1 for produced water disposal. This is not a "project" as defined in CEQA section 21065,³ because the Commission has already issued Lease PRC 421 to Venoco. In contrast, the Commission's discretionary action for the Project evaluated in this EIR covers: moving the location of oil processing from Pier 421-2 to the EOF; abandoning Well 421-1; and decommissioning Pier 421-1. • 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 below.
No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative	This alternative would require the State to take an affirmative action to terminate and quitclaim 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.
Vaqueros Reservoir Repressurization	This discussion has been augmented to clarify the issue. The discussion was also moved from the background information in Section 2.0, Project Description (in the January 2014 Final EIR), to Section 4.2, Safety, since repressurization is not a purpose of the Project, but Project implementation may affect repressurization.

³ CEQA section 21065 defines "Project" as "an activity which may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, **and** (*emphasis added*) which is any of the following:

(a) An activity directly undertaken by any public agency.

(b) An activity undertaken by a person which is supported, in whole or in part, through contracts, grants, subsidies, loans, or other forms of assistance from one or more public agencies.

(c) An activity that involves the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies."



Project Location

FIGURE 1-1

- 1 • Venoco would remove Pier 421-1, which was historically used for the processing
2 and storage of the Well 421-2 product, and would remove the caisson and
3 facilities that support Well 421-1.

4 Production estimates for PRC 421, based on current projections, are as follows:

- 5 • Estimated production during the first month is 150 barrels of oil per day (BOPD)
6 due to anticipated repressurization of the reservoir that has likely occurred from
7 the well having been shut-in since 1994. Instantaneous oil production rate is not
8 projected to exceed 500 BOPD;
- 9 • After two years, production is anticipated to taper off to approximately 50 BOPD,
10 matching the well's last 10 years of continuous historical production; and
- 11 • The estimated productive life of PRC 421 is 20 years, which is less than the
12 production life of Platform Holly estimated at a minimum of 40 years.
- 13 • The State Lease 421 Recommissioning Plan Project Description (Venoco 2013;
14 Appendix G) details the proposed recommissioning of PRC 421, including
15 upgrades to Venoco's existing facilities and construction of limited supporting
16 infrastructure. The Project details are provided in Section 2.0, Project
17 Description, of this EIR.

18 **1.2 PROJECT OBJECTIVE**

19 The State CEQA Guidelines section 15126.6, subdivision (a) requires an EIR to
20 describe and consider a range of reasonable alternatives to the Project, or to the
21 location of the Project, which would feasibly attain most of the basic objectives of the
22 Project. In order to explain the need for the Project, and to guide in development and
23 evaluation of alternatives, Venoco was asked to define its Project objectives. Venoco
24 identified the following objective for the Revised PRC 421 Recommissioning Project:

- 25 • To return State Oil and Gas Lease PRC 421 to production and process the
26 production at the EOF.

27 **1.3 OVERVIEW OF THE ENVIRONMENTAL REVIEW PROCESS**

28 CEQA's primary objectives are to:

- 29 • Ensure that the significant environmental effects of proposed activities are
30 disclosed to decision makers and the public;
- 31 • Identify ways to avoid or reduce environmental damage;
- 32 • Prevent environmental damage by requiring implementation of feasible
33 alternatives and/or mitigation measures;

- 1 • Make public the reasons for agency approval of projects with significant
2 environmental effects;
- 3 • Foster multidisciplinary interagency coordination in the review of projects; and
- 4 • Enhance public participation in the planning process. With certain limited
5 exceptions, CEQA requires all State and local government agencies to consider
6 the environmental consequences of projects over which they have discretionary
7 authority before taking action on those projects. It establishes both procedural
8 and substantive requirements that agencies must satisfy to meet CEQA's
9 objectives. In accordance with these requirements, the CSLC, as the Lead
10 Agency with decision-making authority over the Project, determined that the
11 Project could result in significant environmental impacts and that an EIR was
12 required to analyze the Project and feasible Project alternatives.

13 As described in the State CEQA Guidelines, an EIR is a public information document
14 that assesses potential environmental effects of a proposed project and identifies
15 mitigation measures and alternatives to the project that could reduce or avoid potentially
16 significant environmental impacts (State CEQA Guidelines § 15121, subdivision (a)).
17 Other key requirements include developing a plan to implement and monitor the
18 success of the identified mitigation measures, and carrying out specific noticing and
19 distribution steps to maximize public involvement in the environmental review process. It
20 is not the purpose of an EIR to recommend either approval or denial of a project.
21 Consistent with CEQA requirements, the CSLC has engaged in a good faith,
22 reasonable effort towards full public disclosure of the potential effects of Venoco's
23 proposed Project.

24 Prior to any decision on whether and how to recommission PRC 421, the CSLC must
25 certify that:

- 26 • The EIR has been completed in compliance with CEQA;
- 27 • The EIR was presented to the CSLC in a public meeting and the CSLC reviewed
28 and considered the information contained in the Final EIR prior to taking action
29 on approval of the proposed Project; and
- 30 • The EIR reflects the CSLC's independent judgment and analysis (State CEQA
31 Guidelines § 15090).

32 In addition to disclosing the environmental effects, CEQA requires that a Lead Agency
33 (1) avoid or reduce significant effects to the extent feasible (Pub. Resources Code, §
34 21002) and (2) prepare written findings of fact for each significant environmental impact
35 identified in the document upon certification of the EIR and prior to approval of the
36 Project (State CEQA Guidelines § 15121, subdivision (b)). The possible findings are
37 (see State CEQA Guidelines § 15091):

- 1 • The Project has been changed (including adoption of mitigation measures) to
- 2 avoid or substantially reduce the magnitude of the impact;
- 3 • Changes to the Project are within another agency’s jurisdiction and have been or
- 4 should be required by that agency; or
- 5 • Specific economic, legal, social, technological, or other considerations make the
- 6 mitigation measures or alternatives identified in the EIR infeasible.

7 Under CEQA, if the CSLC finds that the above-specified considerations make identified
 8 mitigation measures or alternatives infeasible, and as a result, implementation of the
 9 Project would result in the occurrence of one or more significant effects, the CSLC
 10 would only be allowed to approve recommissioning of PRC 421 if it prepares a written
 11 statement that the Project’s environmental benefits (including economic, legal, social,
 12 technological, or other region- or statewide benefits) outweigh the unavoidable adverse
 13 environmental effects. This statement of “overriding considerations” must be supported
 14 by the specific reasons and evidence in the record for making such a determination.

15 State CEQA Guidelines section 15124, subdivision (d) requires that an EIR contain a
 16 statement within the project description briefly describing the intended uses of the EIR.
 17 The State CEQA Guidelines also indicate that the EIR should identify the ways in which
 18 the Lead Agency and any responsible agencies would use the document in their
 19 approval or permitting processes. Agency roles and intended uses of the EIR are as
 20 follows. The CSLC is the CEQA lead agency responsible for preparing this EIR. A Joint
 21 Review Panel (JRP), composed of staffs of the CSLC, City of Goleta, and California
 22 Coastal Commission, and chaired by CSLC staff, was formed to oversee the EIR
 23 process. The EIR will be used by the CSLC to consider the environmental impacts
 24 associated with the Project and Project alternatives and to assist the CSLC in making its
 25 decision to approve or deny the Project. As noted in Section 1.3.1 below, other State
 26 and local agencies will use the EIR in their decision-making processes and to support
 27 consideration of issuance of any Project-related permits and approvals.

28 **1.3.1 Responsible and Coordinating Agencies/Permitting**

29 In addition to action by the CSLC, the proposed Project would require the following
 30 permits and approvals from reviewing authorities and regulatory agencies:

City of Goleta ^{a, b}	EOF Development Plan Revision to 08-134-DP and Conditional use Permit Development Plan and Conditional Use Permit for the portion of the Project outside of the EOF
Santa Barbara County Air Pollution Control District (APCD)	Modification to current production limit for SL-421 <u>Execution of a Health Risk Assessment (HRA)</u> (Other APCD rule-required plans may also need to be developed or modified)

California Coastal Commission ^a	Coastal Development Permit
California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR)	Notice of Intention to Rework Well <u>421-2</u> <u>Submittal of Abandonment and Restoration Plan</u> <u>Review and approve proposed plugging and</u> <u>abandonment operations for Well 421-1</u>
California Department of Fish and Wildlife (CDFW), Office of Spill Prevention and Response	Approval of updates by Venoco of its Oil Spill Contingency Plan and South Ellwood Field Emergency Action Plan (EAP)
State Regional Water Quality Control Board (RWQCB)	Section 401 Water Quality Certification National Pollutant Discharge Elimination System (NPDES) permit
<u>U.S. Army Corps of Engineers</u>	<u>Department of the Army Permit</u>

^a Prior permits issued for emergency repair work on the PRC 421 piers (Final Development Plan 05-132-DP; 04-EMP-001; E-01-013-G; 2004015765-JCM) cannot be modified since they do not allow oil production to resume.

^b A revised Development Plan from the City of Goleta is required for those portions of the Project that involve onshore facilities above the Mean High Tide line, such as those portions of the piers, access road, pipelines, and changes involved at the EOF.

1 1.3.2 Public Participation

2 On July 24, 2014, the CSLC has prepared-released a new Recirculated Draft EIR to
3 allow the public and agencies the opportunity to comment on the currently proposed
4 Project, alternatives (including the LFC Processing Alternative), associated
5 environmental impacts and recommended mitigation measures. Appendix A provides
6 the distribution list of ~~this document~~ the Recirculated Draft EIR. Following the public
7 comment period on the Recirculated Draft EIR, which ended September 24, 2014, this
8 Final EIR was prepared.

9 Scoping

10 On March 26, 2013, pursuant to CEQA section 21080.4 and State CEQA Guidelines
11 section 15082, subdivision (a), the CSLC issued a Notice of Preparation (NOP) for the
12 proposed Project to responsible and trustee agencies and other interested parties.
13 Through the NOP, the CSLC solicited both written and verbal comments on the EIR's
14 scope during a 30-day comment period and provided information on a forthcoming
15 public scoping meeting. The CSLC held two public and agency scoping meetings in
16 Goleta, California on April 3, 2013, to solicit verbal comments on the scope of the EIR.
17 Transcripts of the meetings are provided in Appendix B. Written comments in response
18 to the NOP were received from the following:

State Agency	<ul style="list-style-type: none"> • DOGGR
Local/Regional Agency	<ul style="list-style-type: none"> • City of Goleta • County of Santa Barbara Planning and Development, Energy Division • County of Santa Barbara Office of Emergency Management • Santa Barbara County APCD

Tribal Members	<ul style="list-style-type: none">• Barbareño/Ventureño Band of Mission Indians
Non-Governmental Organizations	<ul style="list-style-type: none">• California Center for Public Policy• Environmental Defense Center (EDC)• League of Women Voters of Santa Barbara• Natural Resources Defense Council (NRDC)
Individuals	<ul style="list-style-type: none">• Ingeborg Cox, MD• Richard Whited

1 **Public Comment on ~~this~~ the July 2014 Recirculated Draft EIR**

2 This In July 2014, the Recirculated Draft EIR ~~is being~~ was distributed to Federal, State,
3 and local agencies and to interested community organizations and individuals ~~who may~~
4 ~~wish~~ to review and comment on the report. Because the CSLC ~~is recirculating~~
5 recirculated the entire Draft, only comments on ~~this~~ the Recirculated Draft EIR ~~will be~~
6 were accepted (State CEQA Guidelines § 15088.5, subdivisions (f)(1) and (3)).
7 Comments received on the 2013 Draft EIR were responded to in the January 2014 Final
8 EIR, and ~~are~~ were incorporated where appropriate in ~~this~~ the Recirculated Draft EIR; all
9 comments (including comments submitted on the Draft EIRs released in 2007 and
10 2013) are maintained as part of the administrative record.

11 ~~Fourteen~~ written comments ~~may be~~ letters ~~were~~ submitted to the CSLC during the 60-
12 day public review period. ~~Verbal and written comments on this for the~~ Recirculated Draft
13 EIR ~~will also be accepted at a~~ (July 24 through September 24, 2014). Four speakers
14 gave oral comments at two noticed public meetings ~~that will be scheduled during the~~
15 ~~public review period~~ the CSLC staff held in the City of Goleta on September 15, 2014.

16 **Preparation of the Final EIR**

17 All comments received ~~will be~~ during the 60-day public review period, which are
18 addressed in a Part II, Response to Comments, section of a new of this Final EIR, ~~which~~
19 along with ~~any~~ changes to the text and analysis in this document in strikeout-underline
20 format ~~will~~ constitute the Final EIR for the Project (see Part II, Response to Comments).

21 **EIR Information and Repository Sites**

22 Placing the CEQA document in “repository” sites can be an effective way of providing
23 ongoing information about the Project to a large number of people. This document is
24 available at four repository sites in the Project vicinity and at CSLC offices in Long
25 Beach and Sacramento (see Table 1-2).

Table 1-2. EIR Repository Locations

Goleta Branch Library 500 N. Fairview Ave. Goleta, CA 93117-1797 (805) 964-7878	Santa Barbara Public Library 40 E. Anapamu St. Santa Barbara, CA 93101 (805) 962-7653
City of Goleta, Planning & Environmental Review Attn: Anne Wells 130 Cremona Dr., Ste. B Goleta, CA 93117 (805) 961-7546	County of Santa Barbara Attn: Kevin Drude 123 E. Anapamu St. Santa Barbara, CA 93101 (805) 568-2287
California State Lands Commission Attn: Steve Curran 200 Oceangate, 12 th Floor Long Beach, CA 90802 (562) 590-5266	California State Lands Commission Attn: Eric Gillies 100 Howe Ave., Suite 100-South Sacramento, CA 95825 (916) 574-1897

1 1.4 PURPOSE AND SCOPE OF THE EIR

2 The purpose of this EIR is to identify the significant impacts on the environment of
3 Venoco's Project, to identify alternatives to the Project, and to indicate the manner in
4 which those significant effects can be mitigated or avoided (Pub. Resources Code, §
5 21002.1, subd. (a)). The CSLC has prepared this EIR in accordance with CEQA and the
6 State CEQA Guidelines to document the CSLC's evaluation of the potential for
7 environmental impacts associated with implementation of Venoco's proposed
8 recommissioning of PRC 421. The EIR is intended to provide the CSLC with information
9 required to exercise its jurisdictional responsibilities with respect to the Project, which
10 will be considered at a separately noticed public meeting of the CSLC.

11 1.4.1 Study Area Boundary

12 The study area for this EIR has been established in two tiers of scope and is described
13 in detail in Sections 2.0, Project Description, and 5.0, Project Alternatives Analysis. The
14 detailed study area (see Figure 1-1) covers the immediate onshore and near-shore
15 areas of the Ellwood coast that would be subject to direct impacts (e.g., production on
16 Pier 421-2, removal of Pier 421-1, trenching along the access road, and tie-in to existing
17 facilities) and the area most susceptible to an oil spill from Project operation and oil
18 transport, which is the Ellwood Coast zone within and surrounding PRC 421 and the
19 Project-related oil transport pipeline to the tie-in point for the recently constructed Line
20 96 pipeline. The secondary study area is associated with the pipeline corridor stretching
21 north and west of the detailed study area to Las Flores Canyon (LFC) that was
22 described in the Line 96 Modification Project Final EIR (Line 96 EIR) (Santa Barbara
23 County 2011) and that would be used to transport production from the proposed Project.

1 **1.4.2 Baseline and Future Conditions**

2 Baseline conditions are defined as the existing physical setting that may be affected by
3 the proposed Project (State CEQA Guidelines § 15125, subdivision (a)). Specifically,
4 baseline conditions are the local and regional physical environmental conditions in the
5 vicinity of the proposed Project, as they exist at the time the NOP was published. This
6 environmental setting constitutes the baseline physical conditions by which the CSLC
7 will determine whether or not impacts from the proposed Project and alternatives are
8 significant. The impacts of the proposed Project are defined as changes to the
9 environmental setting that are attributable to Project components or operations.

10 The CEQA also requires an EIR to discuss the cumulative impacts of a project when the
11 project's incremental effect is "cumulatively considerable" (State CEQA Guidelines
12 § 15130). A cumulative impact is an impact that is created through a combination of the
13 project being analyzed in the EIR and other projects in the area causing related
14 impacts. Section 3.0, Cumulative Impacts Methodology, defines the applicable
15 geographic scope of the cumulative analysis ("Cumulative Projects Study Area"), and
16 lists future planned and approved projects to be included in the cumulative environment.

17 Information sources for Venoco's existing operations include the NOP for this EIR
18 (CSLC 2013), the Ellwood Marine Terminal EIR (CSLC 2009), the Line 96 EIR (Santa
19 Barbara County 2011), Venoco's 2013 application and drawings (Appendix G), and site
20 visit inspections and assessments by the CSLC and other agencies. Local planning
21 documents prepared by the University of California, Santa Barbara, Santa Barbara
22 County, and the City of Goleta were also reviewed. Online information and Geographic
23 Information System resources were used to the extent feasible. Baseline environmental
24 conditions for the outer coast are incorporated by reference from numerous previous
25 documents with a short summary, as pertinent for the applicable environmental
26 discipline sections. Previous documents include: environmental analyses prepared for
27 the Channel Islands National Marine Sanctuary; biological surveys conducted by the
28 CDFW, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric
29 Administration, and U.S. Geological Survey; environmental studies prepared by Santa
30 Barbara County, Venoco, and the Bureau of Ocean Energy Management (formerly U.S.
31 Minerals Management Service); and numerous peer-reviewed journal articles.

32 Existing baseline conditions for Venoco's proposed Project include: Venoco's lease
33 being in full force and effect; existing Project infrastructure as recently modified; and no
34 production from PRC 421 since 1994, other than depressurization activities in 2001 to
35 relieve well-head pressure. Potential impacts of recommissioning PRC 421 are
36 generally analyzed in the context of environmental conditions existing at the time the
37 NOP was released for the Project (March 2013). Existing infrastructure includes Wells
38 421-1 and 421-2, which are installed on separate concrete caissons, and supporting
39 surf zone piers located below the bluffs south of Sandpiper Golf Course; a 1,300-foot
40 access road and seawall along the toe of the bluff; and a 6-inch buried pipeline within

1 the access road linking these facilities to supporting oil transportation infrastructure in
 2 the Project vicinity. As described in Section 2.1, existing Project infrastructure has been
 3 subject to a major repairs and improvements in 2001, 2004, and 2010-2011. The
 4 proposed Project would also integrate, use, and upgrade some of the existing Ellwood
 5 area oil facilities, primarily for the onshore pipeline transport of emulsion from Well 421-
 6 2 and monitoring of the Project (see Figure 1-2 and Table 2.23).

7 Existing Ellwood area oil facilities include the EOF and the Line 96 pipeline extension to
 8 the Plains All American Pipeline, L.P. (PAAPLP) Coastal Pipeline, located west of LFC,
 9 which began operating in 2012. Line 96 is an 8.5-mile-long, 6-inch-diameter onshore
 10 pipeline that allows all Ellwood area oil production from Platform Holly (and potentially
 11 from PRC 421) to be shipped to market via pipeline. Completion of Line 96 has allowed
 12 cessation of barging from the Ellwood Marine Terminal (EMT), which was formerly the
 13 initial mode of oil transport from the EOF, and the pending decommissioning of both the
 14 EMT and most of the existing Line 96 segment connecting the EOF to the EMT.

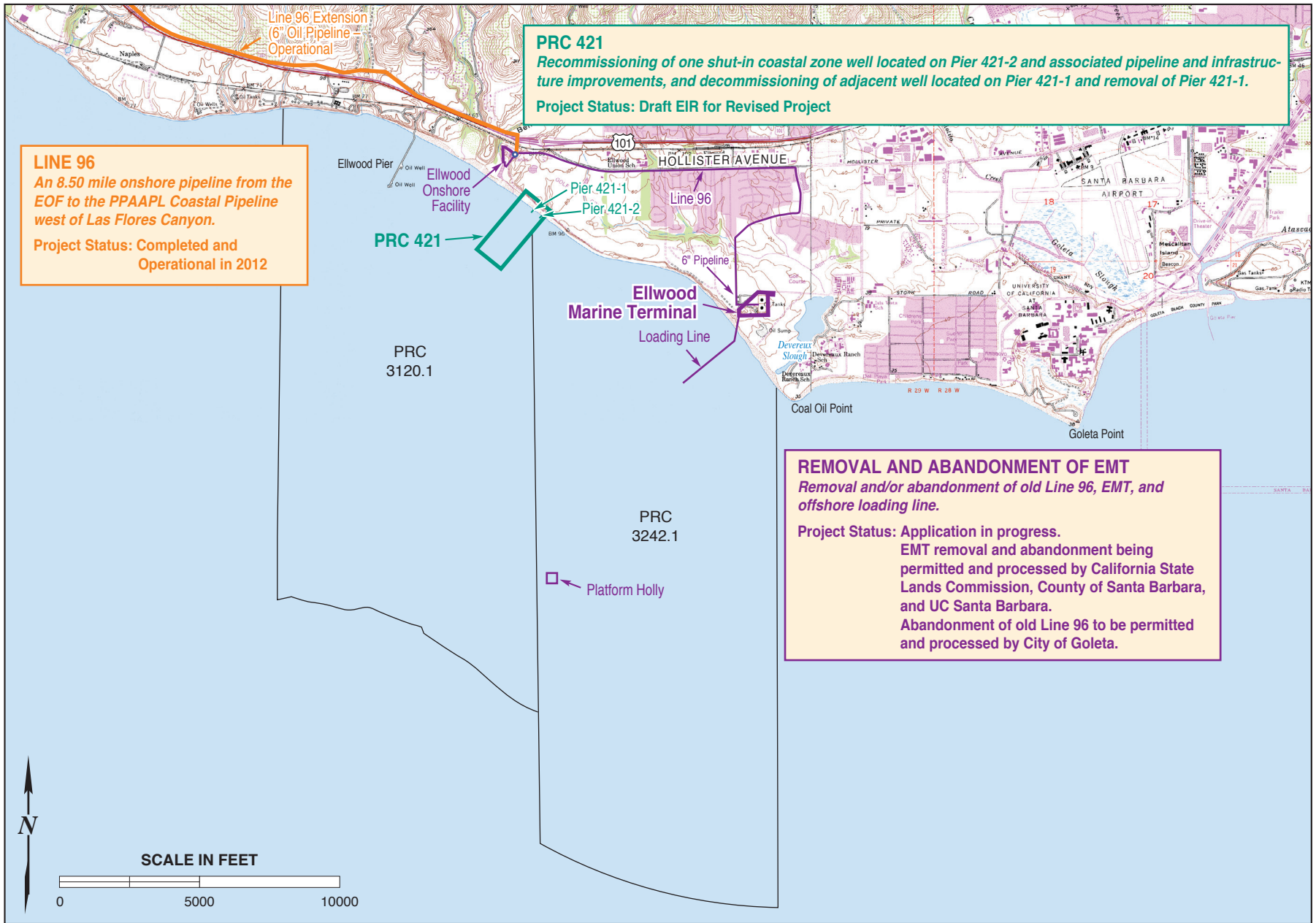
15 Planned Project activities that will be compared to baseline conditions include
 16 improvements such as the modifications and upgrades at Pier 421-2 to allow resumed
 17 oil production, installation of the proposed pipeline and power cables along the access
 18 road, and supporting control devices at the EOF described further in Section 2.3.4.

19 As discussed in detail in Section 2.4, the emulsion from Well 421-2 extracted as part of
 20 the proposed Project would be transported via an onshore pipeline to the EOF, where it
 21 would be processed. The oil would then be transported via the Line 96 pipeline to the
 22 PAAPLP Coastal Pipeline west of LFC. Since Pier 421-1 will not be needed for the
 23 proposed Project, the well on the pier would be abandoned and the pier infrastructure
 24 removed following approval of an Abandonment and Restoration Plan (see Section 2.6).

25 **1.4.3 Impacts of Proposed Project and Summary of Alternatives Evaluated**

26 This EIR identifies the potential environmental impacts of the Project on the existing
 27 environment and indicates if and how those impacts can be avoided or reduced by
 28 mitigation measures and/or Project alternatives. As described in Section 4.0,
 29 Environmental Impact Analysis, the following resource areas would not be impacted by
 30 the Project: Agriculture and Forestry Resources and Population and Housing. The
 31 Project would have a potentially significant impact on the following resources.

<ul style="list-style-type: none"> • Geological Resources • Safety • Hazardous Materials • Air Quality and Greenhouse Gases • Hydrology, Water Resources, and Water Quality • Marine Biological Resources • Terrestrial Biological Resources • Land Use, Planning, and Recreation 	<ul style="list-style-type: none"> • Public Services • Transportation and Circulation • Noise • Aesthetic/Visual Resources • Cultural, Historical, and Paleontological Resources • Energy and Mineral Resources • Socioeconomics and Environmental Justice
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1 Pursuant to State CEQA Guidelines section 15126.6, an EIR must describe and
2 evaluate a range of reasonable alternatives that would feasibly attain most of the
3 Project's basic objectives, and would avoid or substantially lessen any of the significant
4 impacts of the Project as proposed. The State CEQA Guidelines also state that the
5 range of alternatives required to be evaluated in an EIR is governed by the "rule of
6 reason" (§ 15126.6, subd. (f))—that is, an EIR needs to describe and evaluate only
7 those alternatives necessary to permit a reasoned choice and to foster informed
8 decision making and public participation.

9 Eight alternatives, listed below, were considered infeasible or had no greater
10 environmental benefits over the proposed Project and were eliminated from further
11 consideration (see Section 5.0, Project Alternatives Analysis):

- 12 • Drilling from the EOF;
- 13 • Drilling from Platform Holly;
- 14 • Condensed Production Schedule;
- 15 • Offshore Oil Processing on Platform Holly;
- 16 • Transportation of Production By Truck;
- 17 • Recommissioning Using Historic Production Methods;
- 18 • No Production Alternative with Pressure Testing; and
- 19 • Alternative Energy Sources.

20 The following four alternatives are fully analyzed in Section 5.0, Project Alternatives
21 Analysis:

- 22 • No Project;
- 23 • No Production/Quitclaim State Oil and Gas Lease PRC 421;
- 24 • ReInjection at Platform Holly; and
- 25 • Processing PRC 421 Oil at Las Flores Canyon.

26 **1.4.4 Organization of the EIR**

27 Including this Introduction, the EIR is presented in eight sections as shown below.

- 28 • **Section 2 – Project Description** describes the proposed Project, its location,
29 layout and facilities, and presents an overview of its operation and schedule.
- 30 • **Section 3 – Cumulative Impacts Methodology** identifies the projects that were
31 analyzed for their potential cumulative effects.
- 32 • **Section 4 – Environmental Impact Analysis** describes existing environmental
33 conditions, Project-specific impacts, and mitigation measures (MMs) associated
34 with the various environmental issue areas, and evaluates the cumulative
35 impacts of the proposed Project. .

- 1 • **Section 5 – Project Alternatives Analysis** describes the alternatives screening
2 methodology, alternatives rejected from full consideration, alternatives carried
3 forward with impact analyses.
- 4 • **Section 6 – Other Required CEQA Sections and Environmentally Superior**
5 **Alternative** addresses other required CEQA elements including significant and
6 irreversible environmental and growth-inducing impacts, comparison of the Project
7 and alternatives, and identification of the environmentally superior alternative.
- 8 • **Section 7 – Mitigation Monitoring Program (MMP)** presents the MMP.
- 9 • **Section 8 – Report Preparation Sources and References** lists the persons
10 involved in preparation of the EIR and the reference materials used.

11 The EIR also contains 10 appendices.

- 12 • **Appendix A** – contains the EIR distribution list of agencies/organizations and
13 individuals that will receive a copy of the EIR.
- 14 • **Appendix B** – includes a copy of the NOP, copies of all comment letters
15 received in response to the NOP, and an index where comments are addressed
16 in the Recirculated Draft EIR (if applicable).
- 17 • **Appendix C** – includes a technical review of safety concerns related to the
18 proposed Project, including repressurization of the reservoir.
- 19 • **Appendix D** – includes air quality and greenhouse gas emission calculations.
- 20 • **Appendix E** – contains a technical review of dispersant use in spill response.
- 21 • **Appendix F** – includes a listing of Best Management Practices (BMPs) specific
22 to the Project that would reduce potential environmental impacts.
- 23 • **Appendix G** – includes Venoco’s revised Project Description for the PRC 421
24 Recommissioning Project with detailed drawings.
- 25 • **Appendix H** – includes MMs from the Line 96 EIR (Santa Barbara County 2011)
26 related to the oil pipeline associated with proposed PRC 421 operations.
- 27 • **Appendix I** – includes impacts and MMs from the Line 96 EIR (Santa Barbara
28 County 2011) relevant to the construction of the oil emulsion pipeline to LFC as
29 part of the Processing PRC 421 Oil at LFC Alternative.
- 30 • **Appendix J** – includes a summary of the monitoring reports from the
31 construction of the Line 96 pipeline.
- 32 • **Appendix K** – includes a summary of the historic improvements made at the
33 EOF.
- 34 • **Appendix L** – provides a history of wetland mitigation performed for impacts
35 caused by the PRC-421 access road.

2.0 PROJECT DESCRIPTION

1 This section of the Environmental Impact Report (EIR) addresses and describes the
2 history and details of the proposed Revised PRC 421 Recommissioning Project
3 (Project) and is organized as follows. Section 2.1 presents a history of State Oil and
4 Gas Lease PRC 421 (PRC 421) and the Project site and provides an overview of
5 existing PRC 421 facilities and other oil production facilities in the Ellwood area. This
6 area, located within and adjacent to the City of Goleta, Santa Barbara County,
7 encompasses offshore and coastal areas between the Bacara Resort and Coal Oil
8 Point, including onshore areas that extend almost to Hollister Avenue. Sections 2.2
9 through 2.5, respectively, describe the Project, including: current conditions at the
10 Project site; Project construction activities; proposed operation, maintenance, and
11 safety controls; and the Project's proposed use of the Line 96 pipeline for oil
12 transportation. Section 2.6 discusses decommissioning of Well 421-1 and removal of
13 Pier 421-1. Section 2.7 concludes with a discussion on the eventual future
14 decommissioning and abandonment of the PRC 421 lease as a whole.

15 2.1 PROJECT BACKGROUND

16 2.1.1 PRC 421 Lease and Production History

17 The original oil and gas lease (Lease No. 89) was issued in 1929, terminated and
18 renewed under PRC 421 in 1949, and subsequently reassigned several times with the
19 last and current assignment to Venoco, Inc. (Venoco) in 1997 (see Table 2-1). The two
20 existing PRC 421 piers, Pier 421-1 and Pier 421-2, are the last remaining production
21 structures associated with the prolific oil development of the Ellwood Oil Field that
22 occurred along the Ellwood Coast from the late 1920s to 1990s. The Ellwood Oil Field,
23 which was discovered by Barnsdall Oil Company in 1928, is approximately 4 miles long
24 and 0.5 mile wide, and trends east-west along the shoreline just south of the Sandpiper
25 Golf Course. The immediate Project vicinity supported numerous onshore and offshore
26 wells from the 1930s through the 1950s, along with substantial supporting infrastructure.
27 Peak production from the entire Ellwood Oil Field reached nearly 49,000 barrels of oil
28 per day (BOPD) in 1930.¹ Remnants of this infrastructure still exist today, including
29 multiple capped wells, the old timber seawall which lines portions of the Ellwood Coast,
30 and the surf zone production piers of PRC 421.

31 Construction of the PRC 421 piers began in 1928; Pier 421-1 was completed in
32 November 1929 and Pier 421-2 was completed in April 1930. A total of nine wells were
33 drilled within PRC 421 into the Vaqueros Reservoir (a portion of the Ellwood Oil Field),
34 which is the source of oil produced from PRC 421 (CSLC 2006). Production peaked
35 from the associated wells in 1931, at nearly 628,000 barrels of oil per year (Figure 2-1).

¹ 1 barrel is equivalent in volume to 42 gallons.

Table 2-1. PRC 421 Timeline

1928 to early 1940s	1928	The Ellwood Oil Field is discovered by Barnsdall Oil Company. Construction of piers to develop the Field begins.
	1929	The Surveyor-General, the CSLC's predecessor agency, issues the original oil and gas lease, Lease No. 89, for what is now Lease PRC 421.
		From 1929 to early 1940s, the Ellwood Oil Field is developed by wells drilled from manmade piers; 74 wells are drilled on seven state oil and gas leases.
1940s to 1993		From 1940s to 1990s, 35 more wells are drilled on the remaining oil and gas leases for a total of 109 wells, all producing from Vaqueros sandstone formation in the Ellwood Field, including two wells in what is now Lease PRC 421.
	1949	The CSLC terminates Lease No. 89 and issues PRC 421 to Bankline Oil Company. PRC 421 continues the exclusive right to the lessee to produce oil and gas from the lease premises. In the years to follow, a series of lease assignments and corporate name changes occurs.
	1959	The CSLC extends the PRC 421 lease term to the existing lessee, Signal Oil and Gas Company, for <i>"five (5) years, and for so long thereafter as oil or gas is produced in paying quantities or the Lessee shall be conducting producing, drilling, deepening, repairing, redrilling, or other necessary lease or well maintenance operations on the leased lands."</i>
		By 1993, all but Wells 421-1 and 421-2 have become uneconomic to produce and are plugged, abandoned and their piers removed. Based on California Department of Conservation's Division of Oil, Gas, and Geothermal Resources (DOGGR) well records and knowledge of historical abandonment practices, many of the original 74 orphan wells were abandoned in ways that do not meet modern standards.
1994 to date (PRC 421 is and remains shut-in)	1994	The existing lessee, Mobil, shuts down operations in May after an onshore oil spill from the transportation pipeline. Mobil subsequently repairs the pipeline and remediates saturated soil affected by the spill. PRC 421 has remained shut-in since 1994, except for emergency purposes during a 10-month period in 2000-2001 (see below).
	1997	The CSLC reassigns Lease PRC 421 from Mobil to Venoco.
	2000 to 2001	A methane gas leak is detected at Well 421-1 and oil seepage is detected around the Well 421-2 wellhead. CSLC staff directs Venoco to obtain all necessary permits and conduct well repairs to eliminate any pollution or public safety risk. Entry into Wells 421-1 and 421-2 to conduct repairs, however, cannot commence safely until pressure, built up in the well bores since the wells were shut-in in 1994, is relieved. In order to relieve the pressure, a temporary pipeline is installed from the wells to the Ellwood Onshore Facility (EOF) to relieve well bore pressure. The period of pressure relief is about 10 months, during which approximately 17,000 barrels of oil flows from the well to the EOF.
	2013 to 2014	Venoco seeks CSLC authorization (Venoco 2013; Appendix G) to: <ul style="list-style-type: none"> 1) return PRC 421 to oil production from the existing Well 421-2; and 2) process PRC 421 crude oil emulsion at the EOF.

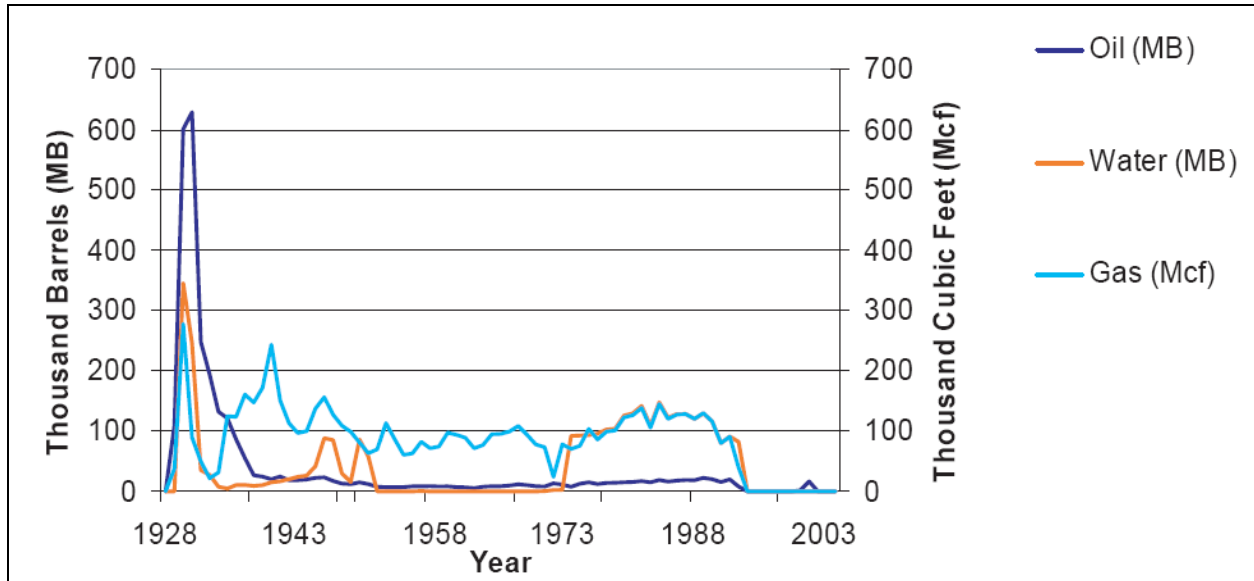


Figure 2-1. Production History of PRC 421

1 By the mid-1950s, more than half of the offshore wells in the Ellwood Oil Field were
 2 plugged and abandoned. On PRC 421, all but two wells were plugged and abandoned.
 3 The two that remained were Well 421-2, a producer, and Well 421-1, which was
 4 converted in 1973 to receive injection of produced water. Ellwood area oil facilities
 5 continued to be operated and developed, with active development occurring in the
 6 Ellwood area into the 1990s. By the end of 1993, Well 421-2 became the only producing
 7 well in the Ellwood Oil Field. Mobil Exploration and Producing, Inc. (Mobil) was the
 8 lessee at that time, having acquired the lease from Atlantic Richfield Company (ARCO).
 9 In 1997, Mobil sold the lease and the Ellwood facilities, including the piers, Ellwood
 10 Marine Terminal (EMT), Ellwood Onshore Facility (EOF), and Platform Holly to Venoco,
 11 now an independent oil and gas company.

12 The Ellwood Oil Field produces light “sweet”² oil that is low in sulfur and carbon dioxide
 13 and that requires less processing to meet product specifications than the heavier oil
 14 typically found in the South Ellwood Oil Field located further offshore, which requires
 15 processing to remove hydrogen sulfide (H₂S) and other impurities. The gravity of the oil
 16 from Well 421-2 is 35° American Petroleum Institute (API).

17 Recent production information is only available for Well 421-2 since Well 421-1 has not
 18 produced oil since 1972. During the latest five consecutive years of operation (1989 to
 19 1993), Well 421-2 produced an average of 17,200 barrels of oil per year.

² Petroleum is considered “sweet” if it contains less than 0.5 percent sulfur.

1 **2.1.2 PRC 421 Spill and Repair History**

2 In 1994, PRC 421 was shut-in when the 6-inch pipeline extending from the PRC 421
3 piers to Line 96 leaked, resulting in a release of approximately 170 barrels of oil
4 underneath the 12th green at the Sandpiper Golf Course, near the coastal bluffs.³ Mobil
5 obtained an Emergency Permit (94-EMP-002) and a Final Development Plan (94-FDP-
6 009) from Santa Barbara County for clean-up and repair of the pipeline. Oiled soil was
7 excavated and the area cleaned up as part of the pipeline repair project.

8 In November 2000, during routine Santa Barbara County Air Pollution Control District
9 (APCD) inspections, a methane gas leak was detected at Well 421-1 and Well 421-2
10 experienced an oil leak induced by a fluid level check. Subsequent inspection noted the
11 corroded condition of the well control and associated equipment occupying the piers
12 and the potential for a release to the adjacent marine environment. Santa Barbara
13 County approved specific corrective actions in an emergency permit (No. 00-EMP-006)
14 on November 28, 2000, and the California Coastal Commission (CCC) and other
15 agencies also issued emergency permits. Revisions to the 2000 County emergency
16 permit (Revision RV01-03) authorized a series of major improvements and repairs in
17 2001 to stabilize both wells on PRC 421. The County assessed environmental impacts
18 of the repair project in a ND in 2001 (01-ND-34). The access road was resurfaced to
19 permit heavy equipment access, riprap was installed to reinforce the old timber
20 bulkhead seawall, and the piers supporting the two caissons were repaired and
21 reinforced. Other activities included repairing the caissons, casings, and wellheads,
22 installing subsurface safety valves in the wells, and removing all production equipment
23 from the piers. Under the emergency permit, a temporary flowline was extended from
24 the EOF to Well 421-2 to relieve wellhead pressure. The depressurization of Well 421-2
25 resulted in the production of approximately 17,000 barrels of oil during the 10 months it
26 flowed.⁴ (See discussion on Vaqueros Reservoir Repressurization in Section 4.2,
27 Safety.) Following the well stabilization project, the wells were re-idled.

28 On January 19, 2004, following a series of severe winter storms, a large section of the
29 outer caisson wall of Pier 421-1 sheared off and fell into the surf below. In response to a
30 CSLC directive and to protect the caisson from further deterioration, Venoco installed a
31 new wall face on the ocean (south) side of the caisson with a small return on the adjacent
32 east and west facing walls. Venoco also removed the fallen wall debris from the beach.
33 Construction of the new wall was completed on December 22, 2004. Emergency permits
34 were granted by the City of Goleta (04-EMP-001), U.S. Army Corps of Engineers

³ Line 96 at that time was a short segment connecting the EOF to the EMT, rather than the current Line 96 that extends from the EOF west to Las Flores Canyon.

⁴ Records vary as to the exact amount of production during these activities. In the Project Description included in its original submittal package to the CSLC, Venoco (2005a) states that 18,279 barrels were pumped, while the CSLC described the quantity as 17,000 barrels in a memo prepared by CSLC engineering staff regarding well repressurization (refer to Appendix C).

1 (USACE) (200401576-JCM), and CCC (E-01-013-G) and the environmental impacts of
2 this activity were assessed in a ND in 2006 (06-MND-01). The City of Goleta granted a
3 follow-up permit (05-132-DP) in October 2006.

4 In November 2010, routine CSLC inspections revealed that the ocean side of the caisson
5 structure at Pier 421-2 was also rapidly deteriorating due to continual wave and
6 environmental action and was in need of immediate repair. In order to repair the caisson
7 and protect it from further deterioration a new wall face was installed on the ocean side of
8 the Pier 421-2 caisson in 2011, with a small extension of the wall onto the adjacent walls.
9 The new repair wall is virtually identical to the repair wall installed on the Pier 421-1
10 caisson in 2004. It consists of 15 steel piles installed in holes drilled 25 feet into the
11 underlying bedrock. Precast concrete panels were installed between the steel piles to
12 provide the new wall surface. Concrete was installed between the replacement wall and
13 the existing caisson for additional strength and to solidify the structure. The majority of
14 this work was completed from the existing caisson and pier structure. Access was
15 required on the beach to excavate beach sand to assure clear access for drilling the pile
16 holes, for concrete panel placement, and as needed to support the project. Emergency
17 permits for the caisson repair work were granted by the City of Goleta (10-120-EMP),
18 CCC (E-10-013-G), and USACE (2010-959-JWM).

19 In November 2011, the CSLC directed Venoco to remove all old pilings from Piers 421-
20 1 and 421-2 that no longer provide structural support as they were becoming a threat to
21 public safety. In February 2011, Venoco removed 72 redundant pilings from the piers.

22 In 2012, the Line 96 Modification Project to extend Line 96 from the EOF to the Plains
23 All American Pipeline, L.P. (PAAPLP) Coastal Pipeline located west of Las Flores
24 Canyon (LFC) was completed and became operational. Operation of the extended Line
25 96 allowed cessation of barging activities and operations at the EMT.

26 **2.1.3 CSLC Lease Boundary and Regulatory Boundary Areas**

27 State Oil and Gas Lease PRC 421 is located in the surf zone off the Ellwood Coast, just
28 south of Sandpiper Golf Course, southeast of the EOF, and 2,000 feet west of the
29 Ellwood Mesa. The Bacara Resort is located approximately 3,700 feet west of the lease
30 location. The lease area is offshore of the City of Goleta, extending from the surf zone
31 at the two well locations offshore to a water depth of about 50 feet below Mean Lower
32 Low Water (MLLW).

33 **2.1.4 Existing Infrastructure at PRC 421**

34 The primary facilities associated with PRC 421 occupy approximately 10,000 square
35 feet of pier space and include two piers on State tide and submerged lands below the
36 bluffs at the southern limit of Sandpiper Golf Course. The two piers, Pier 421-1 and Pier
37 421-2, are approximately 325 feet apart and provide access and support for two wells

1 on separate concrete caissons: Well 421-1 (to be decommissioned and Pier 421-1 to be
2 removed) and Well 421-2 (oil production). Currently, both PRC 421 wells are shut-in
3 and equipped with subsurface safety valves and packers. Each steel-pile caisson is a
4 concrete and sheet pile, sand-filled structure, approximately 68 feet wide, 42 feet deep,
5 and 20 feet above mean sea level (msl).

6 An access road originating near the EOF provides access to the two shoreline piers at
7 PRC 421. The access road extends from the EOF for 500 feet across Sandpiper Golf
8 Course and then turns east and extends approximately 1,300 feet along the beach to
9 the PRC 421 piers. An existing 6-inch pipeline connects PRC 421 to Line 96 (the oil line
10 that historically connected the EOF to the EMT) at a tie-in located just outside of the
11 EOF. Portions of the access road and the 6-inch pipeline are located within easements
12 granted to Venoco by predecessors in the interest of the Sandpiper Golf Course and are
13 located in the City of Goleta.

14 **2.2 PROPOSED PROJECT**

15 The CSLC is considering whether to approve Venoco's application to return PRC 421 to
16 production after ongoing production was shut-in in 1994. If approved, the CSLC would
17 authorize Venoco to resume production of the lease, which Venoco expects would
18 commence in 2015 and continue for an estimated 20 years (until year 2035) depending
19 upon production characteristics and Project economics. Other agencies, including the
20 City of Goleta, CCC, and others, also have or may have permit authority over elements
21 of the Project (see Section 1.3.1, Permits, Approvals and Regulatory Requirements).

22 Important Project components are summarized below.

- 23 • Pier 421-2 and Well 421-2. PRC 421 production would occur only on Pier 421-2
24 from Well 421-2.
- 25 • Pier 421-1 and Well 421-1. Following the return to production of Well 421-2,
26 Venoco would plug and decommission a second well (Well 421-1), located on an
27 adjacent pier (Pier 421-1), and would remove Pier 421-1 and the caisson and
28 facilities that support Well 421-1. Well 421-1 was historically used as a water and
29 gas injection well during past production of PRC 421.
- 30 • Pipelines and Cables. An existing 6-inch ~~outer~~-diameter pipeline would be
31 extended to the EOF and used as a protective sleeve (hereafter referred to as a
32 "line") for a new 3-inch flowline inserted inside the existing line. Power for Well
33 421-2 equipment would be provided through a new power cable with between
34 1,100 and 1,800 volts of alternating current (VAC) and a new 480 VAC cable. A
35 communication cable for safety and security systems monitoring would also be
36 installed in the trench with the power cables.

- **EOF.** Oil/gas/water emulsion pumped from Pier 421-2 would be sent to the EOF and commingled with production from Platform Holly prior to processing using existing equipment (Illustration 2-1). The combined Platform Holly and PRC 421 production would

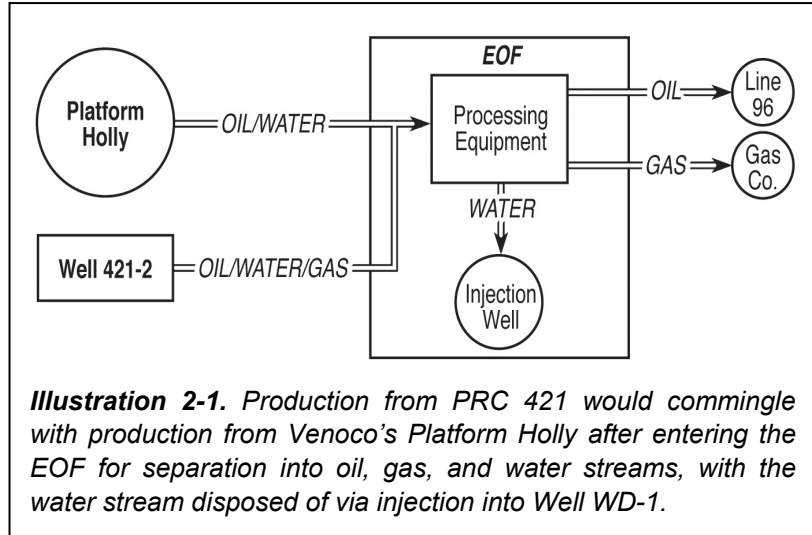


Illustration 2-1. Production from PRC 421 would commingle with production from Venoco's Platform Holly after entering the EOF for separation into oil, gas, and water streams, with the water stream disposed of via injection into Well WD-1.

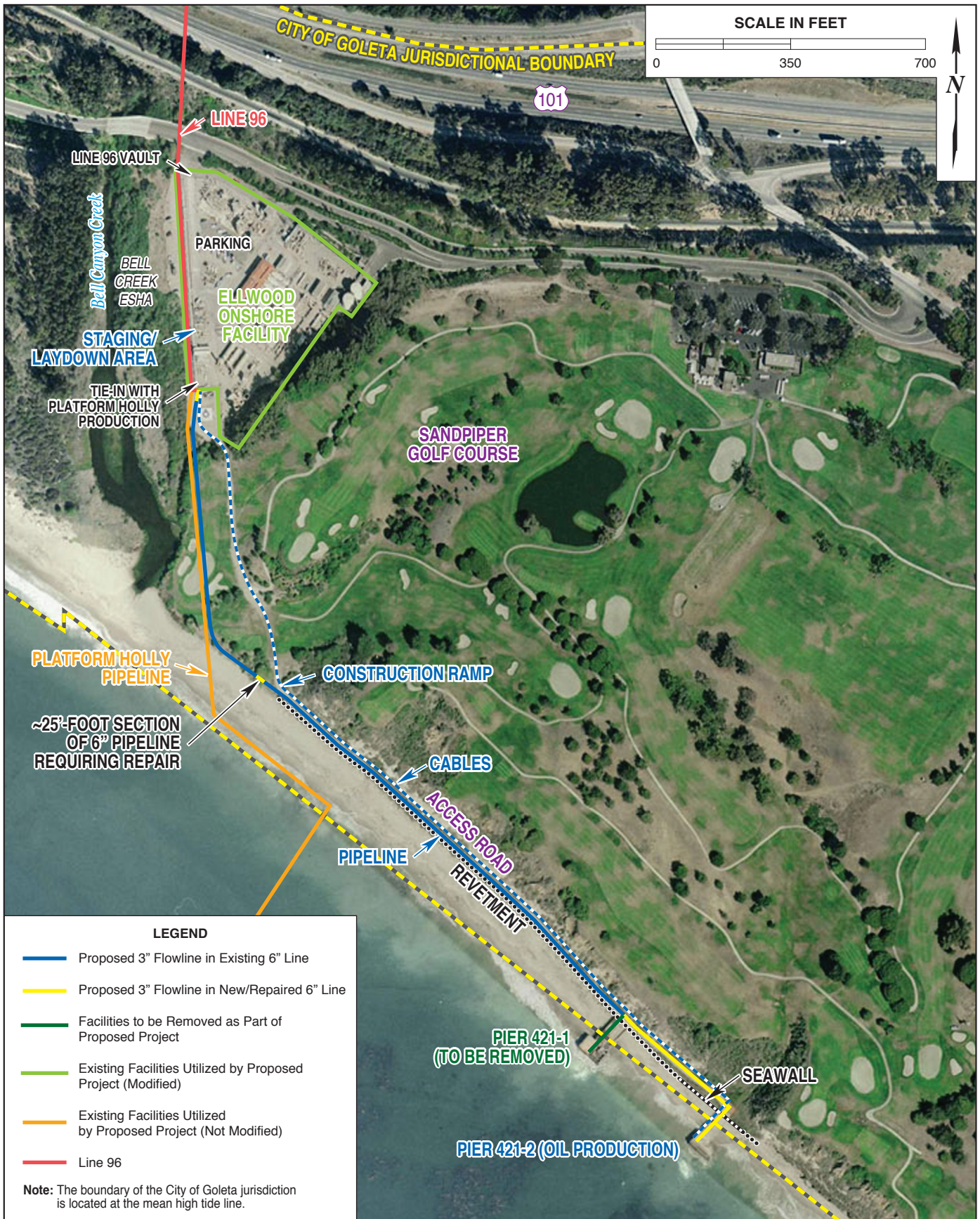
- remain within existing Platform-Holly-to-EOF permitted production limits (13,000 BOPD dry basis) (see Section 2.4.1).
- **Project Life.** The Project would not extend the life of the EOF; in the event that Platform Holly production ceases and Platform Holly is decommissioned, PRC 421 production would also cease and its facilities would be decommissioned.

Several parcels are included in the Project impact area, with different owners, easements, and various jurisdictions (Table 2-2). The PRC 421 Piers/Wells (below the Mean High Tide Line [MHTL]) are under the jurisdiction of CSLC and CCC. All other Project components above the MHTL are under the jurisdiction of the City of Goleta and CCC. Venoco owns the property that the EOF occupies (Assessor's Parcel Number [APN] 079-210-042) and has several easements with Sandpiper Golf Course (APN 079-210-059) for the access road leading to the PRC 421 piers and the pipelines from Platform Holly and PRC 421.

Table 2-2. Parcels and Jurisdictions for the Project Area

APN	Description	Jurisdiction
079-210-042	Ellwood Onshore Facility (EOF)	City of Goleta
079-210-059	Sandpiper Golf Course (Easements for Access Road and Pipelines)	City of Goleta
079-210-059	PRC 421 Piers above MHTL	City of Goleta
State land	PRC 421 Piers below MHTL	CSLC
State land	PRC 421 Wells	CSLC
Several	Line 96	City of Goleta (near EOF) and County of Santa Barbara

PRC 421 operations would share and comprise a number of improvements to infrastructure used by other Ellwood area operations as described in Table 2-3. Figures 1-2, 2-2, and 2-3 show the locations of these facilities.



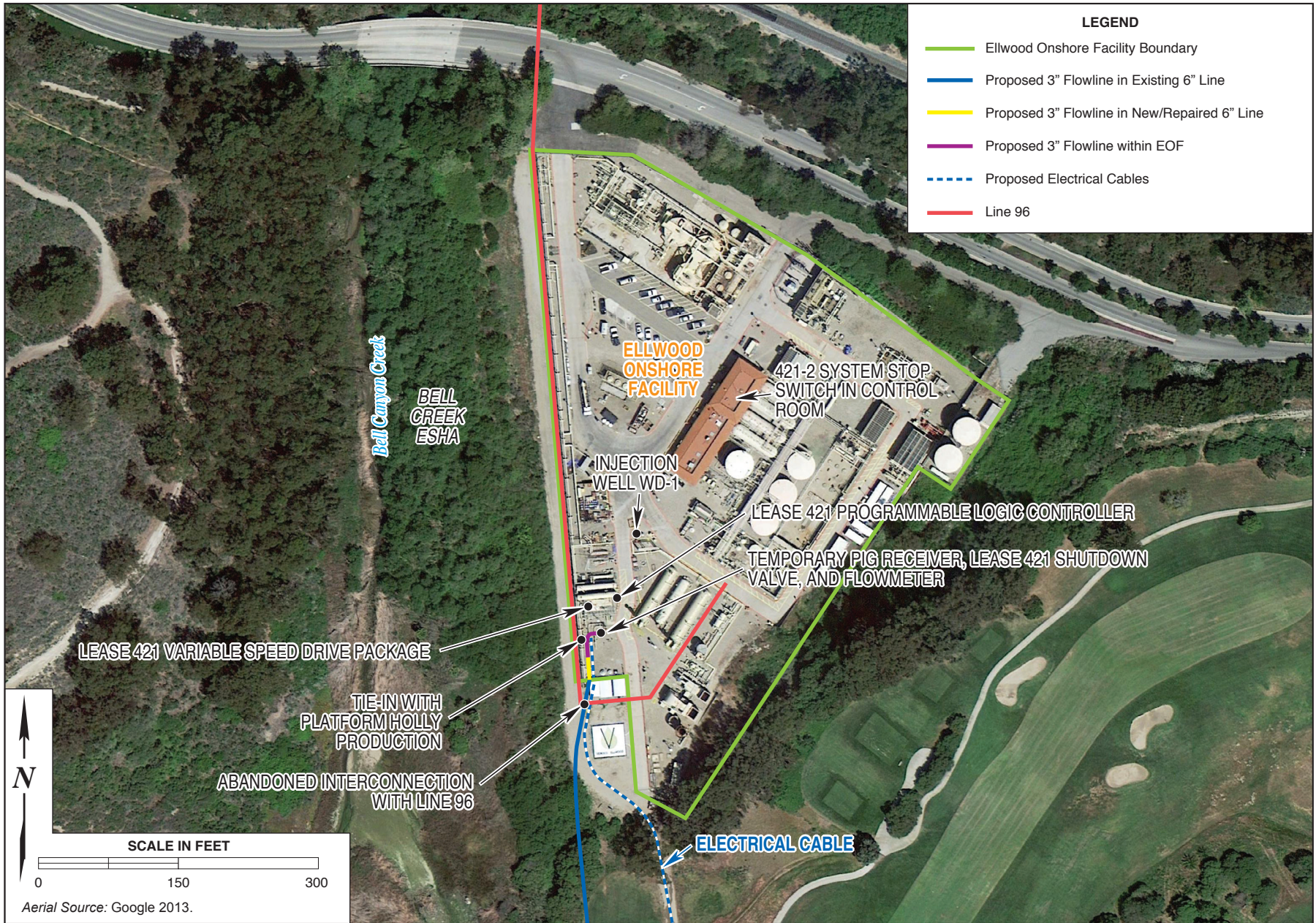


Table 2-3. Ellwood Area Oil Production Facilities and Relationship to Project

Ellwood Area Oil Facilities Related to the Proposed Project		
EOF	Location/Size	City of Goleta, 7979 Hollister Ave.; 0.5 mile northwest of PRC 421/4.5 acres.
	Role in Ellwood Area Production	The EOF processes oil/gas/water emulsion received from Platform Holly using a crude-oil processing system to remove water and gas from the oil emulsion by preheating in emulsion/hot oil (Therminol) exchanger followed by separation in heater treater. From the exchangers, the emulsion is introduced into one of the two heater treaters. Gas is sweetened through removal of H ₂ S. After treatment at the EOF, oil from Platform Holly and the Project would be transported via the Line 96 pipeline to the PAAPLP Coastal Pipeline west of LFC. Gas from Platform Holly and the proposed Project would be transported via the Ellwood Sales Gas pipeline to The Gas Company transmission line.
	Relationship to PRC 421	Existing facilities at the EOF would be used to process oil produced from PRC 421. New or upgraded support facilities would be added to the EOF, including a motor control panel and step-up transformer to supply power to PRC 421, instrumentation and well control devices for a remote alarm, real-time operational monitoring of safety systems for the Well 421-2, and emergency shutdown capability from the EOF Operator Interface Terminal. The EOF also houses the control systems for the Line 96 pipeline. The proposed Project pipeline ties into an 8-inch production header for processing at the EOF.
Line 96 from EOF to PAAPLP west of LFC	Location/Size	City of Goleta and unincorporated Santa Barbara County; consists of a new 8.5-mile-long pipeline from the EOF to the PAAPLP Coastal Pipeline.
	Role in Ellwood Area Production	The Line 96 Modification Project, approved by the County and City of Goleta in 2011 and completed in 2012, extended a 6-inch pipeline 8.5 miles from the EOF to an interconnection with the PAAPLP Coastal Pipeline.
	Relationship to PRC 421	Will be used to transport separated PRC 421 production from the EOF to the PAAPLP Coastal Pipeline.
Platform Holly	Location/Size	Offshore on State Lease PRC 3242, in the Santa Barbara Channel, approximately 1.9 miles southwest of Coal Oil Point. Platform Holly is a triple-decked drilling and production platform with 30 well slots.
	Role in Ellwood Area Production	Platform produces oil and gas from offshore wells. Subsea pipelines transport oil/gas/water emulsion and produced gas to the EOF for processing.
	Relationship to PRC 421	No changes to Platform Holly would occur as part of the recommissioning of PRC 421. Oil that is produced from Platform Holly would be commingled with oil from the proposed Project and treated at the EOF, after which it will be transported in the Line 96 pipeline to the PAAPLP Coastal Pipeline west of LFC, then transported through the PAAPLP Coastal Pipeline to refineries.
Ellwood Area Oil Facilities Undergoing Decommissioning/Abandonment		
Historical Line 96 Segment from EOF to EMT	Location/Size	City of Goleta and unincorporated Santa Barbara County; currently extends from the EOF to the EMT/3.7 miles long.
	Role in Ellwood Area Production	Line 96, owned by the Ellwood Pipeline Company and operated by Venoco, is a 10-inch pipeline that previously transported oil produced from Platform Holly from the EOF to the EMT; this pipeline will be decommissioned. Applications for the decommissioning of this portion of Line 96 are currently under review.
	Relationship to PRC 421	No role in proposed Project. Historically used to transport PRC 421 production.

**Table 2-3. Ellwood Area Oil Production Facilities and Relationship to Project
(Continued)**

EMT	Location/Size	Unincorporated Santa Barbara County, less than 1 mile west of Coal Oil Point, south and east of Goleta, approximately 500 feet from the shoreline dunes at an elevation of 60 feet above msl/17.5-acres
	Role in Ellwood Area Production	The EMT previously stored and transported all oil production from Platform Holly and the South Ellwood Oil Field. At the EMT, oil was stored in two 65,000-barrel, riveted construction, internal-floating-roof crude oil storage tanks. From the storage tanks, oil was pumped through an approximately 2,500-foot-long loading line to an offshore marine loading connection for loading into barges. Since completion of the Line 96 pipeline expansion, the EMT is no longer used and is being decommissioned as a separate project.
	Relationship to PRC 421	No role in proposed Project. Historically used to store and transport PRC 421 production.

1 Physical Description of Proposed Project/Project Components

2 Pier 421-2

3 Well 421-2 would be returned to service as an oil production well. For the well to
4 function safely, a number of upgrades would need to be made, including installation of
5 the following recommissioning activities described further below.

- 6 • A new electrical submersible pump (ESP) approximately 2,000 feet below ground
7 level inside the casing of Well 421-2 and associated stainless steel enclosures;
- 8 • A new power cable from the EOF to the ESP;
- 9 • A new power cable from the EOF to Pier 421-2 to power metering, well
10 instrumentation, and control systems.
- 11 • Well safety equipment;
- 12 • Connecting piping and installation of a pig launcher connection;
- 13 • Production metering and process monitoring equipment within the EOF;
- 14 • Provisions for process monitoring and control between Pier 421-2 and the EOF;
- 15 • New wood-plank decking and replacement railings on around the perimeter of
16 the Pier 421-2 deck for safety and aesthetic purposes;
- 17 • A communication system, including a cable between Pier 421-2 and the EOF;
- 18 • A surveillance camera mounted on Pier 421-2 that would monitor the piers and
19 would provide live video feed displayed in the EOF Control Room;
- 20 • One new 3-inch oil flowline (inside the upgraded existing 6-inch line) connecting
21 Pier 421-2 to the EOF for processing;
- 22 • Repair of an existing buried produced liquid pipeline; and
- 23 • Reactivation of Well 421-2.

2.0 Project Description

- 1 Use of an ESP would eliminate the previous surface pumping equipment and its
2 associated noise. Two stainless steel electrical equipment enclosures would be located
3 at the wellhead: one to house the wellhead safety control panel (including high/low
4 pressure sensors, hydraulic reservoir, and other necessary actuation equipment); and
5 the second electrical box to house the utility power transformer and receptacle as well
6 as house the electronics associated with the metering and communication of safety
7 signals. The wellhead safety control panel and electrical panel are each expected to
8 measure 48 cubic feet in size. The electrical panel would also house the electrical
9 service receptacle, an auxiliary stop switch to be used by well servicing personnel, and
10 would include a tamper switch to alert staff at the EOF of possible tampering (i.e.,
11 vandalism). A surveillance camera would be mounted on Pier 421-2 to monitor the pier.
12 The live video feed would be displayed in the EOF control room.
- 13 The south (ocean facing) side of the Pier 421-2 caisson was previously repaired under
14 emergency permits in 2010 to address integrity issues caused by the deteriorated
15 caisson wall. The repair was carried out by installing a new wall face on the south side
16 and a portion of the east and west sides of the caisson. Fifteen steel piles were installed
17 for the south wall repairs. As part of the proposed Project, the north wall, as well as the
18 remaining portions of the east and west walls would be repaired (Figure 2-4).

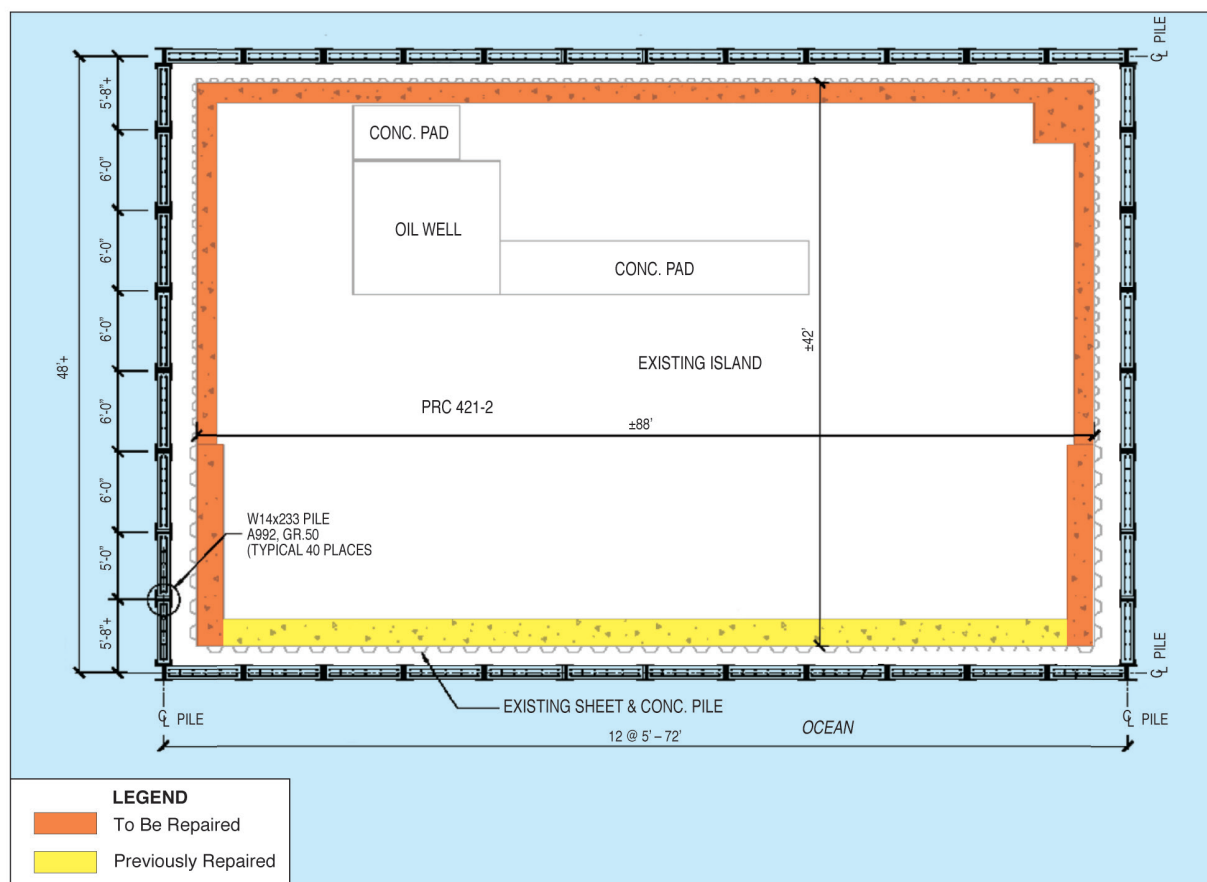


Figure 2-4. Proposed Caisson Repairs At Pier 421-2

1 The addition of 25 steel piles, spaced 6 feet apart, would be installed into 25-foot-deep
 2 holes drilled into the Monterey shale bedrock around the caisson. An auger/core-type
 3 drilling rig will be used to drill holes for the piles. A 45-ton crane would place the piles
 4 into the holes, then concrete will be pumped into the holes to set the piles. The crane
 5 would also install the new wall, which would consist of pre-cast concrete panels
 6 installed in between the steel piles. Concrete would be poured in the space between the
 7 new concrete panels and the existing caisson. Major equipment required to accomplish
 8 the above repair work includes: a 45-ton mobile crane, an auger/core-type drilling rig,
 9 semi-trucks, welding truck, power pack, ready-mix concrete trucks, concrete pump
 10 truck, flatbed trucks, Cat 320 excavator, Cat 950 loaders, backhoes, dump trucks, roll
 11 off waste bins and transport trucks, motor grader, vacuum truck, 1-ton tool truck, pick-up
 12 trucks, fuel truck, water truck, jack hammer, water pump, air compressor, portable
 13 lighting and concrete saw, miscellaneous carpentry, concrete and welding equipment.

14 *Pier 421-1*

15 As proposed, once production has begun and is being processed in the EOF, Well 421-
 16 1 would be decommissioned and Pier 421-1 would be removed. Section 2.6 below
 17 provides details regarding the decommissioning and removal plan.

18 *Pipelines*

19 PRC 421 production would be delivered through a replacement pipeline from Pier 421-2
 20 north and west to the EOF. The existing pipeline terminates at an abandoned
 21 interconnection with Line 96 in an existing gravel access road between Bell Canyon
 22 Creek on the west and the EOF on the east, leaving the PRC 421 6-inch pipeline
 23 temporarily disconnected from the product transport
 24 system. From the abandoned interconnection with the Line
 25 96, a new 5025-foot-long piping connection would be
 26 constructed to inside the EOF fenceline. At the EOF
 27 fenceline end of the new pipeline segment, the 3-inch piping
 28 would continue to the north into the EOF, to connect with
 29 the 8-inch Platform Holly production header for processing.
 30 This connection point would occur downstream of the
 31 existing Platform Holly oil pig receiver, located well inside
 32 of the EOF where the Platform Holly oil pipeline changes
 33 into an 8-inch header. The PRC 421 pipeline would tie into
 34 this existing 8-inch header above ground.

35 Within the EOF, this line would include high and low
 36 pressure safeties and a shutdown valve. Connections
 37 would be provided to deploy a temporary pig receiver for
 38 intermittent pipeline cleaning and inspection of the 3-inch
 39 flowline (Illustration 2-2). A 'pig' is a term used in the



Illustration 2-2. This photo shows a cleaning pig for a 6-inch oil pipeline. The wire brush encircles the shaft and scours the interior of the pipeline. (Photo: Berg 2009.)

1 context of pipelines and refers to a pipeline inspection gauge to perform various
2 maintenance operations on a pipeline. Without stopping the flow of product in a pipeline,
3 the pig is inserted into a 'pig launcher' (or 'launching station'). The launcher/launching
4 station is then closed and the pressure-driven flow of the product in the pipeline is used
5 to push the pig along down the pipe until it reaches the receiving trap (i.e., the 'pig
6 receiver').

7 Downstream of the pipeline shutdown valve located within the EOF, the emulsion
8 produced from Well 421-2 would flow through a multiphase flow meter for proper
9 allocation of the commingled oil, gas and water. This flowmeter and its related
10 electronics would fit within an area approximately 45 cubic feet in size. The production
11 line would then connect to the 8-inch-diameter production header from Platform Holly,
12 which carries an emulsion of oil and water.

13 An existing 6-inch ~~outer-diameter~~ pipeline currently connects PRC 421 to an abandoned
14 interconnection with Line 96. The pipeline extends from Pier 421-1 along a Venoco
15 right-of-way (ROW) approximately 1,300 feet along the old seawall to a point just south
16 of the 12th tee of the Sandpiper Golf Course, turns north into the Platform Holly pipeline
17 ROW, and extends another 500 feet ending just south of and outside of the EOF
18 (Figures 2-2 and 2-3). The pipeline connects to the existing Line 96 pipeline at a valve
19 box located on an easement granted to Venoco that lies just outside the limits of the
20 EOF parcel, south of the heliport. The existing 6-inch pipeline is wrapped and
21 cathodically protected against external corrosion. The 6-inch pipeline leaked in 1994
22 when it functioned as a pipeline and transported oil from PRC 421 (see Section 2.1.1,
23 PRC 421 Lease and Production History). The leak was repaired and the pipeline was
24 last hydrotested by Mobil in March 1994.

25 This pipeline has not been in use since the 1994 shut-in and would no longer function
26 as a pipeline, but as a protective sleeve (hereafter referred to as a "line") for the flowline
27 that would be contained within this line. As part of the proposed Project, this existing 6-
28 inch line, which currently terminates at Pier 421-1, would be extended to Pier 421-2. To
29 ensure integrity of the existing 6-inch line between PRC 421 and the abandoned
30 connection point with Line 96, a new internal pipe lining will be installed, as described in
31 detail below under Section 2.3.4, Construction Details. The existing 6-inch line would
32 then be hydrotested to a required 100 pounds per square inch gauge (psig) pressure to
33 confirm it is suitable for leak containment prior to installation of the 3-inch flowline. The
34 impressed current cathodic protection system on the Platform Holly pipelines would be
35 enhanced to include the PRC 421 6-inch line to protect the line against external
36 corrosion. EOF has an active cathodic protection system including four deep well anode
37 beds with rectifiers, distributed around the EOF.

38 A new 3-inch flowline would be inserted inside the existing 6-inch line. This flowline
39 would be designed with a maximum operating pressure of 275 psig and a minimum

1 hydrotest pressure of 425 psig and be rated for continuous operation at temperatures
2 up to 130 °Fahrenheit (F). At a minimum, the flowline would hold the indicated test
3 pressure for a period of not less than 8 hours. Hydrotest water would be provided by the
4 Goleta Water District connection located at the EOF and drained back to the EOF when
5 finished. The returned hydrotest water would be introduced into the oil processing
6 system for treatment and disposal.

7 A leak detection sensor would be installed on the 6-inch line. The sensor would detect
8 the presence of hydrocarbon in the annular space between the 6-inch line and the 3-
9 inch flowline. In the event of a leak, the ESP well would be automatically shut in and an
10 alarm would sound at the EOF.

11 A non-metallic composite pipe would be used for the 3-inch flowline. This pipe is made
12 of a type of high density polyethylene (HDPE) with a layer of metal or fiberglass mesh
13 imbedded within. Because it is non-conductive and immune to galvanic electrochemical
14 effects, this pipe would not corrode like metal piping and is also impervious to many
15 aggressive chemicals as well as scale build-up.

16 *Electric Cables*

17 Electricity would be provided to Pier 421-2 via two cables buried within a 30-inch-deep,
18 12-inch-wide, 2,500-foot-long trench located within the existing access easement
19 through Sandpiper Golf Course and down the dirt access road (Figures 2-3 and 2-4).
20 The ESP at Well 421-2 would receive power through a buried and armored 200-kilovolt
21 ampere (KVA) power cable with between 1,100 and 1,800 VAC. In addition, a smaller
22 480 VAC cable would be installed to provide electrical power for metering, well
23 instrumentation, and control systems. A utility power receptacle and an integral
24 communication cable for data transfer would also be installed. The delivery voltage of
25 the utility power would be 480 VAC, and a small step-down transformer would be
26 installed in the Well 421-2 electrical panel to drop the voltage down to 120 VAC. The
27 utility power outlet would be located inside of the power panel, and would be a heavy-
28 duty, 20 ampere “Arktite” type of plug receptacle.

29 *Pier, Pipeline, and Cable Auxiliary Facilities and Features*

30 The proposed Project includes processing of produced oil/gas/water emulsion at the
31 EOF. Proposed modifications that would be required at the EOF are summarized below.

- 32 • At the connection point from the 3-inch flowline to the 8-inch production header
33 carrying produced oil from Platform Holly, installation of pressure sensors,
34 pressure gauges, and a flowmeter sensor to monitor production from Well 421-2.
35 The flowmeter and its related electronics would fit within an area approximately
36 45 cubic feet in size.

- 1 • Installation of a programmable logic controller (PLC) near the flowmeter sensor
2 to provide communication with the existing control room at the EOF and control
3 of the PRC 421 well and pipeline.
- 4 • Installation of a transformer on a small (approximately 2 feet by 4 feet) equipment
5 foundation to be located at the southwest corner of EOF, near the PLC.
- 6 • Installation of buried power and communication cables from the southwest corner
7 of the EOF to the Pier 421-2 wellsite.
- 8 • Installation of an electrical motor control panel in the existing Remote Monitoring
9 System in the EOF control room (see Remote Monitoring System for PRC 421
10 under Section 2.4.2 for further details). Power cable connections would occur
11 within existing conduits in the EOF.
- 12 • A security surveillance camera would be mounted on Pier 421-2 and a live video
13 feed will be displayed in the EOF control room.

14 No alterations would occur to the capacity of the existing emulsion/processed crude
15 heat exchangers, emulsion/waste water heat exchangers, heater treaters or pipelines.

16 **Hydraulic Fracturing not Part of Project**

17 As a condition of approval for the Recommissioning Plan, Venoco will not conduct any
18 well stimulation techniques within PRC 421 using hydraulic fracturing (“fracking”), matrix
19 acidization, or acid fracturing techniques, within the meaning of Public Resources Code
20 section 3157 (Venoco letter to CSLC, dated April 14, 2014). Venoco will be required to
21 seek approval from the CSLC, among other necessary agency approvals prior to any
22 well stimulation operation within PRC 421. As a result, hydraulic fracturing or other well
23 stimulation techniques are not included in the environmental analysis for this Project.

24 **2.3 CONSTRUCTION PROCEDURES FOR RECOMMISSIONING PRC 421**

25 Construction details on the proposed repair work on the Pier 421-2 caisson walls are
26 provided above under the Pier 421-2 discussion. Section 2.6 below provides
27 decommissioning and abandonment details for Pier 421-1 that would occur following the
28 start of production from Pier 421-2. Construction to recommission oil and gas production
29 involves the following sequence of events (some tasks may occur concurrently):

- 30 • Installation of an ESP with tubing, packer, and subsurface control equipment in
31 Well 421-2;
- 32 • Installation of reflective warning tape on top of the pipeline as a safety measure
33 to prevent damage to the pipeline during digging;
- 34 • Installation of connections for temporary pig launcher and pig receiver at the
35 EOF;

- 1 • Installation of electrical motor control panel, transformer, and power cable
- 2 connections at the EOF;
- 3 • Installation of a surface control equipment at the Well 421-2 wellhead;
- 4 • Pigging and clean-up of the existing 6-inch line;
- 5 • Cut-out and removal of the two 90-degree bends within the existing 6-inch line
- 6 and installation of internal liner;
- 7 • Installation of 6-inch line extension to 421-2 pier and installation of tie-in piping
- 8 inside EOF;
- 9 • Insertion of new 3-inch flowline within existing 6-inch line;
- 10 • Re-joining of existing 6-inch line at area where 90° bends removed;
- 11 • Installation of new power cables and a communications cable to be trenched in
- 12 the existing access road;
- 13 • Testing of pipelines and equipment; and
- 14 • Work site restoration and cleanup.

15 **2.3.1 Construction Schedule**

16 Recommissioning construction activity is estimated to extend over 90 work days with
17 hours of construction occurring between 7:00 AM and 7:00 PM. The construction activity
18 would be most noticeable during the periods of repairing the Pier 421-2 caisson,
19 inserting the plastic liner and the new nonmetallic composite flowline within the existing
20 6-inch line, burial of the power cable, and movement of the workover rig to and from
21 Pier 421-2. Each of these operations should be relatively brief. Burial of the new power
22 cable under the access road through the golf course area is expected to take
23 approximately one week. The downhole well work associated with Well 421-2 is
24 expected to take approximately 15 work days. The construction schedule for the
25 decommissioning and abandonment of the Pier 421-1 structure (pier and caissons) will
26 occur after production begins from Pier 421-2 (see Section 2.6.5 below).

27 **2.3.2 Construction Staging Area and Equipment**

28 During the construction phase of the Project, all construction equipment and materials
29 would be staged in an existing easement area located immediately adjacent to the EOF
30 west fence line. A 30-foot by 30-foot helipad at the south end of the EOF could also be
31 used as an additional staging area for vehicles and materials should the need arise.
32 Temporary construction fencing would be placed along the Bell Creek ESHA located
33 immediately west of the EOF access road. The access road between Piers 421-1 and
34 421-2 would also be used for staging. Temporary construction fencing would be placed
35 around the wetlands located immediately north (bluff side) of the access road, near the

1 entrance to Pier 421-2 to protect it from construction activities, along the Hollister
 2 Avenue to PRC 421 gravel access road to protect the adjacent Bell Canyon Creek
 3 riparian habitat, and all other Project-related work areas that are adjacent to native
 4 habitats. All construction equipment would be selected so as to fit within existing
 5 roadway width, and would be staged in a linear fashion so as to minimize interference.
 6 Equipment anticipated to be necessary for construction activities associated with the
 7 proposed Project is summarized in Table 2-4.

Table 2-4. Preliminary List of Construction Equipment for PRC 421

Hydro crane	Vacuum truck	Backhoe
Tractor/trailer	Utility tool truck	Ditcher/trencher
Side boom truck	Pick-up truck	Bending Machine
Flatbed truck	Fuel truck	Camera truck
Excavator/ dozer	Water truck	Mud pump (trailer mounted)
Loader	Compressor	Welding truck
Dump truck	Operations van	10-ton winch
Grader	A-Frame truck	Fusion machine
Well service/workover rig	X-Ray truck	Hydrotest pump

8 **2.3.3 Best Management Practices**

9 Best Management Practices (BMPs) would be implemented throughout the construction
 10 phase of the proposed Project. As the proponent, Venoco would implement site-specific
 11 construction mitigation plans, including a traffic minimization plan and equipment
 12 refueling plan. A copy of proposed BMPs is located in Appendix F.

13 **2.3.4 Construction Details**

14 **Pier 421-2**

15 Construction activity at Pier 421-2 would consist of installing new production
 16 technologies, including the ESP and pipeline improvements. A portable well service rig
 17 would be placed over Well 421-2 and the tubing, packers and flow isolation valves that
 18 were placed in the well during pressure control operations in 2001 would be removed.
 19 The completion work for Well 421-2 would be based upon a program and procedure
 20 approved and witnessed by the CSLC and the California Department of Conservation,
 21 Division of Oil, Gas, and Geothermal Resources (DOGGR).

22 **Pipeline Installation**

23 *Overview*

24 ~~One~~ The existing 6-inch pipeline between PRC 421 and the EOF would be extended,
 25 repaired, and lined in order to provide protection for a new 3-inch nonmetallic composite
 26 flowline within an existing that would run inside the 6-inch pipeline with a new internal

1 plastic liner and be used to transport emulsion from PRC 421-2 to the EOF. Between
 2 Pier 421-1 and 421-2, a new section of 6-inch pipeline with lining would be installed,
 3 replacing the existing 2-inch flowline Pier 421-2 and Pier 421-1 between the piers.
 4 Additionally, a new section of 6-inch pipeline with lining would be installed between the
 5 abandoned interconnection with Line 96 just south of the EOF (where the existing 6-inch
 6 pipeline ends) to a point inside of the EOF. A 25-foot-long section in the old 6-inch line
 7 would be repaired and a liner would be installed in the existing and repaired portions of
 8 the 6-inch pipeline. For oil being conveyed to Line 96, a new 3-inch nonmetallic
 9 composite flowline and plastic liner would be installed within the existing/new 6-inch line
 10 between Pier 421-1 and the tie-in within the EOF (Figure 2-2, 2-5).

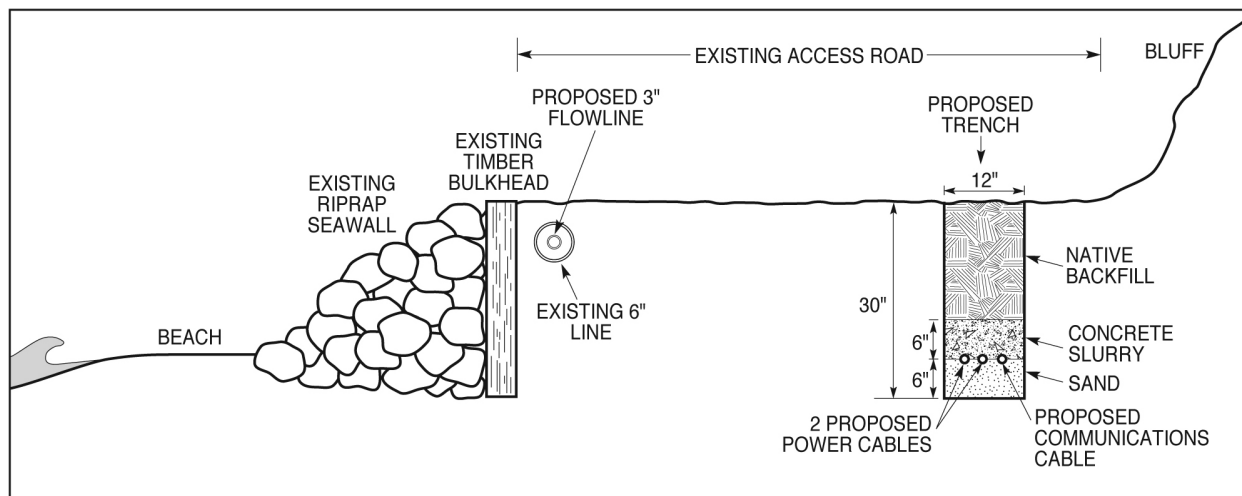


Figure 2-5. Existing Access Road and Proposed Pipeline and Power Cable Corridor

11 Insertion of the new plastic liner and the 3-inch flowline within the 6-inch line would
 12 occur by placing winches and spooling units either at the location of the cut-out miter
 13 bends location or at either end of the pipeline. Any field cuts would be made above a
 14 portable containment basin with a vacuum truck present to capture any fluid and
 15 prevent contamination of the surrounding environment. No trenching would be required
 16 other than to expose the ends of the existing 6-inch line and to open up an intermediate
 17 point to repair the exposed section of 6-inch line.

18 Extensions to the 6-inch Line

19 The 6-inch pipeline would be extended at either end in order to provide protection to the
 20 3-inch flowline between PRC 421-2 and the EOF. The approximately 450-foot-long
 21 segment between Pier 421-1 and to the end of Pier 421-2 would be located along the
 22 access road, approximately one foot below the surface (Figure 2-5), and along the pier,
 23 while the 50-foot segment in the vicinity of the EOF would be located adjacent to the
 24 access road just south of the EOF (Figure 2-2). These extensions would occur along
 25 and adjacent to the access road and require some trenching, as discussed below.

1 *Repairs to Existing 6-inch Line*

2 The internal pipe coating for the existing 6-inch line would be applied using a process
3 known as “fold and form” sliplining. During this process, a thin-wall, HDPE liner is
4 temporarily deformed into a “heart” shape cross-section, which would then allow direct
5 insertion into the existing 6-inch line. After insertion, the pipe would be “inflated” back to
6 its correct cross-section. The inflation process would be accomplished using low-
7 pressure (less than 100 psig) air or water. In some cases, a heated media, such as hot
8 water, may be used to aid in restoring the final shape of the liner.

9 Within the existing 6-inch line, at a point close to the location of the 1994 leak after
10 which production from Well 421-2 ceased, there is an exposed section with two
11 90-degree bends where the protective wrapping has been lost (see Figure 2-2). This
12 section of pipe, approximately 25 feet in length, would be cut out and replaced with new,
13 wrapped 6-inch line. The section would also serve as an intermediate pulling point for
14 both the 6-inch slipline and the internal 3-inch flowline.

15 A pulling winch would be located at this point and would pull the 6-inch “fold and form”
16 liner from two insertion points. One insertion point would be located in the PRC 421
17 access roadway, and the other insertion point would be located adjacent to the existing
18 6-inch line termination point located just outside the EOF fence, alongside the access
19 roadway. After the liner has been pulled through each of the two pipeline segments, it
20 would be inflated to its final size and tested.

21 *Installation of New 3-inch Flowline*

22 In a manner similar to the installation of the 6-inch liner, the 3-inch internal flowline
23 would be pulled into the now-internally lined 6-inch line. Following integrity testing of the
24 newly installed liner, a pulling winch would again be located at the proposed pulling
25 location. The 3-inch flowline would be pulled into the combined existing/new 6-inch line
26 from two directions; one insertion point would be located in the Pier 421 access
27 roadway, and the other insertion point would be located adjacent to the existing 6-inch
28 line termination point located just outside the EOF fence, alongside the access
29 roadway. After the 3-inch flowline is pulled through each of the two pipeline segments, it
30 would be pressure tested. Final assembly would include installation of annular (i.e., ring-
31 shaped) casing end seals and anchors at the ends of the existing 6-inch line.

32 The final tie-in would take place following successful pressure testing of the 3-inch
33 flowline. Piping would be installed to connect the 3-inch flowline from the existing/new 6-
34 inch line, to an existing flange connection point on the 8-inch production header carrying
35 produced oil from Platform Holly located within the EOF. This connection point is
36 located at the southwest corner of the EOF inside the fence. Pressure sensors and
37 gauges as well as a flowmeter sensor would be installed on this portion of the flowline to
38 monitor production from Well 421-2. A connection for a temporary pig receiver would

1 also be installed in this location to receive cleaning pigs that may be run in the flowline
2 in the future.

3 Following installation of the 3-inch flowline, the discontinuous existing 6-inch
4 containment piping at the pipe pulling location would be joined together again, thus
5 providing continuous 100-percent containment. The pipeline system would again be
6 pressure-tested to verify containment piping integrity. DOGGR would be notified to
7 witness pressure testing of the proposed 3-inch flowline.

8 **Installation of New Power and Communication Cables**

9 The new power and communication cables would be buried in a trench at least 24
10 inches below the existing access road. The trench would be excavated to dimensions of
11 2,500 feet long, 1 foot wide, and 30 inches deep, and would be designated with power
12 cable markers located along the route on the edge of the existing access road. The
13 cable route would be surveyed and staked within the access road ROW, avoiding
14 adjacent Environmentally Sensitive Habitat Areas (ESHAs). Six inches of sand bedding
15 would be placed into the bottom of the ditch and the two power cables would be placed
16 into the ditch atop the sand, after which the ditch would be backfilled with a concrete
17 slurry mixture to a minimum depth of 6 inches over the cables. The slurry would provide
18 additional protection to the buried cables and provides “early warning” to future parties
19 who may dig along this route. The remainder of the ditch would be filled using materials
20 excavated from the site, and the surface would be restored (Figure 2-5). The estimated
21 area of disturbance associated with cable excavation is 6,250 square feet. Additional
22 excavation would be required to affect repairs to the existing 6-inch line at the 12th
23 green at Sandpiper Golf Course, and to ~~expose piping~~extend the 6-inch pipeline
24 between Piers 421-1 and 421-2 and between the abandoned interconnection with Line
25 96 just south of the EOF to a point inside of the EOF. Along the access road, a moving
26 construction spread and traffic control procedures would be implemented during
27 trenching so as to minimize congestion, as well as minimize “open hole” length. A traffic
28 control person would be stationed on the road at the rear gate of the EOF, at the
29 existing gate on the beach, and at Pier 421-1.

30 An estimated 231 cubic yards (cy) of material would need to be excavated for the cable
31 trench, while approximately 46 cy of sand bedding and 65 cy of slurry would be
32 imported; re-use of excavated material may be possible depending upon its condition.
33 The excavated material would be temporarily stored along the access road adjacent to
34 the trench. Approximately 115 cy of material would be backfill and 120 cy of soil would
35 be exported. Excavation would also be required to repair 25 feet of the existing 6-inch
36 line at the 12th tee area of the Sandpiper Golf Course and to ~~expose piping~~extend the 6-
37 inch pipeline at either end of the existing line: approximately 450 feet along Pier 421-2
38 and between Piers 421-1 and 421-2, and 50 feet between the abandoned
39 interconnection with Line 96 just south of the EOF to a point inside of the EOF.

1 Assuming that the amount of excavation and backfill for this other work will be equal,
2 approximately 116 cy of material would be excavated and backfilled at these other
3 locations. After the cable and conduit have been installed, the trench would be
4 backfilled and compacted in conjunction with access road reconstruction. Trenching and
5 backfill would not take more than one week. Inside the EOF, the cables would be routed
6 to tie into the existing systems. Subject to final engineering review and contractor
7 selection, trenchless installation technologies may be used, if appropriate. This offers
8 the potential to reduce the volumes of cut and fill.

9 **Modifications at the EOF**

10 Construction activities at the EOF would include installation of various pressure sensors
11 and gauges, ~~installation of~~ a programmable logic controller (PLC), motor controller,
12 variable speed drive, transformer, and electrical motor control panel (see Remote
13 Monitoring System for PRC 421 under Section 2.4.2 for further details). The PLC and
14 motor controller would be placed in an upgraded electrical cabinet, which is currently
15 near the pig receivers. The variable speed drive and transformer would be stand-alone
16 electrical equipment, fabricated out of steel. The variable speed drive would be 82.5
17 inches high, by 38.8 inches wide and 44.5 inches deep, while the transformer would be
18 approximately 53 inches high by 56 inches wide by 27 inches deep. This equipment
19 would be located within the existing developed footprint of the EOF and no major
20 disturbance of vegetation or substantial grading would be required for their installation.
21 Power cable connections would occur within existing conduits in the EOF. No
22 alterations would occur to the capacity of the existing emulsion/processed crude heat
23 exchangers, emulsion/waste water heat exchangers, heater treaters or pipelines.

24 **2.4 OPERATION, MAINTENANCE, AND SAFETY CONTROLS**

25 **2.4.1 Volumes and Throughput from PRC 421 and Line 96**

26 Venoco estimates that, based on current projections and the proposed ESP sizing for
27 Well 421-2, the productive life of Well 421-2 is estimated to be 20 years; production of
28 421, therefore, would not extend the life of the EOF as Platform Holly is anticipated to
29 remain in production for more than 40 years. Venoco estimates that the instantaneous
30 and monthly average oil production rate at the wellhead would not exceed 500 BOPD
31 and 150 BOPD, respectively, over the life of the well. Oil production from PRC 421
32 combined with production from Platform Holly would be within the permitted capacity of
33 the EOF which is 13,000 BOPD (production from Platform Holly is currently
34 approximately 5,000 BOPD). The gas production rate is not expected to exceed 70
35 thousand cubic feet per day (Mcf/d). (The gas production rate was too small to measure
36 during the tests conducted in 2001.) Venoco also anticipates that water breakthrough
37 would occur shortly after the start of continuous production. The water cut would
38 gradually increase until it would no longer be economically viable to produce the well.

1 However, the price of oil may dictate that the Project would continue to be economically
 2 feasible beyond the Applicant's expectation. Estimated flush production is approximately
 3 150 BOPD the first month due to the well having been shut-in and would converge on
 4 approximately 50 BOPD after two years matching the last 10 years of continuous
 5 historical production (Figure 2-6). During the final years of previous production from PRC
 6 421 (late 1980s/early 1990s) the average production rate was between 50 and 60 BOPD.

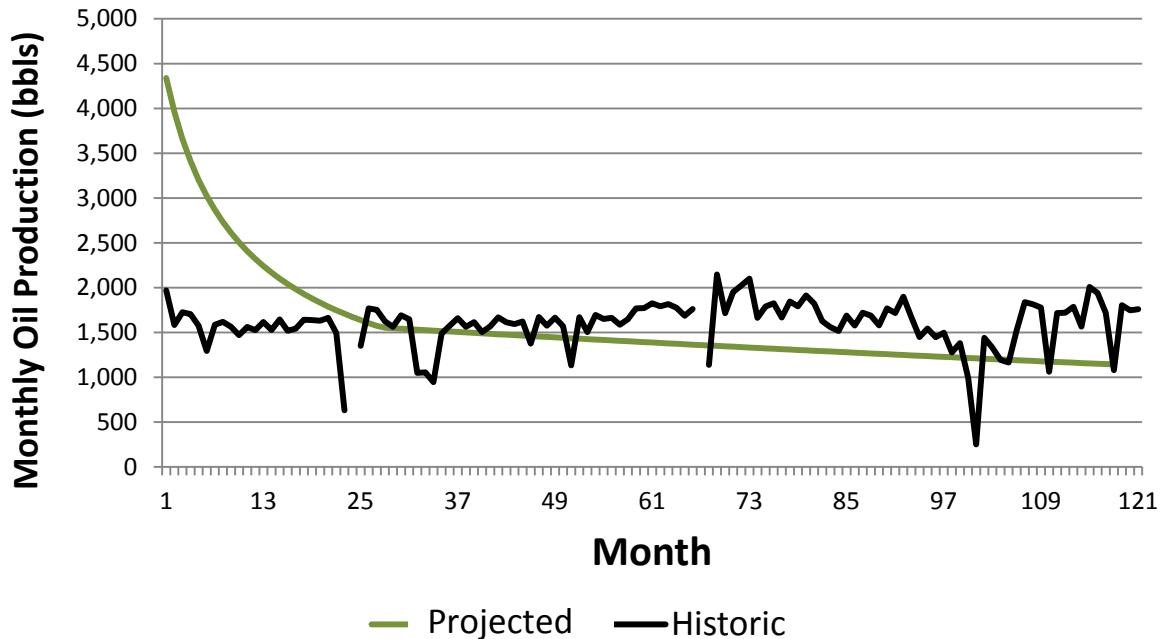


Figure 2-6. Projected and Historic PRC 421 Production

7 Line 96 has a throughput capacity of 13,000 BOPD, as limited by the processing permit
 8 limit at the EOF. The proposed Project would contribute a maximum of 500 BOPD to the
 9 Line 96 pipeline in the first year and is expected to taper off as shown in Figure 2-6.

10 **2.4.2 PRC 421 Maintenance and Safety Systems**

11 The proposed Project includes many levels of equipment requirements, testing,
 12 maintenance, and safety measures in order to prevent accidental releases to the
 13 coastal environment. The main safety monitoring system for PRC 421 would be located
 14 at the EOF and would include monitors at Well 421-2. Safety and maintenance
 15 measures associated with the Line 96 pipeline, though not a part of the proposed
 16 Project, would be used during transportation of PRC 421 oil to the PAAPLP Coastal
 17 Pipeline and are also described below.

18 **Remote Monitoring System for PRC 421**

19 Production activities at PRC 421 would be monitored from the EOF via the motor control
 20 panel at the EOF using the existing EOF Remote Monitoring System, via a new,

1 dedicated, Modbus Plus Based, cable link. A PLC would be installed in the Motor
2 Controller and would be placed in an upgraded electrical cabinet that is currently near
3 the pig receivers to monitor and control the PRC 421 production facilities, including the
4 ESP at the well and leak detection and safety shutdown for the PRC 421 pipeline. The
5 PLC would include local control functions, as well as communication to the existing EOF
6 control room for remote monitoring and control. A variable speed drive package
7 consisting of a drive cabinet and a step-up transformer would be located near the pig
8 receivers at EOF to power and control the ESP at the well. This variable speed drive
9 package would be approximately 144 cubic feet in size. A new power/communication
10 cable would run underground from the variable speed drive package at EOF to connect
11 to the ESP and pipeline at Well 421-2. All of the operational systems and safety
12 systems for Well 421-2 would be provided with a real-time monitoring capability at the
13 Remote Monitoring System Operator Interface Terminal located in the EOF control
14 room. Local Alarms and Shutdown Safeties for each well would be displayed at the
15 Remote Monitoring System. The well would have the capability of being shut down
16 remotely from the Operator Interface Terminal and by the EOF Emergency Shutdown.
17 The EOF is staffed 24 hours per day by a minimum of four Operators who are trained in
18 emergency response procedures, including emergencies associated with the pipelines.

19 **Well 421-2**

20 *Safety Valves*

21 The wellhead would be equipped with modern safety equipment and follow safety
22 design criteria as specified in API Recommended Practice 14C, *Safety Analysis*
23 *Function Evaluation (SAFE) of Offshore Petroleum Production Systems*. These
24 standards would provide, at a minimum, for the installation of a sub-surface safety valve
25 (SSSV) and surface safety valve (SSV) on the well.

26 The oil discharge line would be equipped with high- and low-pressure sensing switches.
27 In the event that these switches report high or low pressure, or in the event that any
28 alarm forces a shutdown of the well, then the SSV and SSSV would automatically close
29 and prevent oil from being brought to the surface. To assure fail-safe operation, these
30 valves would be designed to normally close in the absence of any power or energy to
31 hold them open. The SSV would use a charge of nitrogen or hydraulic fluid to hold it
32 open, and the SSSV would depend upon a hydraulic fluid source to hold it open. In the
33 event of a shutdown scenario requiring closure of the SSV and SSSV valves, a solenoid
34 would release a small amount of nitrogen pressure or hydraulic fluid to a storage tank
35 and the valves would spring closed. A small pump would be provided to allow re-
36 energization of the SSV and the SSSV valves when the well is restarted after a
37 shutdown. The selection of the SSV and SSSV well actuators has been made to
38 maintain a very low surface profile.

1 At the EOF tie-in with Line 96, a Flow Safety Valve (FSV) would prevent backflow of oil
2 from the pipeline, thus providing protection against uncontrolled oil flow from Line 96.

3 All surface and subsurface safety valves would be tested monthly with documentation
4 submitted to DOGGR within 5 days, and quarterly testing would be witnessed by a
5 DOGGR engineer to satisfy requirements under California Code of Regulations sections
6 1774-1774.2 and 1747.

7 *Surveillance at Pier 421-2*

8 A surveillance camera would be mounted on Pier 421-2 to monitor the condition of and
9 activity at the pier. The live video feed will be displayed in the EOF control room. The
10 electrical panel supporting this camera would also house a tamper switch to alert staff at
11 the EOF of possible tampering.

12 *Downhole Pump Monitoring*

13 The downhole ESP would be equipped with a multi-sensor to monitor downhole
14 conditions such as motor load, motor and intake temperature, intake and discharge
15 pressures, and pump vibration. These data would be transmitted over the power feed
16 back to the motor control panel located at the EOF. The motor control panel would
17 incorporate safety switches to automatically shut-in the pump in the event of a deviation
18 from normal operating conditions such as a pipeline rupture or a process interrupt.

19 **Pipelines**

20 *Safety Measures for Existing 6-inch Line*

21 The existing 6-inch line would be hydrotested to 100 psig prior to installation of the
22 3-inch flowline and internally lined with a new plastic coating. The 6-inch line would be
23 protected against external corrosion by enhancing the impressed current cathodic
24 protection system on the Platform Holly pipelines to include the PRC 421 shipping line.

25 *Safety Measures for Proposed 3-inch Flowline*

26 A non-metallic composite pipe would be used for the 3-inch flowline. This pipe is made
27 of HDPE with a layer of metal or fiberglass mesh imbedded within. This type of pipe
28 offers good chemical resistance and excellent flexibility. Because it is non-conductive
29 and immune to galvanic electrochemical effects, it does not corrode like metal piping. It
30 is also impervious to many aggressive chemicals as well as scale build-up.

31 In the event of a leak from the 3-inch flowline, oil would be contained by the outer 6-inch
32 line. Leak detection would be provided by sensing fluid/pressure accumulation in the
33 annular space between the outer 6-inch line and the 3-inch flowline. The annular
34 fluid/pressure will be continuously monitored at the EOF control room. Upon detection of

1 fluids in the annular space, or low pressure in the 3-inch flowline, the well pump would
2 be shut-in and the SSSV and SSV would close. It is expected that a complete shut-in
3 would occur within 15 seconds of leak detection.

4 Double-wall piping would also be used for the exposed sections of the flowlines installed
5 on Pier 421-2; the double-wall design is intended to reduce chances for a spill to occur.
6 The primary carrier flowline on the Pier would also be protected by an outer
7 containment line. This outer containment line would be monitored by the same
8 monitoring system that monitors the 6-inch containment line onshore. The caissons of
9 Pier 421-2 would help contain potential leaks from the wellhead piping. The well cellar
10 would also be equipped with a level switch to detect and provide an alarm regarding the
11 build-up of liquids in the caissons.

12 **Motor Control Panel and Transformer**

13 For security reasons, the motor control panel and transformer would be located at the
14 EOF rather than at Pier 421-2, where they can be more closely monitored. As provided
15 in Section 2.3.4 for specific modifications to the EOF, the electrical motor control panel
16 would be installed in the EOF control room. The transformer would be located at the
17 southwest corner of the EOF, near the PLC.

18 **Inspection Programs**

19 Visual inspections are and would continue to be conducted at the PRC 421 facilities,
20 including the pier, caissons, and roads, twice each day by EOF staff. The well cellar and
21 pipeline ROWs are also inspected at least daily for indications of oil leakage. Inspectors
22 record any deficiencies and report them to Venoco management. Records of
23 inspections are maintained in a log book at the EOF. A leak detection sensor as
24 mentioned previously would be installed and would shut the well down in the event of a
25 pipeline leak. Maintenance activities are expected to be minimal. A production operator
26 would visit the well daily to ensure correct operation.

27 Facility inspections are performed by several agencies, including the CSLC, Santa
28 Barbara County APCD, Santa Barbara County Fire Department, Santa Barbara County
29 Office of Emergency Management (OEM), and City of Goleta. The California State Fire
30 Marshal (CSFM), City of Goleta, and Santa Barbara County share jurisdiction of
31 Line 96. The CSLC's Mineral Resources Management Division (MRMD), Santa Barbara
32 County OES, and Santa Barbara County APCD all conduct annual inspections of the
33 PRC 421 facilities. Local agencies conduct an annual inspection at the EOF per the
34 facility's Safety, Inspection, Maintenance, and Quality Assurance Program. In addition,
35 the facilities will be subjected to MRMD monthly Safety and Pollution Prevention
36 inspections and five-year Safety and Pollution Prevention audits.

1 Security Program

2 Access to Pier 421-2 is restricted via 8-foot-tall chain-link fences that block entry to the
3 production equipment on the piers. The facility gates are kept closed and locked unless
4 access is required. Security is provided to PRC 421 by Venoco staff at the EOF. A
5 private security firm patrol twice daily at irregular intervals.

6 2.4.3 Oil Spill Response Capability and Emergency Response Equipment

7 Venoco's Oil Spill Contingency Plan (OSCP) – South Ellwood Oil Field, which is
8 reviewed and approved by the California Department of Fish and Wildlife (CDFW) Office
9 of Spill Prevention and Response (OSPR) and Santa Barbara County OEM, would
10 cover the proposed Project (Venoco 2011). The OSCP details response procedures,
11 training and drills for the covered facilities, and spill response capabilities, and includes
12 a facility-based initial incident response team (IIRT) and a corporate-based sustained
13 incident response team (SIRT) for all on-water, beachfront, onshore, and shallow-water
14 response. Initial oil spill response containment equipment for PRC 421 is stored
15 onboard Platform Holly and at the EOF. Further, in the event of a spill, Venoco contracts
16 for spill response services with Clean Seas and NRC Environmental Services (NRC).
17 Clean Seas has an extensive inventory of spill containment and recovery equipment,
18 response vessels, equipment trailers, vehicles, sorbents, and miscellaneous support
19 equipment. NRC, which is Venoco's primary contractor for onshore and shoreline
20 cleanup, also has sufficient resources and trained personnel to satisfy all Federal and
21 State onshore and shoreline cleanup planning requirements. Equipment available to
22 respond to an oil spill is detailed in the Ellwood OSCP and summarized below.

Vessels and Skimmers	<ul style="list-style-type: none"> • Platform Holly crew boat stationed at Ellwood Pier, staffed 24 hours/day. • Platform Holly boom boat stationed at Platform Holly, staffed 24 hours/day. • Clean Seas Southern Oil Spill Response Vessels (OSRV), stationed at the Santa Barbara Harbor. The Clean Seas OSRVs have built-in Lamor skimming system as well as two open ocean skimmers on board at all times, ready for service.
Oil Containment Booms	<ul style="list-style-type: none"> • Platform Holly - 1,500 feet of Expandi Boom. • Clean Seas OSRV - 1,500 feet of ocean boom (i.e., 60-inch Reel Pack, Kepner boom). • 3,000 feet of open ocean boom (i.e., Oil Stop continuously inflatable and/or 43-inch Expandi Boom).
Secondary Response	<p>Clean Seas maintains access to additional offshore spill response resources which may be cascaded into its response area from other response cooperatives. Additional State and Federal spill response resources are available through the California Area Contingency Plan and Federal (Region 9) Regional Contingency Plan as activated by the U.S. Coast Guard (USCG) Federal On-Scene Commander. NRC provides onshore and near-shore responses and support to Clean Seas for offshore spill response.</p>

1 **2.4.4 Fire Prevention and Preparedness Plan**

2 Venoco's Fire Prevention and Preparedness Plan for the South Ellwood Oil Field
3 Facilities identifies fire protection and suppression equipment that are present and
4 maintained for fire control (Venoco 2003). Venoco personnel use the resources cited in
5 the Emergency Action Plan (EAP) – South Ellwood Field (Venoco 2011) to implement
6 safe and effective response actions for all emergency events including fire. The EAP in
7 conjunction with the OSCP for the South Ellwood Field, Emergency Evacuation Plans,
8 and H₂S Contingency Plans fulfills Occupational Safety and Health Administration
9 (OSHA) requirements for a Fire Prevention Plan as cited in 29 Code of Federal
10 Regulations (CFR) 1910.38(b).

11 **2.4.5 Repressurization Monitoring**

12 As noted in Table 2-1, based on DOGGR well records and knowledge of historical
13 abandonment practices, many of the original 74 orphan wells were abandoned in ways
14 that do not meet modern standards. The CSLC staff is concerned that pressure has
15 increased within the Vaqueros Reservoir and could potentially cause unintentional oil
16 releases into the coastal environment. The increased pressure in the reservoir could
17 force a leak from the historic abandoned wells in offshore areas of the reservoir or
18 possibly lead to additional release of oil from a natural seep (see Section 4.2.1 for a
19 detailed discussion of repressurization). Once Venoco is authorized to recommission
20 PRC 421, a static reservoir pressure will be taken from Well 421-2 prior to resumption of
21 production. Static pressure measurements will also be obtained annually during EOF
22 shut-down to be used in the analysis of repressurization.

23 The crucial information necessary to assess the risk of an accidental release from
24 abandoned wells is the maximum pressure that could occur in the reservoir as a result
25 of aquifer influx (flow of water into the oil reservoir from adjacent aquifer). At the time of
26 discovery in 1928, the reservoir pressure was found to be at normal hydrostatic
27 pressure, not at an abnormally high pressure that sometimes occurs under certain
28 geologic or hydrologic conditions.⁵ If it can be determined that the aquifer surrounding
29 the Vaqueros Reservoir causes a pressure no higher than normal hydrostatic pressure,
30 then the concern about potential leakage from older abandoned wells would be
31 resolved. Measurements of static reservoir pressure would be made on a periodic basis
32 during the production operations (at least once a year). The pressure trend would be
33 monitored closely. In case reservoir pressure continues to increase during production,
34 then additional pressure transient testing and analysis may be needed to ascertain and
35 quantify subsurface factors contributing to the pressure increase. Venoco will submit all
36 testing and monitoring procedures for CSLC approval. As the oil production rate
37 declines over time, and the economic limit approaches, pressure measurements would

⁵ Hydrostatic pressure means the pressure resulting from a static column of water or fluid.

1 be obtained to estimate the final static reservoir pressure that would develop when
2 production operations cease and the oil field is abandoned.

3 **2.5 LINE 96 PIPELINE (EOF TO PAAPLP COASTAL PIPELINE WEST OF LFC)**

4 The Line 96 pipeline from the EOF to the PAAPLP Coastal Pipeline extends 8.5 miles to
5 the west along the Gaviota Coast from just outside the northwest corner of the EOF.
6 The pipeline crosses north under U.S. Highway 101, then along the north side of the
7 Highway to a site west of LFC where it connects with the regional oil distribution pipeline
8 network via the existing PAAPLP Coastal Pipeline (Figure 2-7).



Figure 2-7. Line 96 Pipeline Route

9 Line 96 facilities include pig receiver connections, flow metering, and valve connections
10 at the PAAPLP Coastal Pipeline receiving station west of LFC. These facilities allow the
11 injection of treated oil from Platform Holly and potentially PRC 421 into the 24-inch
12 common carrier PAAPLP Coastal Pipeline for transportation to destinations downstream
13 of the Gaviota Pump Station. The PAAPLP Coastal Pipeline extends from LFC to
14 Gaviota as a 24-inch 150,000 BOPD capacity line, and from Gaviota to Pentland in Kern
15 County as a 30-inch, 300,000 BOPD capacity line. The PAAPLP Coastal Pipeline ties
16 into pipelines going south to market destinations at Los Angeles area refineries.

17 Line 96 begins immediately outside and adjacent to the EOF at a valve box outside the
18 entry gate, downstream of the Lease Automatic Custody Transfer (LACT) meter station
19 and pumps. Approximately 585 feet of the pipeline lies within the Goleta city limits, with
20 the remainder of the 8.5-mile pipeline in unincorporated Santa Barbara County.

21 Mainline Block Valves (MBV) are located at the start of the pipeline (outside the EOF
22 facility) and at the terminus with PAAPLP Coastal Pipeline (Figure 2-7). Additional block
23 valves are located on the east side of Eagle Canyon Creek, on the east side of Dos
24 Pueblos Creek, near the intersection of Rancho Cañada and El Capitan Ranch Road,
25 and near the intersection of Calle Real and Corral Canyon Road. Check valve stations

1 were installed to prevent reverse flow in the line and guard against release of product to
2 the environment in case of catastrophic failure or dig-in damage at certain low points.
3 Check valves were located on the west side of Eagle Canyon Creek, the west side of
4 Dos Pueblos Creek, on the west side of Las Llagas Canyon, and near the departure
5 point out of Calle Real near the delivery facility. MBVs and check valves are accessible
6 from the EOF in approximately 20 to 30 minutes.

7 **2.5.1 Operation of the Line 96 Pipeline**

8 Oil, gas, and, water from PRC 421 would be commingled with oil and water from
9 Platform Holly (currently approximately 7,500 BPD of oil and water) within the EOF and
10 processed to remove water, entrained gas and H₂S before being transported through
11 Line 96, and would flow from the EOF to the PAAPLP Coastal Pipeline west of LFC.
12 The Line 96 oil pipeline is owned and operated by Ellwood Pipeline, Inc., a subsidiary of
13 Venoco. Oversight, management, and routine maintenance of the pipeline are
14 undertaken by current staff and contractors of Ellwood Pipeline, Inc. No increase in
15 staffing is proposed or required as part of this proposed Project. Operation of Line 96 is
16 expected to continue until the production life of oil from Platform Holly ends, which is not
17 anticipated until after the Project life.

18 No oil storage facilities would be available for the production from PRC 421 other than
19 what is already provided for the Platform Holly oil. Therefore, oil produced from the
20 Project would be blended with the Platform Holly oil and continuously transported
21 through Line 96 to the PAAPLP Coastal Pipeline located west of LFC, except where the
22 Platform Holly oil is currently stored at the EOF.

23 In addition, no oil storage facilities would be available at the PAAPLP Coastal Pipeline
24 location for any oil transported through Line 96. If, for any reason, the PAAPLP Coastal
25 Pipeline system downstream of the EOF were not operating, the available working level
26 in the two 2,000-barrel tanks at the EOF would dictate how long the Applicant could
27 operate before diverting or curtailing production from Platform Holly and PRC 421. At
28 current production from Platform Holly combined with the projected 150 BOPD from
29 PRC 421, storage for ~~approximately less than 1 to 2~~ days of production could be
30 accommodated.

31 **2.5.2 Maintenance and Safety of Line 96**

32 Line 96 includes a pipeline leak detection system that uses a pressure and temperature-
33 compensated flow-metering system, with meters at each end of the pipeline. In addition,
34 low pressure switches monitor for low pressure in the pipeline. The inlet and outlet flow
35 rates are computed and compared continuously to each other by a PLC computer. In
36 the event of a deviation between the inlet and outlet flows, or a substantial loss of
37 pressure at either end, the pipeline is automatically shut down and blocked in. The

1 overall accuracy of the system is expected to fall in the +/- 5 percent range over a 4-
2 hour period.

3 Line 96 is monitored and operated from Venoco's EOF and can be remotely monitored
4 and shutdown from the PAAPLP central control facility in Houston. Both of these
5 facilities provide for continuous monitoring 24 hours per day. The existing LACT meter
6 at the EOF is used as the basis for custody transfer to PAAPLP. The pipeline safety
7 system relies upon a Supervisory Control and Data Acquisition (SCADA) system, which
8 gathers data from remote points for use by automatic controls and safety systems. The
9 data gathered by the SCADA system include operating pressure, temperature, and flow
10 at the points of entry (connection at the EOF) and exit (PAAPLP Coastal Pipeline). The
11 pumps are equipped with devices to sense pressure and measure electrical current and
12 temperature; these devices allow operators to monitor pump performance and provide
13 inputs to the SCADA system. Flow or pressure deviations are analyzed by the leak
14 detection system and an alarm will be sounded should any reported deviations exceed
15 pre-set parameters. The minimum leak detection flow rate is based on a state-of-the-art
16 leak detection system for hourly and 24-hour time periods. The overall accuracy of the
17 system is estimated to fall in the +/- 5 percent range over a 4-hour period, and +/- 1
18 percent range over a 24-hour period.

19 Venoco and PAAPLP Coastal Pipeline subscribe to the Underground Service Alert "one
20 call" system that provides a single toll-free number for contractors and individuals to call
21 prior to digging near the pipeline. Upon notification that a contractor or property owner is
22 intending to dig near the pipeline, the horizontal location of the pipeline is marked.
23 Marking is provided within 48 hours of a request. Additionally, a warning tape with the
24 pipeline name is buried approximately 18 inches above the pipeline.

25 The pipeline route is inspected in accordance with CSFM requirements (U.S.
26 Department of Transportation, 49 CFR Part 195 requires visual inspection 26 times per
27 year) to spot third-party construction or other factors that might threaten the integrity of
28 the pipeline. Additionally, inspections of highway, utility, and pipeline crossing locations
29 are conducted in accordance with State and Federal regulations. The integrity of the
30 pipeline from corrosion is inspected annually at all test locations, quarterly at control
31 points, and more frequently than quarterly at cathodic protection systems to ensure
32 corrosion control. Maintenance pigs for pipeline cleaning are operated as needed.

33 Block valves are cycled and inspected twice annually, not to exceed 7 months between
34 inspections, to ensure proper operation (per 49 CFR 195.420). The cathodic protection
35 system consists of passive anodes buried along the entire pipeline length. An insulating
36 flange was installed at the PAAPLP Coastal Pipeline tie-in point to isolate the cathodic
37 protection systems of each pipeline. Quarterly, voltage and current readings are
38 recorded for each of the anodes and critical test stations are measured and recorded.
39 Annually, voltage readings at all test stations are measured and recorded. If the data

1 indicate that potential problem areas exist on the pipeline, voltage readings are taken all
2 along the suspect areas using a technique called a close interval survey. Adjustments
3 are made to the system, as required, when test data indicate that voltage levels are
4 outside of the design limits.

5 OSCPs developed for facilities involved with the Line 96 pipeline were prepared by
6 Venoco, Ellwood Pipeline, and PAAPLP and were reviewed and approved by
7 appropriate Federal, State, and local agencies (including OSPR) for each company's
8 respective pipelines. An OSCP is required under State and Federal regulations (Senate
9 Bill [SB] 2040 and 40 CFR 300, the Hazardous Substances Pollution Contingency Plan,
10 and the Oil Pollution Act of 1990). It is also required under local regulations under Santa
11 Barbara County Chapter 12, Section 8 and Santa Barbara County Ordinance 3014. The
12 OSCP provides a finalized list of emergency service providers. Venoco has also
13 prepared an EAP to specify measures to be taken in emergency scenarios for its
14 existing facilities. These documents identify the responsible parties for the incident
15 command and the supporting organizations/agencies.

16 PAAPLP terminal and pump stations have firefighting and other emergency equipment.
17 Firefighting equipment includes carbon dioxide (CO₂) and/or halon fire extinguishers
18 inside the control rooms for electrical fires around panels and switchgear. Dry powder
19 fire extinguishers are located in the station yard for hydrocarbon fires. Fire suppressant
20 foaming agents and related foam generation equipment are also onsite at manned
21 facilities or are otherwise available. In addition, emergency call lists are posted at all
22 stations in case of accident, fire, or explosion.

23 **2.6 DECOMMISSIONING AND REMOVAL OF PIER 421-1**

24 Following the return of oil production from Pier 421-2 into the EOF, the proposed Project
25 includes the decommissioning of Well 421-1 and removal of Pier 421-1, as this well and
26 pier would not be required for resuming operations. Venoco would apply for approval of
27 Well 421-1 decommissioning and abandonment within 90 days of receipt of all permits
28 required for the recommissioning of Pier 421-2. Before decommissioning Well 421-1,
29 Venoco would be required to file a written notice of intent to commence such work with
30 the DOGGR and submit an Abandonment and Restoration Plan covering the
31 decommissioning of the well and facilities (in accordance with Pub. Resources Code, §
32 3203 and Cal. Code Regs., tit. 14, § 1776, subds. (e) and (f), respectively). All
33 structures to be removed and the underlying sand would be evaluated for the presence
34 of hazardous materials, including polychlorinated biphenyls (PCBs), metals, polycyclic
35 aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, xylene, asbestos, and
36 other oil-related byproducts. Prior to any well decommissioning or pier removal
37 activities, Venoco would notify the CCC, City of Goleta, County of Santa Barbara Fire
38 Department Fire Prevention Division (FPD), Clean Seas, Santa Barbara County APCD,
39 DOGGR, and CSLC of pending well work.

1 This Project component would involve the sequence of events listed below, some of
2 which may occur concurrently. Some variation may occur, depending upon unidentified
3 site conditions and contractor(s) selected to do the work:

- 4 • Installation of onshore work area fencing to exclude the contractor from working
5 in the adjacent ESHAs and to confine the construction activity and related
6 equipment storage to existing disturbed surfaces;
- 7 • Plugging of Well 421-1, likely with a combination of cement plugs and
8 mechanical bridge plugs;
- 9 • Removal of the 8-foot-tall chain-link fencing and barbed wire that blocks entry to
10 the well-head on Pier 421-1;
- 11 • Removal of the caissons that surrounds Pier 421-1. This caisson is a concrete
12 and sheet pile, sand filled structure, approximately 68 feet wide, 42 feet long and
13 20 feet tall;
- 14 • Excavation of caisson foundations and rebar to an appropriate depth below
15 existing grade;
- 16 • Final abandonment of the well casing/conductors in accordance with DOGGR
17 regulations and approvals;
- 18 • Demolition of pier, including removal of metal railing, wood planking, 20 white
19 steel piles and supporting cross beams, and excavation/removal of pilings,
20 concrete and rebar to an appropriate depth below bedrock;
- 21 • Removal of cables;
- 22 • Removal of all piping and interconnection between Pier/Well 421-1 and Pier/Well
23 421-2 and any other ancillary facilities associated with Pier/Well 421-1;
- 24 • Sand remediation;
- 25 • Reinforcement of seawall at the access road and placement of rock boulder rip
26 rap for approximately 75 feet on the seaward side of seawall to match existing rip
27 rap currently on both sides of pier;
- 28 • Redistribution of sand to restore natural contours of the beach; and
- 29 • Work site restoration, habitat restoration, and cleanup.

30 **2.6.1 Site Preparation**

31 A temporary ramp near the west end of the existing PRC 421 access road would be
32 used to facilitate beach access (Figure 2-2). This ramp has been used for equipment
33 beach access on various PRC 421 pier repair projects in the past. The upper portion of
34 the ramp is intact; however, the lower portion would need to be reconfigured by
35 repositioning existing armor rock and moving local beach sand. No new material would

1 be necessary to re-establish the ramp. Depending on wave and tide action, beach sand
2 may occasionally need to be placed onto the ramp to fill gaps in the armor rock.

3 A laydown area would be established in the pipeline ROW, a gravel access road,
4 immediately east of Bell Canyon Creek and west of the EOF (see Figure 2-2).
5 Temporary fencing would be placed adjacent to the Bell Canyon Creek ESHA, or along
6 the edge of the existing gravel access road, to protect the creekside vegetation.
7 Temporary construction fencing would also be placed around the wetland located near
8 the entrance to Pier 421-1 (and Pier 421-2 if this area is used for equipment staging)
9 immediately north (bluff side) of the access road to prevent access by Project
10 personnel, equipment, and staging of material. Silt fencing would be installed on the
11 south (ocean side) of the access road for its entire length to protect from soil runoff
12 toward the ocean. Additional temporary storage for small items would also take place
13 along the access road and potentially on Pier 421-2. Equipment staging and temporary
14 storage would also occur along a temporary laydown area just west of the EOF, the
15 access road, and on the deck of Pier 421-2.

16 **2.6.2 Pile Removals**

17 Steel piles that support both the pier and caisson extend approximately 25 feet into the
18 underlying bedrock (Monterey Shale). These piles would be cut after excavation to an
19 appropriate depth using an external thermal cut. The sand area in which the piles would
20 be removed would be covered with a heavy tarp material in order to collect any of the
21 rusted pile flakes and slag material from the handling and cutting operations. A powered
22 man lift would be the primary mechanism for lifting personnel up to the point at where
23 the top of the pile would be cut from the beams. Scaffolding may also be installed, as
24 required. Thermal cutting would be the main mechanism for making the pile cuts.
25 Pneumatic grinders and hand saws would be used for dressing the cuts. If excessive
26 seawater is encountered during the excavation operations, a gasoline powered or air
27 powered pump would be used to lower the water to a sufficient level to allow a cut to be
28 made at an appropriate depth below the sand level. Removal of sand to expose the
29 piles would be done with a small tracked excavator or backhoe / loader supplemented
30 with hand digging. The excavated holes would be backfilled by the excavator or
31 backhoe/loader and supplemented with hand filling operations. Additional or different
32 equipment may be used depending on the contractor selected.

33 **2.6.3 Disposal of Materials**

34 Approximately 400 cy of cement, rebar and metal material would be removed from Pier
35 421-1. In 2006 as part of a caisson well repair project at Pier 421-1, hazardous
36 materials testing was conducted for the Lease 421-1 Caisson Wall Repair (05-132-DP).
37 Sediment test results indicated non-detectable levels of chemicals, such as xylenes,
38 benzene, toluene and ethylbenzene, asbestos, as well as sulfides. Other parameters

1 such as total petroleum hydrocarbons (TPH), toxicity and pH were within acceptable
2 limits as determined by the FPD and in conformance with the California Ocean Plan and
3 Regional Water Quality Control Board (RWQCB) National Pollutant Discharge
4 Elimination System standards. During testing undertaken for a 2001 project to repair
5 leaks at the facility during a routine inspection, hydrocarbons in the soil at depths of
6 approximately 20 feet were detected under Pier 421-1. Due to the historical use of the
7 facility and time passed since previous testing, additional testing of all structures to be
8 removed and sand would be necessary prior to demolition activities at the pier to
9 identify and characterize any hazardous substances within the structures and sand and
10 characterize the source, distribution and magnitude of these substances.

11 Material removed from Pier 421-1 would be recycled when possible and all other
12 material would be disposed of at appropriate facilities. Contaminated soil and related
13 material would be analyzed to determine its material profile prior to disposal; this
14 material would be disposed of at either Clean Harbors' Buttonwillow landfill west of
15 Bakersfield or Waste Management's Altamont landfill in Livermore. Wood products that
16 are contaminated would be disposed of by Clean Harbors, along with Ellwood's non-
17 hazardous oil field debris material.

18 Venoco would prepare a Removal and Remediation Action Plan (Action Plan) for the
19 safe removal of any contaminated materials. Final Action Plan approval would be
20 required by OSPR, CSLC, RWQCB, and the City of Goleta.

21 **2.6.4 Worksite Restoration and Cleanup**

22 After completion of well decommissioning, pier removal, and remediation as required
23 and set forth in the Action Plan, the beach would be restored to the profile of the
24 adjacent beach area. Surplus construction materials or equipment would be removed
25 from the work site and the lay down area. All waste would be profiled to determine the
26 proper method of disposal. Following removal of the Pier, a gap in the rock revetment at
27 the base of the bluff would be present and would be filled in with approximately 70 feet
28 of armor rock. The access road through the golf course may require minor maintenance
29 to restore it to pre-construction condition, or whatever is required in the existing
30 easement that Venoco has with the landowner. The equipment access ramp to the
31 beach would be returned to its pre-construction condition. Maintenance to restore the
32 PRC 421 pier access road to pre-construction condition would be performed.

33 **2.6.5 Schedule, Major Equipment, Logistics and Public Beach Access**

34 Decommissioning is estimated to take approximately 30 days, not including any
35 remediation that might be necessary. This assumes a crew being able to work on the
36 beach for a 6-hour period each day between high tide and low tide windows. Although
37 the actual work schedule may vary, work would typically be scheduled during daylight
38 hours (7:00 AM until 7:00 PM), Monday through Saturday. On rare occasions, should

1 tides dictate, work may extend until 10:00 PM. Venoco would coordinate with Sandpiper
 2 Golf Course and Bacara Resort and Spa management personnel to minimize any
 3 interference with golf course or resort operations. This may require scheduling of
 4 equipment and material deliveries to and from the site outside of the normal work hours
 5 (i.e., pre-staging of materials before dawn).

6 Major equipment required may include the following (additional or somewhat different
 7 equipment may be needed depending on unidentified site conditions and contractor(s)
 8 selected to do the work).

On Beach	Excavator/loader for beach access, ramp construction and equipment transportation and standby emergency operations; small loader with backhoe attachment; powered man lift; excavator mounted hydraulic breaker and jack-hammers to break up concrete caissons; oxygen-acetylene torch and hydraulic shear to cut reinforced steel; hand digging and pneumatic powered cutting tools; rigging equipment; fire protection equipment; sump pump; and portable lighting.
On Piers	Small crane; and roll-off metal recycling bins.
On Access Roads or Staging Area	Flatbed truck; fuel truck; pickup truck; water truck and pump; tool truck; mobile crane; welding truck; and small tool shed.

9 Equipment would be removed from the beach and returned to the staging area at the
 10 end of each workday and during high tides. Trenches would be filled in before the end
 11 of each workday. No refueling of equipment would be allowed on the beach.

12 A workforce of approximately 10 contractors and Venoco personnel would be on-site at
 13 any given time. Workers would park personal vehicles at the EOF or the temporary
 14 laydown area west of the EOF. Workers not involved in moving equipment and tools
 15 would either walk or use golf carts to cross the golf course to access the Project site.

16 Public access to the beach would be available during well decommissioning activities,
 17 but lateral access would be interrupted during pier removal. Signs notifying the public of
 18 dates of construction operations would be posted at access points, and during
 19 potentially hazardous activities construction personnel would be stationed on each side
 20 of the pier with the designated role to prevent public transit of the Project site.

21 **2.6.6 Monitoring and Safety Precautions**

22 As part of the Integrated Environmental Quality Assurance Program for Oil and Gas
 23 Projects (EQAP), EQAP monitors under contract with the Santa Barbara County Energy
 24 Division would be present throughout the removal work to monitor pre- and post-Project
 25 conditions of vegetation, landforms, and fauna, as well as to ensure Project-related
 26 activities are carried out in an environmentally sound manner. Daily EQAP reports and a
 27 final EQAP report would be submitted by these monitors.

1 Before initiation of, and during, well work, spill prevention measures would be in place,
2 equipment locations would be designated in the Action Plan, a vacuum truck and Clean
3 Seas boat and equipment would be on location, and tubing and equipment pulled from
4 the well would be laid down with lining in place and bundled/wrapped to prevent
5 contamination. Venoco would be required to have an approved Spill Contingency Plan
6 and a Fuel and Lubricant Drip Mitigation Plan in place. These plans would include: an
7 approved refueling procedure to be followed if any equipment must be refueled on site,
8 drip pans and fuel sorbent pads for applicable equipment; and provisions to inspect
9 hoses and containers to ensure they are free of cracks or signs of deterioration.

10 **2.7 FUTURE PLANS AND ABANDONMENT OF PRC 421**

11 CSLC lease conditions require Venoco to decommission all facilities associated with
12 PRC 421 at the end of the production life and restore the area to its natural condition.
13 Decommissioning and abandonment of Pier 421-1 and Well 421-1 are described in
14 Section 2.6. Future decommissioning activities of PRC 421 would generally include
15 removal of Pier 421-2 and all associated facilities, including the well, the ESP, and
16 electrical equipment. Decommissioning of PRC 421 would also likely involve removal of
17 the seawall, beachside access road, pipelines and power cables within the access road,
18 abandonment in place of the 1,800 feet of 6-inch pipeline connecting PRC 421 to the
19 EOF, and removal of the transformer and electrical lines connecting PRC 421 to the
20 EOF. Site cleanup including soil remediation may also be required as hydrocarbon
21 contamination has been identified at the pier approach area of Pier 421-2.

22 Final decommissioning and abandonment of PRC 421 is not a part of the current
23 Project as it would occur after the Project's life, would require preparation of separate
24 environmental documentation in compliance with the California Environmental Quality
25 Act (e.g., a MND or Environmental Impact Report), and would be subject to local, State,
26 and Federal regulations that are in effect at the time of decommissioning. Specifics on
27 decommissioning and hazardous materials investigations would be addressed in an
28 Abandonment and Restoration Plan submitted to the CSLC, CCC, and City of Goleta.
29 As required by Federal and State laws and local regulations, Venoco would be
30 responsible for cleanup and remediation of any potential contamination that could have
31 resulted from the operation of PRC 421; therefore, Phase I and Phase II hazardous
32 materials site investigations would also be required prior to sediment removal.
33 Preparing a full environmental analysis on decommissioning activities at this time is not
34 warranted due to the estimated production life of the Project and there is no pending
35 application that fully describes the scope of decommissioning. Environmental conditions
36 are also likely to change from current conditions and advancement in technologies or
37 new methodologies for removing the pier structures may also become available.

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3.0 CUMULATIVE IMPACTS METHODOLOGY

1 This section provides a listing and map identifying other related future projects near the
2 location of the proposed Project. Section 15130 of the State California Environmental
3 Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR)
4 discuss cumulative impacts of a project when the project's incremental effect is
5 cumulatively considerable (as defined in Guidelines § 15065, subd. (a)(3)). An EIR,
6 however, should not discuss impacts which do not result in part from the project
7 evaluated in the EIR. Where a lead agency is examining a project with an incremental
8 effect that is not "cumulatively considerable," a lead agency need not consider that
9 effect significant, but shall briefly describe its basis for concluding that the incremental
10 effect is not cumulatively considerable. As defined in State CEQA Guidelines section
11 15355:

12 *“Cumulative impacts” refer to two or more individual effects which, when considered*
13 *together, are considerable or which compound or increase other environmental*
14 *impacts. (a) The individual effects may be changes resulting from a single project or*
15 *a number of separate projects. (b) The cumulative impact from several projects is*
16 *the change in the environment which results from the incremental impact of the*
17 *project when added to other closely related past, present, and reasonably*
18 *foreseeable probable future projects. Cumulative impacts can result from individually*
19 *minor but collectively significant projects taking place over a period of time.*

20 The cumulative projects study area for this EIR includes projects located in the
21 immediate on-shore, ~~and~~ near-shore, and offshore areas of the Ellwood coast. The
22 project list for the cumulative impacts analysis includes projects that are either
23 reasonably foreseeable or are expected to be constructed or operated during the life of
24 the proposed Project. This list includes development Projects that were included by the
25 City of Goleta in its 2013 Cumulative Projects List (City of Goleta 2013). Additional
26 projects were compiled from data developed for the Final EIR, Ellwood Pipeline
27 Company Line 96 Modification Project, prepared by Santa Barbara County (State
28 Clearinghouse [SCH] # 2009111034) and based on consultation with appropriate
29 agencies (CSLC 2009; CSLC 2013; City of Goleta 2013).

30 **3.1 INDUSTRIAL/MARINE TRANSPORTATION PROJECTS**

31 There are several industrial or marine transportation projects proposed in the vicinity of
32 the Project that may contribute to cumulative impacts. Proposed projects near PRC 421
33 or that could potentially have impacts on the same resources as the proposed Project
34 are listed in Table 3-1. Figure 3-1 shows the location of some of these projects which
35 are summarized below (numbered in accordance with Table 3-1).

3.0 Cumulative Impacts Methodology

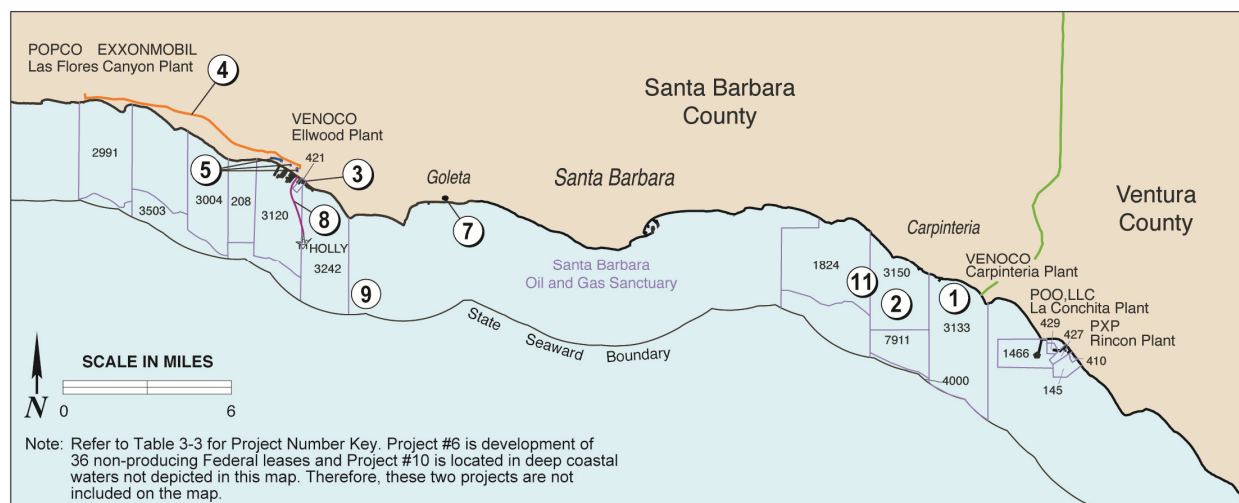


Figure 3-1. Cumulative Oil Production or Infrastructure Projects [Revised]

Table 3-1. Relevant Cumulative Projects

Project Name/Applicant	Brief Description	Status
Industrial/Marine Projects – PRC 421 Project Area		
1. Carpinteria Offshore Field Redevelopment Project/Carone Petroleum Corp. and Pacific Operators Offshore Inc.	Redevelop State Oil and Gas Leases PRC 4000, PRC 7911, and PRC 3133	EIR/Environmental Impact Statement (EIS) under preparation
2. Paredon Project/Venoco	Development of offshore oil and gas reserves from onshore facilities near Carpinteria	Application submitted
3. Ellwood Marine Terminal Demolition and Reclamation Project/Venoco	Decommissioning of both the onshore and offshore components of the former marine oil terminal.	Application submitted
4. Line 96 Pipeline Modification/ Ellwood Pipeline Company	Construction of a new 6-inch-diameter, 8.5-mile-long onshore oil pipeline from the EOF to the PAAPLP Coastal Pipeline west of LFC	Complete
5. Dos Pueblos Pipeline Abandonment/ARCO	Abandon and remove oil pipeline	Complete
6. Development of 36 non-producing Federal leases/various applicants	Various plans to develop Federal leases	Schedule unknown due to litigation
7. Southern California Gas Storage Enhancement Project	Southern California Gas Company to produce native gas from an onshore natural gas reserve located under its La Goleta Storage Field	EIR certified and project approved
8. Platform Holly Power Cable Replacement Project/Venoco	Construction of a new power cable from the EOF offshore to Platform Holly	Complete
9. South Ellwood Field Project/Venoco	Easterly boundary expansion of PRC 3242.1 to include more of the South Ellwood Field	Application submitted

Table 3-1. Relevant Cumulative Projects

Project Name/Applicant	Brief Description	Status
910. Santa Ynez Unit Offshore Power System Reliability – B Project/ExxonMobil	Installation of a power cable system to service Santa Ynez Unit's offshore platforms (Heritage, Harmony, and Hondo) in Federal waters	Approved MND released
4011. Chevron 4H Shell Mounds Disposition and Carpinteria Salt Marsh Restoration Project	Quitclaim leases for four former oil platforms and leave in place "shell mounds" from when platforms were present; improve tidal flow in Carpinteria Salt Marsh	Application submitted
Residential, Commercial, Institutional, and Recreational Projects — PRC 421 Project and Alternatives Area		
4412. Marriott Courtyard, 401 Storke Rd.	106 rooms and suites, including meeting space and a restaurant	Complete
4213. Comstock Homes Development, The Bluffs, 215 Elderberry Dr.	62 single-family residences	Under construction/ Occupied
4314. Renco Encoders, 26 Coromar Dr.	Add 8,800 square foot (ft ²) manufacturing space and 10,400 ft ² office space to existing building	Approved
4415. Mariposa at Ellwood, 7760 Hollister Ave.	62,481 ft ² assisted living (90 residents)	Approved
4516. Westar, Hollister Ave. northwest of Glen Annie Rd.	Mixed use with 279 residential units and 90,054 ft ² retail space	Approved (subject to pending legal challenge)
4617. Target Store, 6466 and 6470 Hollister Ave. and 170 Los Carneros Way	120,690 ft ² net new grocery market	Pending
17. Bacara Resort & Spa Expansion	189,217 ft², 55 two-/three-bedroom units	Pending [withdrawn]
18. Sandpiper Golf Course Renovations, 7925 Hollister Ave.	Renovation and redevelopment of existing golf course: reconfiguration of course layout, demolish existing 8,924 ft ² clubhouse, build new 27,651 ft ² clubhouse, and lot split	Pending
19. Rancho Mobile Home Park Subdivision (Guggenheim), 7465 Hollister Ave.	Subdivision of 17.84 acre rental mobile home park property (150 existing mobile homes)	Approved (subject to pending legal challenge)
20. Cabrillo Business Park, 6767 Hollister Ave.	Business Park with new structures totaling 693,100 ft ² (research & development, self storage, onsite service related uses)	Under construction
21. FLIR Addition to Cabrillo Business Park, 6769/775 Hollister Ave.	11,827 ft ² (net new) office building addition	Approved
22. Village at Los Carneros, S. Los Carneros Rd., Cortona/Castillian Dr.	184 residential units	Approved
23. Cortona Apartments, 6830 Cortona Dr.	176 residential units	Pending
24. Ellwood Mesa Open Space Plan/City of Goleta	238 acre habitat protection and recreation, including trail connections, habitat restoration, parking, etc.	Complete

Table 3-1. Relevant Cumulative Projects

Project Name/Applicant	Brief Description	Status
25. Ellwood-Devereux Coast Open Space and Habitat Management Plan/Santa Barbara County	Implementation of Open Space Plan actions, including trail connections, habitat restoration, parking, restroom upgrade, etc.	Complete
26. Rincon Palms Hotel, 6868/78 Hollister Ave.	(a) 75,580 ft ² hotel (102 rooms) and 6,000 ft ² restaurant; (b) 93,822 ft ² hotel (149 rooms) and 5,440 ft ² conference room.	(a) Approved (b) Pending
27. Ocean Meadows Residences	60 units of single-family homes and condominiums	Approved
28. Camino Real Marketplace Skating Facilities, 6985 Santa Felicia Dr.	46,000 ft ² ice rink, 17,000 ft ² roller rink	Approved
29. Costco Gas Station, 7095 Marketplace Dr.	10,800 ft ² 4-island gas station	Pending/ On Hold
30. University of California, Santa Barbara (UCSB) Sierra Madre Student Housing UCSB	(a) 151 units of family student housing on the UCSB North Campus, Storke-Whittier Parcel and (b) 172 units of faculty housing	(a) Approved (b) Anticipated
31. Ocean Walk at North Campus Faculty Housing, UCSB	161 units of faculty housing on the UCSB North Campus, North Parcel	22 units Under Construction, Others need CCC Approval
32. Los Carneros Pointe, Los Carneros Road/Los Carneros Way	31,051 ft ² commercial development including a day-care facility, restaurant, shops, and office	Pending
33. Haskell's Landing, Hollister Avenue west of Las Armas Road	102 residential units – mix of single-family, duplex, and triplex units	Under construction
34. Goleta West Sanitation District	Trunk line project at Devereux Creek and Phelps Road	Pending
35. The Corner Shoppes, 7000 Hollister Ave.	15,300 ft ² retail/financial institution	Pending
36. Fire Station 10, 7952 Hollister Ave.	9,000 ft ² fire station	Pending
Residential, Commercial, Institutional, and Recreational Projects — Line 96 Pipeline Route		
37. Eagle Canyon Ranch (Parsons), north and south of Hwy 101, immediately west of Naples townsite, west of Bacara Resort	1,060 acres, 4 units	Pending
38. Santa Barbara Ranch Project, two miles west of the City of Goleta	Amendments to County's Comprehensive Plan, Coastal Land Use Plan and Zoning Ordinance, a variety of subdivision and entitlement applications.	Pending, in litigation
39. Dos Pueblos Ranch Lot Line Adjustment	Lot Line Adjustment (about 2,053 acres) would help reconfigure a parcel that would be subdivided and developed under a Vesting Tentative Parcel Map approved as part of Santa Barbara Ranch Project.	Approved
40. Las Varas/ Edwards Ranch (Doheny), north and south of Hwy 01, immediately west of Naples Townsite	1,800 acres, 7 lots/units	Recirculated Draft EIR in preparation
41. Tecolote Canyon, north of Hwy 101, West of Goleta	1,047 acres, 26 residential units	Pending

Table 3-1. Relevant Cumulative Projects

Project Name/Applicant	Brief Description	Status
42. Paradiso del Mare Ocean and Inland Estates, south of Hwy 101, 0.5 mile west from Bacara Resort	(a) 65 acres, 5,806 ft ² dwelling, 800 ft ² guest house and (b) 78 acres, 7,326 ft ² dwelling, 800 ft ² guest house	Final EIR released, Pending
43. Morehart Land Company Naples Townsite, south of Hwy 101	8 residential units, 14 acres	Pending
44. El Capitan Campground Expansion	100 new campsites, kiosk, bathhouse, comfort station, spa, pool and ancillary facilities in area east of existing campground	Approved
45. Dos Pueblos Naples Residential Development/Naples, south of Hwy 101, west of Tomate Canyon	63 acres, 10 residential units	Pending

1 *1. Carpinteria Field Redevelopment Project, Carone Petroleum Corporation, Signal Hill*
 2 *Inc., and Pacific Operators Offshore LLC (POOL)*

3 Carone has submitted a Plan of Development to the CSLC and Signal Hill and POOL
 4 have submitted a revised Development and Production Plan to the Bureau of Ocean
 5 Energy Management (BOEM) to develop and produce existing State Oil and Gas
 6 Leases PRC 4000, PRC 7911, and PRC 3133 within the Carpinteria Field by drilling up
 7 to 25 new production or injection wells from federal Platform Hogan. Oil and gas
 8 production from the State Leases would be commingled on federal Platform Hogan with
 9 existing production from the Federal lease and sent via existing pipelines to the La
 10 Conchita Facility in Ventura County. A public Draft EIR/EIS is expected to be available
 11 in late 2014.

12 *2. Paredon Project, Venoco*

13 Venoco originally applied to the CSLC (application received in February 2005) and to
 14 the City of Carpinteria to develop existing State Oil and Gas Lease PRC 3150.1 by
 15 conducting extended-reach drilling from an onshore site located within Venoco’s
 16 existing Carpinteria Oil and Gas Processing Facility, in the City of Carpinteria. Venoco
 17 estimates that this project could produce up to 10,000 BOPD of crude oil and 10 million
 18 standard cubic feet per day (MMSCFD) of gas. The City of Carpinteria’s Environmental
 19 Review Committee voted in May 2008 to delay issuance of the Final EIR, pending
 20 development of additional analysis and mitigation measures; City of Carpinteria voters
 21 subsequently defeated a Venoco-sponsored ballot initiative to directly approve the
 22 project, obviating the need for City regulatory approval. In June 2013, Venoco submitted
 23 new applications to the City and CSLC for a modified project with that would drill from
 24 the same location as the previously proposed project, but would involve fewer wells and
 25 a reduced drilling duration.

1 3. *Ellwood Marine Terminal Demolition and Reclamation Project, Venoco*

2 Following completion of the Line 96 Modification Project in 2012 (refer to #4 below), the
3 EMT is no longer used. As of September 2013, Venoco has submitted revised applications
4 to various agencies to decommission the onshore and offshore portions of the EMT.

5 4. *Line 96 Modification Project, Ellwood Pipeline, Inc. (a subsidiary of Venoco, Inc.)*

6 The Line 96 Modification Project, which included construction of a new 8.5-mile onshore
7 pipeline from the EOF to the PAAPLP Coastal Pipeline interconnection to the west of
8 LFC, was approved by Santa Barbara County and City of Goleta in August 2011, and
9 became operational in Spring 2012. With this pipeline operational, the EMT and old Line
10 96 segment connecting the EOF to the EMT are being decommissioned and
11 abandoned. The pipeline from PRC 421, if constructed, would connect to the new Line
12 96 pipeline via the EOF to the PAAPLP Coastal Pipeline west of LFC, allowing oil
13 produced at PRC 421 to be transported to market via pipeline.

14 5. *Dos Pueblos Pipeline Abandonment, ARCO*

15 In 1996, ARCO removed all surface equipment appurtenant to historic oil processing on
16 the Dos Pueblos site. However, pipelines remained in place that historically delivered
17 crude oil produced on the Dos Pueblos property to the EOF. The pipelines extended
18 approximately 2.5 miles, traversing private properties, and creek channels, including:
19 Eagle Canyon Ranch, Bacara Resort, Tecolote and Bell Creeks. The pipelines and
20 equipment removed include: above-ground portions of a 6-inch pipeline running from the
21 Dos Pueblos property to Bell Creek; a 5-line pipeline bundle and supports from the Dos
22 Pueblos property, across Eagle Canyon Ranch, and across Eagle Canyon Creek; a 6-
23 inch pipeline that crosses Tecolote Creek and Bell Creek, and pipeline supports; and
24 equipment and piping near the EOF. The pipelines abandoned in place included 800 feet
25 of pipeline west of the EOF and buried pipeline beyond the immediate channel of Bell
26 Creek. The County approved the MND and Demolition and Reclamation permit for the
27 pipeline removal on February 19, 2010. The project was completed in November 2011.

28 6. *Offshore Oil and Gas Leasing*

29 Currently, there are 43 active Outer Continental Shelf (OCS) oil and gas leases offshore
30 of Southern California. Production from these leases is expected to continue for the next
31 5 to 20 years. The Bureau of Safety and Environmental Enforcement (BSEE) has not
32 received any proposals to decommission offshore facilities on federal OCS leases.

33 7. *Southern California Gas Storage Enhancement Project*

34 Southern California Gas Company is proposing to produce native gas from an onshore
35 natural gas reserve located under its La Goleta Storage Field. The project would include

1 the development of two production wells, two exploratory wells, 2,800 feet of
2 underground pipeline, and a dehydration unit at the La Goleta Storage Field. The
3 applicant estimates there is 3 to 5 billion cubic feet of recoverable gas. The withdrawal
4 of native gas would enhance the existing storage field by expanding the total storage
5 capacity at the facility. Once gas reserves have been produced, the production wells
6 would be integrated into storage operations. The exploration wells are proposed to
7 investigate the feasibility of producing native gas from an adjacent natural gas reserve.
8 In June 2013, Santa Barbara County certified a Final EIR and approved the project.

9 *8. Platform Holly Power Cable Replacement Project*

10 In October 2013, Venoco completed installation of a new power cable to replace the
11 existing 46-year-old submarine power cable that runs approximately 2,200 feet (800 feet
12 onshore and 1,400 feet offshore) from the EOF to Platform Holly. The replacement
13 cable follows the general route of the existing cable.

14 9. South Ellwood Field Project

15 In July 2014, Venoco's application for an adjustment to existing easterly lease boundary
16 line for PRC 3242.1 with related re-drills of existing wells from Platform Holly was found
17 complete by the CSLC. As proposed, the Project includes: (1) an additional 5,327 acres
18 would be included in PRC 3242.1, thereby allowing Venoco to access more of the South
19 Ellwood Field, which extends through this area; and (2) Venoco would re-drill up to six
20 wells from Platform Holly into the new lease area.

21 910. Santa Ynez Unit Offshore Power System Reliability – B Project

22 ExxonMobil is proposing to conduct an at-sea replacement of the C1 power cable which
23 ceased operating in spring of 2009. The project would occur in the western Santa
24 Barbara Channel near ExxonMobil's Platform Heritage in 1,125 feet water depth and is
25 expected to take up to 25 days.

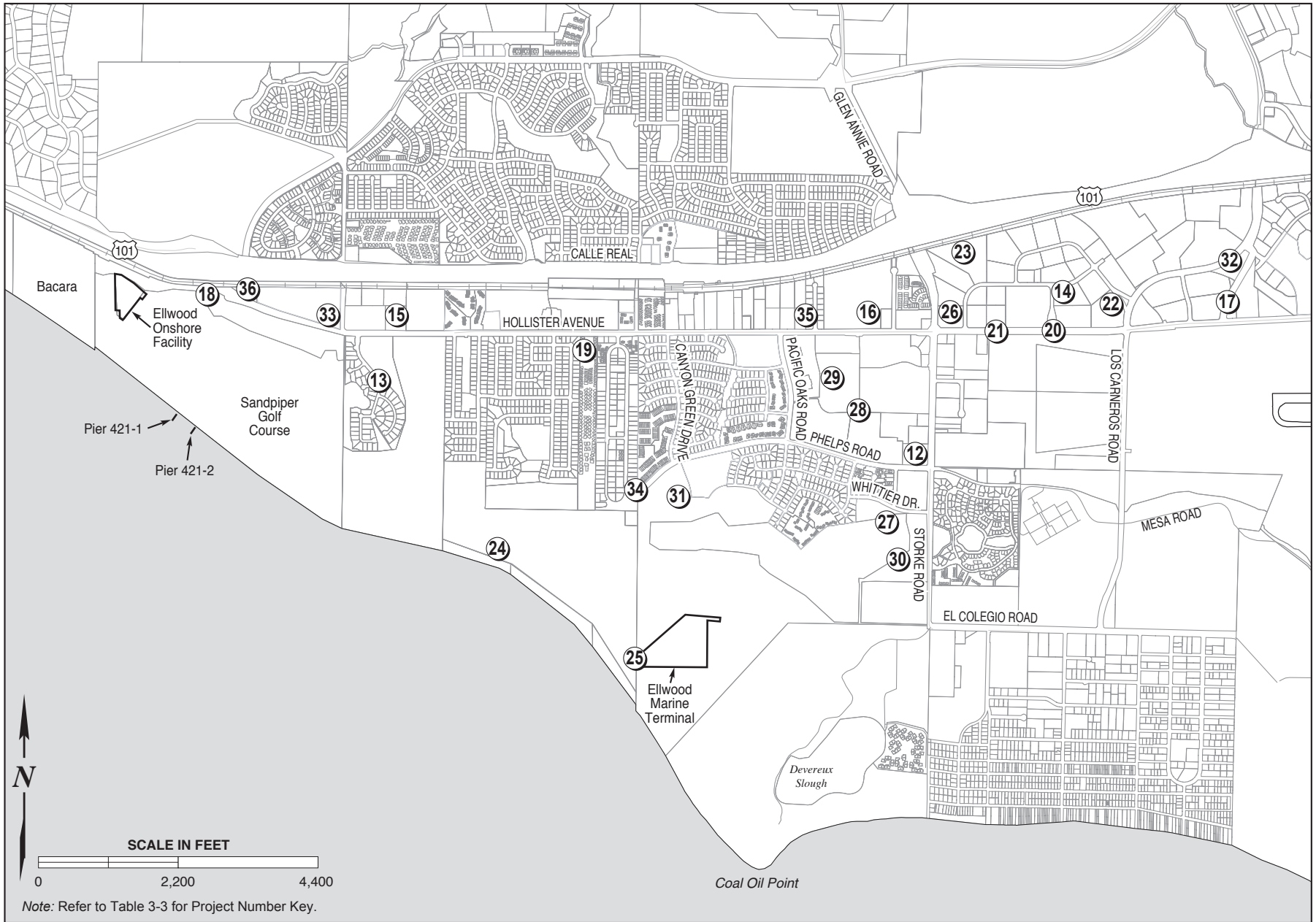
26 ~~4011.~~ Chevron 4H Shell Mounds Disposition and Carpinteria Salt Marsh Restoration 27 Project

28 Chevron has applied to the CSLC and Santa Barbara County to implement the 4H
29 Platform Shell Mounds Disposition and Carpinteria Salt Marsh Enhancement Project.
30 The proposed Project has four components: (1) quitclaim Chevron's interest in State Oil
31 and Gas Leases PRC 1824 and PRC 3150, the former sites of Platforms Hazel, Hilda,
32 Hope and Heidi (known collectively as the "4H Platforms"); (2) leave in place the "shell
33 mounds" and embedded Hazel caisson remnants that remain on the seafloor at the
34 former 4H Platform sites; (3) enhance Basin 3 in the Carpinteria Salt Marsh by removing
35 the existing sand plug and non-native vegetation; and (4) provide funds for additional
36 future marsh and/or coastal habitat improvements (or other conservation purposes).

1 The Carpinteria Salt Marsh is located in southern Santa Barbara County west of the City
2 of Carpinteria. The shell mounds are located in the eastern portion of the Santa Barbara
3 Channel in water depths ranging from 96 to 137 feet.

4 **3.2 PROJECTS IN THE ELLWOOD AREA**

5 In addition to projects 3, 4, 5, ~~and~~ 8, and 9 described above, which are located in the
6 Ellwood area, a number of residential, institutional, recreational, and commercial
7 projects are proposed in both on and offshore locations in the Ellwood area, near the
8 proposed Project. These projects could directly contribute to cumulative impacts in the
9 Project's primary impact area of both on and offshore areas, and resources within and
10 along the Ellwood Coast. Figure 3-2 indicates the location of the cumulative projects in
11 the immediate Project area. These projects, which are under the jurisdiction of the City
12 of Goleta, Santa Barbara County, UCSB, and the CSLC, are listed by corresponding
13 number in Table 3-3, beginning with 4012.



Note: Refer to Table 3-3 for Project Number Key.



Cumulative Residential, Commercial, Institutional, and Recreational Projects in the Ellwood Area [Revised]

FIGURE 3-2

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4.0 ENVIRONMENTAL IMPACT ANALYSIS

1 INTRODUCTION TO ENVIRONMENTAL ANALYSIS

2 Section 4 of this Environmental Impact Report (EIR) examines the potential
3 environmental impacts of the proposed Revised PRC 421 Recommissioning Project
4 (Project) identified by the California State Lands Commission (CSLC) as Lead Agency
5 under the California Environmental Quality Act (CEQA). This Section includes analyses
6 of environmental issue areas listed below:

7 4.1 - Geological Resources;

8 4.2 - Safety;

9 4.3 - Hazardous Materials;

10 4.4 - Air Quality and Greenhouse Gases;

11 4.5 - Hydrology, Water Resources, and Water Quality;

12 4.6 - Marine Biological Resources;

13 4.7 - Terrestrial Biological Resources;

14 4.8 - Land Use, Planning, and Recreation;

15 4.9 - Public Services;

16 4.10 - Transportation and Circulation;

17 4.11 - Noise;

18 4.12 - Aesthetic/Visual Resources;

19 4.13 - Cultural, Historical, and Paleontological Resources;

20 4.14 - Energy and Mineral Resources; and

21 4.15 - Socioeconomics and Environmental Justice.

22 Each environmental issue area analyzed in this EIR provides background information
23 and describes the environmental setting (baseline conditions) to help the reader
24 understand the conditions that exist currently, prior to Project implementation, and the
25 relationship between those existing conditions and potential Project-related impacts. In
26 addition, each section describes the approach to analysis that results in a determination
27 whether an impact is “significant” or “less than significant.” Finally, individual sections
28 recommend mitigation measures (MMs) to reduce significant impacts. Throughout
29 Section 4, both impacts and the corresponding MMs are identified by a **bold letter-**
30 **number designation** (e.g., Impact **TBIO-1** and **MM TBIO-1a**).

31 Based on an initial review and analysis, it is likely that the Project would have a less
32 than significant impact, or no impact, on the environmental issue areas identified below.
33 The primary reasons for these determinations are as follows:

- 1 • Agricultural Resources. Activities for Recommissioning PRC 421 are located on
2 sand, shale bedrock and artificial fill and therefore would not impact soils used for
3 agricultural purposes. The Line 96 Modification Project EIR (Santa Barbara
4 County 2011) fully analyzed agricultural resources along the pipeline route to Las
5 Flores Canyon (LFC) as part of the construction and operation of the new
6 pipeline and is incorporated by reference in Section 4.8, Land Use, Planning and
7 Recreation of this EIR.

- 8 • Population and Housing. The Project would not require a change in the number
9 of employees and would require only short-term construction activity for removal
10 of Pier 421-1 infrastructure and repair and upgrade of existing facilities at Pier
11 421-2. The Project would neither induce substantial population growth in the area
12 nor displace any people or housing units.

- 13 • Utilities and Service Systems. The Project would not result in additional demand
14 for water, wastewater treatment, or solid waste disposal services in excess of
15 current capacities.

16 **ASSESSMENT METHODOLOGY**

17 **Environmental Baseline**

18 The analysis of each issue area begins with an examination of the existing physical
19 setting or baseline conditions as determined pursuant to section 15125, subdivision (a)
20 of the State CEQA Guidelines that may be affected by the Project. The effects of the
21 Project are defined as changes to the environmental setting that are attributable to
22 Project components or operation.

23 The baseline conditions for the Project include operation of the Line 96 pipeline, which
24 connects the Ellwood Onshore Facility (EOF) to the Plains All American Pipeline, L.P.
25 (PAAPLP) Coastal Pipeline west of LFC. This EIR relies upon, updates, and under the
26 guidance provided in State CEQA Guidelines section 15150 hereby incorporates by
27 reference the findings of the Line 96 Modification Project EIR (Santa Barbara County
28 2011) regarding potential impacts and MMs associated with use of that pipeline.

29 **Significance Criteria**

30 Significance criteria are identified for each environmental issue area; these criteria
31 serve as benchmarks for determining if a component action will result in a significant
32 adverse environmental impact when evaluated against the baseline. According to State
33 CEQA Guidelines section 15382, a significant effect on the environment means “a
34 substantial, or potentially substantial, adverse change in any of the physical conditions
35 within the area affected by the project....”

1 **Impact Analysis**

2 Impacts are classified as according to one of the following five categories:

- 3 • **Significant and Unavoidable** – significant adverse impact that remains
4 significant after mitigation;
- 5 • **Less than Significant with Mitigation** – significant adverse impact that can be
6 eliminated or reduced below an issue area’s significance criteria;
- 7 • **Less than Significant** – adverse impact that does not meet or exceed an issue
8 area’s significance criteria;
- 9 • **Beneficial** – beneficial impact; or
- 10 • **No Impact** – the Project would not result in any impact to the resource area
11 considered.

12 A determination will be made, based on the analysis of any impact within each affected
13 environmental issue area and compliance with any recommended MM, of the level of
14 impact remaining in comparison to pertinent significance criteria. If the impact remains
15 significant, at or above the significance criteria, it is deemed to be “significant and
16 unavoidable.” If a significant adverse impact could be reduced to a less than significant
17 level with application of identified mitigation, then it is “less than significant with
18 mitigation.” If an action creates an adverse impact above the baseline condition, but
19 such impact does not meet or exceed the pertinent significance criteria, it is determined
20 to be “less than significant.” An action that provides an improvement to an
21 environmental issue area in comparison to baseline conditions is recognized as a
22 “beneficial” impact.

23 **Formulation of Mitigation Measures and Mitigation Monitoring Program**

24 When significant impacts are identified, feasible MMs are formulated to eliminate or
25 reduce the severity of impacts and focus on the protection of sensitive resources. The
26 effectiveness of a MM is subsequently determined by evaluating the impact remaining
27 after its application. Impacts which still meet or exceed the impact significance criteria
28 after mitigation are considered residual impacts that remain significant. Implementation
29 of more than one MM may be needed to reduce an impact below a level of significance.
30 The MMs recommended in this document are identified in the impact sections and
31 presented in a Mitigation Monitoring Program (MMP), provided in Section 7.

32 If any MMs are ultimately incorporated as part of a project’s design, they are no longer
33 considered MMs under CEQA. If they eliminate or reduce a potentially significant impact
34 to a level below the significance criteria, they eliminate the potential for that significant
35 impact since the “measure” is now a component of the action. Such measures
36 incorporated into the project design have the same status as any “applicant proposed

1 measures.” The CSLC’s standard practice is to include all measures to eliminate or
2 reduce the environmental impacts of a proposed project, whether applicant-proposed or
3 recommended mitigation, in the MMP.

4 **Timing of Project Elements**

5 This EIR addresses the impacts of both recommissioning of Pier 421-2, including
6 construction and operation, as well as abandonment of Pier 421-1. Because Venoco
7 proposes submittal of applications for abandonment of Pier 421-1 after production has
8 commenced at Pier 421-2, the CSLC staff anticipates that actual abandonment of Pier
9 421-1 will trail construction and initiation of production at Pier 421-2 by approximately 1
10 year. The impact analysis reflects this assumption.

11 **Cumulative Impacts Analysis**

12 Each issue area in Section 4 presents the cumulative impact scenario, the focus of
13 which is to identify the potential impacts of the Project that might not be significant when
14 considered alone, but that might contribute to a significant impact when viewed in
15 conjunction with the other projects.

16 **Impacts of Alternatives**

17 Section 5 describes the alternatives to the Project and includes the impact analysis for
18 each alternative scenario being considered to the Project. A summary of collective
19 impacts of each alternative in comparison with the impacts of the Project is included
20 within the Executive Summary and Section 6.4.

21 **FEDERAL AND STATE REGULATIONS**

22 Each of the issue areas is considered in terms of the Federal, State, regional, and local
23 laws, regulations, and policies that apply to the issue area. Federal and State laws,
24 regulations and policies, including a summary of each, are provided below in
25 Table 4.0-1, organized by issues area. Applicable regional and local laws, regulations,
26 and policies are summarized in each of the sections.

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project

4.0 MULTIPLE ENVIRONMENTAL ISSUES		
U.S.	Coastal Zone Management Act (CZMA) (42 USC 4321 et seq.)	The CZMA recognizes a national interest in coastal zone resources and in the importance of balancing competing uses of those resources, giving full consideration to aesthetic, cultural and historic, ecological, recreational, and other values as well as the needs for compatible economic development. Pursuant to the CZMA, coastal states develop and implement comprehensive coastal management programs (CMPs) that describe uses subject to the CMP, authorities and enforceable policies, and coastal zone boundaries, among other elements. The CZMA also gives state coastal management agencies regulatory control ("federal consistency" review authority) over federal activities and federally licensed, permitted or assisted activities, if the activity affects coastal resources; such activities include military projects at coastal locations and outer continental shelf oil and gas leasing, exploration and development. The California Coastal Commission (CCC) and San Francisco Bay Conservation and Development Commission (BCDC) coordinate California's federally approved CMPs and federal consistency reviews within their respective jurisdictions.
CA	California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.)	CEQA requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a "project" that must receive some discretionary approval (i.e., the agency has the authority to deny the requested permit or approval) which may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment.
CA	California State Lands Commission (CSLC) Public Trust Doctrine	All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust. The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways, as well as certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the U.S. in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion. The CSLC's jurisdiction also includes a 3-nautical-mile-wide section of tidal and submerged land adjacent to the coast and offshore islands, including bays, estuaries, and lagoons; the waters and underlying beds of more than 120 rivers, lakes, streams, and sloughs; and 1.3 million acres of "school lands" granted to the State by the Federal government to support public education. The CSLC also has leasing jurisdiction, subject to certain conditions, over mineral extraction from State property owned and managed by other State agencies (Pub. Resources Code, § 68910, subd. (b)), and is responsible for implementing a variety of State regulations for activities affecting these State Trust Lands, including implementing CEQA.

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

CA	California Coastal Act (Coastal Act) of 1976 (Pub. Resources Code, § 30000 et seq.) CCC Federal Consistency Program	Pursuant to the Coastal Act, the CCC, in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone. The Coastal Act includes specific policies (see Chapter 3) that address issues such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. Development activities in the coastal zone generally require a coastal permit from either the CCC or the local government: (1) the CCC retains jurisdiction over the immediate shoreline areas below the mean high tide line and offshore areas to the 3 nautical mile State water limit; and (2) following certification of county- and municipality-developed Local Coastal Programs, the CCC has delegated permit authority to many local governments for the portions of their jurisdictions within the coastal zone. The CCC also implements the CZMA as it applies to federal activities (e.g., development projects, permits, and licenses) in the coastal zone by reviewing specified federal actions for consistency with the enforceable policies of Chapter 3 of the Coastal Act.
4.1 GEOLOGICAL RESOURCES		
U.S.	The International Building Code (IBC)	The IBC sets design standards to accommodate a “maximum considered earthquake” or MCE, based on a project’s regional location, site characteristics, and other factors.
CA	California Building Code (CBC) (Cal. Code Regs., tit. 23)	The State of California provides a minimum standard for building design through the CBC, which is based on the IBC, but has been modified for conditions unique to California. The CBC is selectively adopted by local jurisdictions, based on local conditions. Relevant CBC sections include the following: Chapter 16 contains specific requirements for seismic safety; Chapter 18 regulates excavation, foundations, and retaining walls; Chapter 33 contains specific requirements pertaining to site demolition, excavation, and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials; Chapter 70 regulates grading activities, including drainage and erosion control; and Construction activities are subject to occupational safety standards for excavation, shoring, and trenching, as specified in CBC section A33 and California Division of Occupational Safety and Health regulations (Cal. Code Regs., tit. 8).
CA	Alquist-Priolo Earthquake Fault Zoning Act (Pub. Resources Code, §§ 2621-2630)	This Act requires that “sufficiently active” and “well-defined” earthquake fault zones be delineated by the State Geologist. The criteria most commonly used to estimate fault activity in California are described in this act, which addresses only surface fault-rupture hazards. Legislative guidelines to determine fault activity status are based on the age of the youngest geologic unit offset by the fault. This legislation prohibits the construction of buildings used for human occupancy on active and potentially active surface faults. However, only those potentially active faults that have a relatively high potential for ground rupture are identified as fault zones. Therefore, not all potentially active faults are zoned under the Alquist-Priolo Earthquake Fault Zone, as designated by the State of California.
CA	California Seismic Hazards Mapping Act (Pub. Resources Code, § 2690 and following as Division 2, Chapter 7.8)	These regulations were promulgated for the purpose of promoting public safety by protecting against the effects of strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes. Special Publication 117, <i>Guidelines for Evaluating and Mitigating Seismic Hazards in California</i> (California Division of Mines and Geology [CDMG] 1997), constitutes the guidelines for evaluating seismic hazards other than surface fault-rupture, and for recommending MMs as required by Public Resources Code section 2695, subdivision (a). To date the California Geological Survey (CGS) has not zoned offshore California under the Seismic Hazard Mapping Act.

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

CA	Public Resources Code, Division 6, Parts 1 and 2	The CSLC issues and administers oil and gas leases covering tide and submerged lands in accordance with Division 6, Parts 1 and 2 of the Public Resources Code and Title 2 of the California Code of Regulations. Relevant provisions of the Public Resources Code include the following: section 6829 includes provisions for specifying methods of operation and standard requirements for conducting operations properly; the prevention of waste, the protection of the safety and health of the workers; and the liability of the lessee for personal injuries and property damage; section 6829.2 includes provisions for the possible arresting or amelioration of land subsidence; and sections 6873.2 and 6873.5 include provisions for carrying out the requirements of CEQA.
CA	California Code of Regulations, Title 2	<p>The CSLC issues and administers oil and gas leases covering tide and submerged lands in accordance with Division 6, Parts 1 and 2 of the Public Resources Code and Title 2 of the California Code of Regulations. Relevant provisions of the California Code of Regulations include the following.</p> <p>Article 3.2 pertains to oil and gas drilling regulations.</p> <p>Article 3.3 pertains to oil and gas production operations on tide and submerged lands under the jurisdiction of CSLC, and is applicable to operations conducted from mobile rigs, fixed offshore structures and upland locations serving these leases. Provisions in this article include administrative prevention and elimination of any contamination or pollution of the ocean and tidelands, prevention of waste, for the protection of human health, regulations on wellhead equipment, subsurface safety valves, surface safety valves, remedial and well maintenance work, supervision and training, anomalous casing annulus pressure, subsurface injection, conversion of a well to fluid injection (requires prior approval of CSLC), waste disposal, pressure relief valves, personal protective equipment, and pipeline inspections.</p> <p>Article 3.4 pertains to oil and gas drilling and production to operations on State oil and gas leases located on State tide and submerged lands under the jurisdiction of the CSLC, and is applicable to operations conducted from mobile rigs, fixed offshore structures and upland locations serving these leases. The article includes provisions for administration, prohibitions of pollution and contamination, suspension of operations and corrective action, disposal of drill cuttings and drilling muds, oil spill contingency plan requirements, pollution control and removal equipment, critical operations and curtailment plans, and pollution reports to the USCG and State OES.</p> <p>Article 3.5, which pertains to disposal of royalty oil, gas, or other hydrocarbons, sets forth the procedures whereby the CSLC may enter into agreements for the disposition and sale of oil, gas, or other hydrocarbons.</p> <p>Article 3.6 (Cal. Code Regs., tit. 2, §§ 2170-2175) includes (1) requirements for operators to prepare an operations manual describing equipment and procedures which the operator employs or will employ to protect public health and safety and the environment, and (2) provisions for development and maintenance of emergency response plans that include natural disaster response planning.</p>
CA	Coastal Act Chapter 3 Policies (see also under Multiple Environmental Issues)	With respect to geological resources, Coastal Act section 30253 requires, in part, that: New development shall: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard; and (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. Section 30243 also states in part that the long-term productivity of soils and timberlands shall be protected.

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

4.2 SAFETY		
U.S.	Oil Pollution Act (OPA) of 1990	The OPA of 1990 includes provisions to expand prevention and preparedness activities, improve response capabilities, provide funding for natural resource damage assessments, ensure that shippers and oil companies pay the costs of spills that do occur, and establish an expanded research and development program. Pursuant to a Memorandum of Understanding (MOU) established to divide areas of responsibility, the USCG is responsible for tank vessels and marine terminals, the U.S. Environmental Protection Agency (EPA) for tank farms, and the Research and Special Programs Administration (RSPA) for pipelines; each of these agencies has developed regulations for its area of responsibility. In addition, the Secretary of Interior is responsible for spill prevention, oil-spill contingency plans, oil-spill containment and clean-up equipment, financial responsibility certification, and civil penalties for offshore facilities and associated pipelines in all Federal and State Waters. The U.S. Department of Homeland Security was designated by the USCG as the lead agency for offshore oil spill response, which includes responsibility for coordination of Federal responses to marine emergencies. All facilities and vessels that have the potential to release oil into navigable waters are required by the OPA to have up-to-date oil spill response plans and to have submitted them to the appropriate Federal agency for review and approval. Of particular importance in the OPA is the requirement for facilities and vessels to demonstrate that they have sufficient response equipment under contract to respond to and clean up a worst-case spill.
U.S.	Hazardous Liquid Pipeline Safety Act of 1979	Hazardous liquid pipelines are under the jurisdiction of the U.S. Department of Transportation (DOT). This Act includes requirements for accident reporting, design, and construction requirements, and prescribes minimum requirements for hydrostatic testing, compliance dates, test pressures, and duration; test medium; and records. It also specifies minimum requirements for operating and maintaining steel pipeline systems.
U.S.	40 CFR Parts 109, 110, 112, 113, and 114	The Spill Prevention Countermeasures and Control (SPCC) plans covered in these regulatory programs apply to oil storage and transportation facilities and terminals, tank farms, bulk plants, oil refineries, and production facilities, as well as bulk oil consumers (e.g., apartment houses, office buildings, schools, hospitals, government facilities). These regulations include minimum criteria for developing oil-removal contingency plans, prohibit discharge of oil such that applicable water quality standards would be violated, and address oil spill prevention and preparation of SPCC plans. They also establish financial liability limits and provide civil penalties for violations of the oil spill regulations.
CA	California Code of Regulations, Title 2, Division 3, Chapter 1	CSLC regulations contained in the California Code of Regulations, Title 2, Division 3, Chapter 1, Article 3 pertain to oil and gas leases, exploration permits, and operating requirements, as described below. Article 3.2 pertains to oil and gas drilling regulations. Article 3.3 pertains to oil and gas production operations on tide and submerged lands under the jurisdiction of CSLC, and is applicable to operations conducted from mobile rigs, fixed offshore structures and upland locations serving these leases. Provisions in this article include administrative prevention and elimination of any contamination or pollution of the ocean and tidelands, prevention of waste, for the protection of human health, regulations on wellhead equipment, subsurface safety valves, surface safety valves, remedial and well maintenance work, supervision and training, anomalous casing annulus pressure, subsurface injection, conversion of a well to fluid injection (requires prior approval of CSLC), waste disposal, pressure relief valves, personal protective equipment, and pipeline inspections. Article 3.4 pertains to oil and gas drilling and production to operations on State oil and gas leases located on State

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

		<p>tide and submerged lands under the jurisdiction of the CSLC, and is applicable to operations conducted from mobile rigs, fixed offshore structures and upland locations serving these leases. The article includes provisions for administration, prohibitions of pollution and contamination, suspension of operations and corrective action, disposal of drill cuttings and drilling muds, oil spill contingency plan requirements, pollution control and removal equipment, critical operations and curtailment plans, and pollution reports to the USCG and State OEM.</p> <p>Article 3.5, which pertains to disposal of royalty oil, gas, or other hydrocarbons, sets forth the procedures whereby the CSLC may enter into agreements for the disposition and sale of oil, gas, or other hydrocarbons.</p> <p>Article 3.6, which pertains to operation manual and emergency planning, includes requirements for operators to prepare an operations manual describing equipment and procedures which the operator employs or would employ to protect the public health and safety and the environment and to prevent oil spills.</p>
CA	California Public Resources Code, Division 6, Parts 1 and 2	<p>The CSLC issues and administers oil and gas leases covering tide and submerged lands in accordance with the provisions of Division 6, Parts 1 and 2 of the California Public Resources Code, including the following sections: Public Resources Code section 6829 includes provisions for specifying methods of operation and standard requirements for conducting operations properly; the prevention of waste, the protection of the safety and health of the workers; and the liability of the lessee for personal injuries and property damage; Section 6829.2 includes provisions for the possible arresting or amelioration of land subsidence; and Sections 6873.2 and 6873.5 include provisions for carrying out the requirements of CEQA.</p>
CA	Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (OSPRA; Gov. Code, § 8670.1 et seq., Pub. Resources Code, § 8750 et seq., and Rev. & Tax. Code, § 46001 et seq.)	<p>The OSPRA and its implementing regulations seek to protect State waters from oil pollution and to plan for the effective and immediate response, removal, abatement, and cleanup in the event of an oil spill. The Act requires applicable operators to prepare and implement marine oil spill contingency plans and to demonstrate financial responsibility, and requires immediate cleanup of spills, following the approved contingency plans, and fully mitigating impacts on wildlife. The Act assigns primary authority to the Office of Spill Prevention and Response (OSPR) division within the California Department of Fish and Wildlife (CDFW) to direct prevention, removal, abatement, response, containment, and cleanup efforts with regard to all aspects of any oil spill in the marine waters of the State; the CSLC is also provided with authority for oil spill prevention from and inspection of marine facilities. Notification is required to the Governor's State Office of Emergency Services (OES), which in turn notifies the response agencies, of all oil spills in the marine environment, regardless of size. The Act also created the Oil Spill Prevention and Administration Fund and the Oil Spill Response Trust Fund. Pipeline operators pay fees into the first of these funds for pipelines transporting oil into the State across, under, or through marine waters.</p>
CA	Coastal Act Chapter 3 Policies (see also under Multiple Environmental Issues)	<p>Section 30232 of the Coastal Act addresses hazardous materials spills and states that "Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur."</p>
CA	Elder California Pipeline Safety Act of 1981 (Gov. Code, § 51010-51018) &	<p>The California Pipeline Safety Act gives regulatory jurisdiction to the California State Fire Marshal (CSFM) for the safety of all intrastate hazardous liquid pipelines and all interstate pipelines used for the transportation of hazardous or highly volatile liquid substances. The law establishes the governing rules for interstate pipelines to be the Federal Hazardous Liquid Pipeline Safety Act and Federal pipeline safety regulations. Government Code sections 51010 through 51018 provide specific safety requirements that are more stringent than the Federal rules, including periodic</p>

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

	California Code of Regulations, Title 19, Public Safety	hydrostatic testing of pipelines, pipeline leak detection, and a requirement that all leaks be reported. Under California Code of Regulations, Title 19, Public Safety, the CSFM develops regulations relating to fire and life safety. These regulations have been prepared and adopted to establish minimum standards for the prevention of fire and for protection of life and property against fire, explosion, and panic. The CSFM also adopts and administers the regulations and standards considered necessary under the California Health and Safety Code to protect life and property, including California Health and Safety Code sections 13160 (Portable Fire Extinguishers) and 13195 (Automatic Fire Extinguishers Systems).
CA	Oil Pipeline Environmental Responsibility Act (Assembly Bill [AB] 1868)	This Act requires every pipeline corporation qualifying as a public utility and transporting crude oil in a public utility oil pipeline system to be held strictly liable for any damages incurred by “any injured party which arise out of, or caused by, the discharge or leaking of crude oil or any fraction thereof....” The law applies only to public utility pipelines for which construction would be completed after January 1, 1996, or that part of an existing utility pipeline that is being relocated after the above date and is more than 3 miles in length.
4.3 HAZARDOUS MATERIALS		
U.S.	Resource Conservation and Recovery Act (RCRA) (42 USC 6901 et seq.)	The RCRA authorizes the U.S. EPA to control hazardous waste from “cradle-to-grave,” which encompasses its generation, transportation, treatment, storage, and disposal. RCRA’s Federal Hazardous and Solid Waste Amendments from 1984 include waste minimization and phasing out land disposal of hazardous waste as well as corrective action for releases. The Department of Toxic Substances Control is the lead State agency for corrective action associated with RCRA facility investigations and remediation.
U.S.	California Toxics Rule (40 CFR 131)	In 2000, the U.S. EPA promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards provisions to be applied to waters in the State of California. U.S. EPA promulgated this rule based on the Administrator’s determination that the numeric criteria are necessary in the State of California to protect human health and the environment. (Under CWA section 303(c)(2)(B), the U.S. EPA requires states to adopt numeric water quality criteria for priority toxic pollutants for which the U.S. EPA has issued criteria guidance, and the presence or discharge of which could reasonably be expected to interfere with maintaining designated uses.) These criteria have been adopted by the State; together with State-adopted designated uses, they satisfy CWA requirements for the establishment of water quality standards for California inland surface waters, enclosed bays, and estuaries.
U.S.	National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR 300)	Authorized under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 USC 9605, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99 through 499; and by CWA section 311(d), as amended by the Oil Pollution Act of 1990 (OPA), Pub. L. 101 through 380. The NCP outlines requirements for responding to both oil spills and releases of hazardous substances. It specifies compliance, but does not require the preparation of a written plan. It also provides a comprehensive system for reporting, spill containment, and cleanup. The USCG and the U.S. EPA co-chair the National Response Team. In accordance with 40 CFR 300.175, the USCG has responsibility for oversight of regional response for oil spills in “coastal zones,” as described in 40 CFR 300.120.
U.S.	Toxic Substances Control Act (TSCA) (15 USC 2601–2692)	The TSCA authorizes the U.S. EPA to require reporting, record-keeping, testing requirements, and restrictions related to chemical substances and/or mixtures. It also addresses production, importation, use, and disposal of specific chemicals, such as polychlorinated biphenyls (PCBs), asbestos-containing materials, lead-based paint, and petroleum.

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

CA	NPDES Storm Water Permits Associated with Construction and Industrial Activities	The Central Coast RWQCB oversees on-site treatment of “California Designated, Non-Hazardous Waste” and enforces water quality thresholds and standards set forth in the Basin Plan. Venoco would be required to obtain a General Construction Activities Storm Water Permit under the NPDES program, and develop and implement a Storm Water Pollution Prevention Plan (SWPPP) that includes best management practices (BMPs) to control erosion, siltation, turbidity, and other contaminants associated with construction activities. The SWPPP would include BMPs to control or prevent the release of non-storm water discharges, such as crude oil, in storm water runoff. Additional information is provided in Section 4.5, Hydrology, Water Resources, and Water Quality.
CA	Other	California Health and Safety Code Regulations, Titles 22 and 26: regulates the management of hazardous materials - See above under Section 4.2, Safety Lempert-Keene-Seastrand Oil Spill Prevention and Response Act – See above under Section 4.2, Safety. Coastal Act section 30232 – See above under Section 4.2, Safety. California Seismic Hazards Mapping Act and Seismic Hazards Mapping – See above under Section 4.1, Geological Resources. Hazardous Waste Control Act (Cal. Code Regs., tit. 26) defines requirements for proper management of hazardous materials. Porter-Cologne Water Quality Control Act – See under Section 4.5, Hydrology, Water Resources, and Water Quality.
4.4 AIR QUALITY AND GREENHOUSE GASES		
U.S.	Federal Clean Air Act (FCAA) (42 USC 7401 et seq.)	The FCAA requires the U.S. EPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. National standards are established for ozone (O ₃), carbon monoxide (CO), nitrogen dioxide (NO ₂), sulfur dioxide (SO ₂), particulate matter (PM ₁₀ and PM _{2.5}), and lead (Pb). In 2007, the U.S. Supreme Court ruled that carbon dioxide (CO ₂) is an air pollutant as defined under the FCAA, and that the U.S. EPA has authority to regulate GHG emissions. Pursuant to the 1990 FCAA Amendments, U.S. EPA classifies air basins (or portions thereof) as in “attainment” or “nonattainment” for each criteria air pollutant, based on whether or not the NAAQS are achieved. The classification is determined by comparing monitoring data with State and Federal standards. An area is classified as in “attainment” for a pollutant if the pollutant concentration is lower than the standard. An area is classified as in “nonattainment” for a pollutant if the pollutant concentration exceeds the standard. An area is designated “unclassified” for a pollutant if there are not enough data available for comparisons.
CA	California Clean Air Act of 1988 (CCAA) (AB 2595)	The CCAA requires all air districts in the State to endeavor to achieve and maintain State ambient air quality standards for O ₃ , CO, SO ₂ , NO ₂ , and PM; attainment plans for areas that did not demonstrate attainment of State standards until after 1997 must specify emission reduction strategies and meet milestones to implement emission controls and achieve more healthful air quality. California's ambient air standards are generally stricter than national standards for the same pollutants; the State has also established standards for sulfates, hydrogen sulfide (H ₂ S), vinyl chloride, and visibility-reducing particles. CARB sets air quality standards for the State at levels to protect public health and welfare with an adequate margin of safety. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered in “attainment” if pollutant levels are continuously below or equal to the standards and violate the standards no more than once each year. The 1992 CCAA Amendments divide O ₃ nonattainment areas into four categories of pollutant levels (moderate, serious, severe, and extreme) to which progressively more stringent requirements apply.

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

CA	California Global Warming Solutions Act of 2006 (AB 32)	Under AB 32, CARB is responsible for monitoring and reducing GHG emissions in the State and for establishing a statewide GHG emissions cap for 2020 that is based on 1990 emissions levels. CARB (2009) has adopted the AB 32 Climate Change Scoping Plan (Scoping Plan), which contains the main strategies for California to implement to reduce CO ₂ equivalent (CO ₂ e) emissions by 169 million metric tons (MMT) from the State's projected 2020 emissions level of 596 MMT CO ₂ e under a business-as-usual scenario. The Scoping Plan breaks down the amount of GHG emissions reductions the CARB recommends for each emissions sector of the State's GHG inventory, but does not directly discuss GHG emissions generated by construction activities.
CA	Coastal Act Chapter 3 Policies (see also under Multiple Environmental Issues)	Coastal Act section 30253, subdivision (c) requires that new development shall be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development.
CA	Other	<p>Pursuant to SB 97, the State Office of Planning and Research prepared guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, which were adopted by the Natural Resources Agency in 2009 and became effective in March 2010. These amendments to the State CEQA Guidelines establish a framework to address global climate change impacts in the CEQA process, and include revisions to the CEQA Environmental Checklist Form (Appendix G of the Guidelines) and the Energy Conservation Appendix (Appendix F of the Guidelines). A new section was also added to the State CEQA Guidelines (§ 15064.4) that provides an approach to assessing impacts from GHGs.</p> <p>SB 375 (effective January 1, 2009) requires CARB to develop regional reduction targets for GHG emissions, and prompted the creation of regional land use and transportation plans to reduce emissions from passenger vehicle use throughout the State. The targets apply to the regions covered by California's 18 metropolitan planning organizations (MPOs). The 18 MPOs are required to develop regional land use and transportation plans and demonstrate an ability to attain the proposed reduction targets by 2020 and 2035.</p> <p>Executive Order S-01-07 set forth a low carbon fuel standard for California; the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.</p> <p>Executive Order S-3-05 established statewide GHG emission targets of reducing emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below the 1990 level by 2050.</p> <p>Under California's Diesel Fuel Regulations, diesel fuel used in motor vehicles, except harbor craft, has been limited to 500 parts per million (ppm) sulfur since 1993. The sulfur limit was reduced to 15 ppm beginning September 1, 2006, and harbor craft were included starting in 2009.</p> <p>CARB's Heavy Duty Diesel Truck Idling Rule (Cal. Code Regs., tit. 13, § 2485) prohibits heavy-duty diesel trucks from idling for longer than 5 minutes at a time. Truck idling for longer than 5 minutes while queuing is allowed, however, provided the queue is located beyond 100 feet (30 meters) from any homes or schools.</p> <p>The Statewide Portable Equipment Registration Program (PERP) establishes a uniform program to regulate portable engines/engine-driven equipment units. Once registered in the PERP, engines and equipment units may operate throughout California without the need to obtain individual permits from local air districts.</p>

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

4.5 HYDROLOGY, WATER RESOURCES, AND WATER QUALITY		
U.S.	Clean Water Act (CWA) (33 USC 1251 et seq.)	The CWA is a comprehensive piece of legislation that generally includes reference to the Federal Water Pollution Control Act of 1972, and its substantial supplementation by the CWA of 1977. Both Acts were subsequently amended in 1981, 1987, and 1993. Overall, the CWA seeks to protect the nation's water from pollution by setting water quality standards for surface water and by limiting the discharge of effluents into waters of the U.S. These water quality standards are promulgated by the U.S. EPA and enforced in California by the SWRCB and nine Regional Water Quality Control Boards (RWQCBs). The CWA also provides for development of municipal and industrial wastewater treatment standards and a permitting system to control wastewater discharges to surface waters. Under CWA section 404, the USACE has primary Federal responsibility for administering regulations that concern waters of the U.S. wetlands, which are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration that are sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
U.S.	National Pollutant Discharge Elimination System (NPDES)	The CWA also established the basic structure for regulating discharges of pollutants into the waters of the U.S. through the NPDES, which specifies minimum standards for the quality of discharged waters. It required states to establish standards specific to water bodies and designate the types of pollutants to be regulated, including total suspended solids and oil. Under NPDES, all point sources that discharge directly into waterways are required to obtain a permit regulating their discharge. NPDES permits fall under the jurisdiction of the SWRCB or RWQCBs when the discharge occurs within the 3 nautical mile territorial limit.
U.S.	Marine Protection, Research, and Sanctuary Act	In 1972, this Act established the National Marine Sanctuary Program, which is administered by the National Oceanic and Atmospheric Administration (NOAA). Channel Islands National Marine Sanctuary (CINMS) is located within the Project study area. The primary goal of establishing and maintaining National Marine Sanctuaries is the protection of the natural and cultural resources contained within their boundaries. Designated in 1980, the CINMS surrounds the four northern Channel Islands out to a distance of six nm. Sanctuary regulations prohibit exploring for, developing, and producing hydrocarbons within the CINMS, except pursuant to leases executed prior to March 30, 1981, and except the laying of pipeline, provided specified oil spill contingency equipment is available at the site of such operations. In 2003, regulations went into effect that restrict fishing and other extractive uses in 10 marine reserves and two conservation areas within the CINMS (CDFW 2001, CINMS 2001, and CDFW 2002).
U.S.	Rivers and Harbors Act (33 USC 401)	This Act governs specified activities in "navigable waters" (waters subject to the ebb and flow of the tide or that are presently used, have been used in the past, or may be susceptible for use to transport interstate or foreign commerce). Specifically, it limits the construction of structures and the discharge of fill into navigable waters of the U.S. Under section 10 of the Rivers and Harbors Act, the building of any wharf, pier, jetty, or other structure is prohibited without Congressional approval, and excavation or fill within navigable waters requires approval from the USACE.
U.S.	Other	Oil Pollution Act – See above under Section 4.2, Safety. The Marine Plastic Pollution Research and Control Act prohibits the discharge of plastic, garbage, and floating wood scraps within 3 nm of land. Beyond 3 nm, garbage must be ground to less than one inch, but discharge of plastic and floating wood scraps is still restricted. This Act requires manned offshore platforms, drilling rigs, and support vessels operating under a Federal oil and gas lease to develop waste management plans.

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

<p>CA</p>	<p>Porter-Cologne Water Quality Control Act (Cal. Water Code, § 13000 et seq.) (Porter-Cologne)</p>	<p>Porter-Cologne is the principal law governing water quality in California. The Act established the SWRCB and nine RWQCBs who have primary responsibility for protecting State water quality and the beneficial uses of State waters. Porter-Cologne also implements many provisions of the Federal CWA, such as the National Pollutant Discharge Elimination System (NPDES) permitting program. Pursuant to the CWA § 401, applicants for a Federal license or permit for activities that may result in any discharge to waters of the U. S. must seek a Water Quality Certification (Certification) from the State in which the discharge originates. Such Certification is based on a finding that the discharge will meet water quality standards and other appropriate requirements of State law. In California, RWQCBs issue or deny certification for discharges within their jurisdiction. The SWRCB has this responsibility where projects or activities affect waters in more than one RWQCB's jurisdiction. If the SWRCB or a RWQCB imposes a condition on its Certification, those conditions must be included in the Federal permit or license.</p> <p>Statewide Water Quality Control Plans include: individual RWQCB Basin Plans; the California Ocean Plan; the San Francisco Bay/Sacramento-San Joaquin Delta Estuary Water Quality Control Plan (Bay-Delta Plan); the Water Quality Control Plan for Enclosed Bays and Estuaries of California; and the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan). These Plans contain enforceable standards for the various waters they address. For example:</p> <p><u>Basin Plan.</u> Porter-Cologne (§ 13240) requires each RWQCB to formulate and adopt a Basin Plan for all areas within the Region. Each RWQCB must establish water quality objectives to ensure the reasonable protection of beneficial uses and a program of implementation for achieving water quality objectives within the basin plans. 40 CFR 131 requires each State to adopt water quality standards by designating water uses to be protected and adopting water quality criteria that protect the designated uses. In California, the beneficial uses and water quality objectives are the State's water quality standards.</p> <p>The <u>California Ocean Plan</u> establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the State's ocean and coastal waters. For example, the Ocean Plan incorporates the State water quality standards that apply to all NPDES permits for discharges to ocean waters.</p>
<p>CA</p>	<p>Other California Water Code sections</p>	<p>Section 13142.5 of the California Water Code provides marine water quality policies stating that wastewater discharges shall be treated to protect present and future beneficial uses, and, where feasible, to restore past beneficial uses of the receiving waters. The highest priority is given to improving or eliminating discharges that adversely affect wetlands, estuaries, and other biologically sensitive sites; areas important for water contact sports; areas that produce shellfish for human consumption; and ocean areas subject to massive waste discharge.</p> <p>Section 13170.2 of the California Water Code directs the SWRCB to formulate and adopt a water quality control plan for the ocean waters of California. The SWRCB first adopted this plan, known as the California Ocean Plan, in 1972. The California Water Code also requires a review of the plan at least every three years to ensure that current standards are adequate and are not allowing degradation to indigenous marine species or posing a threat to human health. The amendments to the Ocean Plan are reviewed and approved by the U.S. EPA under the CWA.</p> <p>The Ocean Plan establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the State's coastal waters. The plan applies to point and non-point sources. In addition, the Ocean Plan identifies applicable beneficial uses of marine waters and sets narrative and numerical water quality objectives to protect beneficial uses.</p>

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

CA	Coastal Act Chapter 3 Policies (see also under Multiple Environmental Issues)	Section 30231 states The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams. See also: Section 30233 (Diking, filling or dredging; continued movement of sediment and nutrients); and Section 30235 (Construction altering natural shoreline), which states in part ...Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.
4.6 MARINE BIOLOGICAL RESOURCES & 4.7 TERRESTRIAL BIOLOGICAL RESOURCES		
U.S.	Endangered Species Act (ESA) (7 USC 136, 16 USC 1531 et seq.)	The ESA, which is administered in California by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS), provides protection to species listed as threatened or endangered, or proposed for listing as threatened or endangered. Section 9 prohibits the “take” of any member of a listed species. <ul style="list-style-type: none"> • Take is defined as “...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” • Harass is “an intentional or negligent act or omission that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering.” • Harm is defined as “...significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.” When applicants are proposing projects with a Federal nexus that “may affect” a federally listed or proposed species, the Federal agency is required to consult with the USFWS or NMFS, as appropriate, under Section 7, which provides that each Federal agency must ensure that any actions authorized, funded, or carried out by the agency are not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of areas determined to be critical habitat.
U.S.	Magnuson-Stevens Fishery Conservation and Management Act (MSA) (16 USC 1801 et seq.)	The MSA is the primary law governing marine fisheries management in U.S. Federal waters. The MSA was first enacted in 1976 and amended in 1996. Amendments to the 1996 MSA require the identification of Essential Fish Habitat (EFH) for federally managed species and the implementation of measures to conserve and enhance this habitat. Any project requiring Federal authorization, such as a USACE permit, is required to complete and submit an EFH Assessment with the application and either show that no significant impacts to the essential habitat of managed species are expected or identify mitigations to reduce those impacts. Under the MSA, Congress defined EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (16 USC 1802(10)). The EFH provisions of the MSA offer resource managers a means to heighten consideration of fish habitat in resource management. Pursuant to section 305(b)(2), Federal agencies shall consult with the NMFS regarding any action they authorize, fund, or undertake that might adversely affect EFH.
U.S.	Marine Mammal Protection Act	The MMPA is designed to protect and conserve marine mammals and their habitats. It prohibits takes of all marine mammals in the U.S. (including territorial seas) with few exceptions. The NMFS may issue a take permit under

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

	(MMPA) (16 USC 1361 et seq.)	section 104 if the activities are consistent with the purposes of the MMPA and applicable regulations at 50 CFR, Part 216. The NMFS must also find that the manner of taking is “humane” as defined in the MMPA. If lethal taking of a marine mammal is requested, the applicant must demonstrate that using a non-lethal method is not feasible.
U.S.	Migratory Bird Treaty Act (MBTA) and Executive Order 13186	The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts and nest, and requires harvests to be limited to levels that prevent overuse. Further, the MBTA prohibits the take, possession, import, export, transport, selling, purchase, barter, or offering for sale, purchase, or barter, of any migratory bird, their eggs, parts, and nests, except as authorized under a valid permit (50 CFR 21.11).
U.S.	Fish and Wildlife Coordination Act of 1958	The Fish and Wildlife Coordination Act requires that whenever a body of water is proposed to be controlled or modified, the lead agency must consult the State and Federal agencies responsible for fish and wildlife management (e.g., USFWS, CDFW, and NOAA). This Act allows for recommendations addressing adverse impacts associated with a proposed project, and for mitigating or compensating for impacts on fish and wildlife.
U.S.	Protection of Wetlands (Executive Order 11990)	Under this EO each Federal agency must provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Each agency, to the extent permitted by law, must avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds: there is no practical alternative to such construction; the proposed action includes all practical measures to minimize harm to wetlands that may result from such use. In making this finding the head of the agency may take into account economic, environmental and other pertinent factors (Section 2(a)). Each agency must also provide opportunity for early public review of any plans or proposals for new construction in wetlands (Section 2(b)).
U.S.	Invasive Species (Executive Order 13112)	This EO addresses the prevention of the introduction of invasive species and provides for their control and minimization of the economic, ecological, and human health impacts the invasive species causes. The EO establishes the Invasive Species Council, which is responsible for the preparation and issuance of the National Invasive Species Management Plan, which details and recommends performance-oriented goals and objectives and specific measures of success for Federal Agencies.
CA	California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.)	The CESA provides for the protection of rare, threatened, and endangered plants and animals, as recognized by the CDFW, and prohibits the taking of such species without its authorization. Furthermore, the CESA provides protection for those species that are designated as candidates for threatened or endangered listings. Under the CESA, the CDFW has the responsibility for maintaining a list of threatened species and endangered species (Fish & G. Code, § 2070). The CDFW also maintains a list of candidate species, which are species that the CDFW has formally noticed as under review for addition to the threatened or endangered species lists. The CDFW also maintains lists of Species of Special Concern that serve as watch lists. Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present in the project site and determine whether the project will have a potentially significant impact on such species. In addition, the CDFW encourages informal consultation on any proposed project that may affect a candidate species. The CESA also requires a permit to take a State-listed species through incidental or otherwise lawful activities (§ 2081, subd. (b)).

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

CA	California Native Plant Protection Act (Fish & G. Code, § 1900 et seq.)	This Act is intended to preserve, protect, and enhance endangered or rare native plants in California. This Act includes provisions that prohibit the taking of listed rare or endangered plants from the wild and a salvage requirement for landowners. The Act directs the CDFW to establish criteria for determining what native plants are rare or endangered. Under section 1901, a species is endangered when its prospects for survival and reproduction are in immediate jeopardy from one or more causes. A species is rare when, although not threatened with immediate extinction, it is in such small numbers throughout its range that it may become endangered.
CA	Coastal Act Chapter 3 Policies (see also under Multiple Environmental Issues)	<p>Section 30231. "The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams."</p> <p>Section 30232. "Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur."</p> <p>Section 30233, which applies in part to development activities within or affecting wetlands and other sensitive areas among other requirements, identifies eight allowable uses, requires that the proposed project be the least environmentally damaging feasible alternative, and where applicable, requires feasible and appropriate mitigation.</p> <p>Section 30240 states: (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.</p>
CA	Other	<p>Lempert-Keene-Seastrand Oil Spill Prevention and Response Act – See above under Section 4.2, Safety.</p> <p>The California Species Preservation Act (Fish & G. Code, §§ 900-903) provides for the protection and enhancement of the amphibians, birds, fish, mammals, and reptiles of California.</p> <p>Fish and Game Code sections 3503 & 3503.5 prohibit the taking and possession of native birds' nests and eggs from all forms of needless take. These regulations also provide that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nests or eggs of any such bird except as otherwise provided by this Code or any regulation adopted pursuant thereto.</p> <p>Fish and Game Code sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), & 5515 (fish) designate certain species as "fully protected." Fully protected species, or parts thereof, may not be taken or possessed at any time without permission by the CDFW.</p> <p>Fish and Game Code section 3513 does not include statutory or regulatory mechanism for obtaining an incidental take permit for the loss of non-game, migratory birds.</p>

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

4.8 LAND USE, PLANNING, AND RECREATION		
See above under Multiple Environmental Issues for laws, regulations, and policies related to land use and planning.		
CA	Coastal Act Chapter 3 Policies (see also under Multiple Environmental Issues)	<p>Section 30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.</p> <p>Section 30221. Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.</p> <p>Section 30222. The use of private lands suitable for visitor-serving commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.</p> <p>Section 30223. Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.</p> <p>Section 30224. Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, by developing dry storage areas, increasing public launching facilities, providing additional berthing space in existing harbors, limiting non-water-dependent land uses that congest access corridors and preclude boating support facilities, providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.</p>
4.9 PUBLIC SERVICES		
U.S.	Code of Federal Regulations, Title 29	<ul style="list-style-type: none"> • Under 29 CFR 1910.38, whenever an Occupational Safety and Health Administration (OSHA) standard requires one, an employer must have an Emergency Action Plan that must be in writing, kept in the workplace, and available to employees for review. An employer with 10 or fewer employees may communicate the plan orally to employees. Minimum elements of an emergency action plan are: <ul style="list-style-type: none"> ○ Procedures for reporting a fire or other emergency; ○ Procedures for emergency evacuation, including type of evacuation and exit route assignments; ○ Procedures to be followed by employees who remain to operate critical plant operations before they evacuate; ○ Procedures to account for all employees after evacuation; ○ Procedures to be followed by employees performing rescue or medical duties; and ○ The name or job title of every employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan. • Under 29 CFR 1910.39, an employer must have a Fire Prevention Plan (FPP). A FPP must be in writing, be kept in the workplace, and be made available to employees for review; an employer with 10 or fewer employees may communicate the plan orally to employees. Minimum elements of a FPP are: <ul style="list-style-type: none"> ○ A list of all major fire hazards, proper hazardous material handling and storage procedures, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard; ○ Procedures to control accumulations of flammable and combustible waste materials; ○ Procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials;

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

		<ul style="list-style-type: none"> ○ The name or job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires; and ○ The name or job title of employees responsible for the control of fuel source hazards. ○ An employer must inform employees upon initial assignment to a job of the fire hazards to which they are exposed and must also review with each employee those parts of the FPP necessary for self-protection. <p>Under 29 CFR 1910.155, Subpart L, Fire Protection, employers are required to place and keep in proper working order fire safety equipment within facilities.</p>
CA	Other	See above under Section 4.2, Safety.
4.10 TRANSPORTATION AND CIRCULATION		
CA	Caltrans	Caltrans is responsible for the design, construction, maintenance, and operation of the California State Highway System and the portion of the Interstate Highway System within State boundaries. Chapter 2, Article 3 of the Vehicle Code defines the powers and duties of the California Highway Patrol, which has enforcement responsibilities for the vehicle operation and highway use in the State.
4.11 NOISE		
U.S.	Noise Control Act (42 USC 4910)	The Noise Control Act required the U.S. EPA to establish noise emission criteria, as well as noise testing methods (40 CFR Chapter 1, Subpart Q). These criteria generally apply to interstate rail carriers and to some types of construction and transportation equipment. The U.S. EPA published a guideline (U.S. EPA 1974) containing recommendations for acceptable noise level limits affecting residential land use of 55 dBA L_{dn} for outdoors and 45 dBA L_{dn} for indoors.
U.S.	Department of Housing and Urban Development Environmental Standards (24 CFR Part 51)	The Department of Housing and Urban Development Environmental Standards forth the following exterior noise standards for new home construction (for interior noise levels, a goal of 45 dBA is set forth and attenuation requirements are geared to achieve that goal): 65 L_{dn} or less – Acceptable 65 L_{dn} and < 75 L_{dn} – Normally unacceptable, appropriate sound attenuation measures must be provided > 75 L_{dn} – Unacceptable
U.S.	NTIS 550\9-74-004, 1974	In response to a Federal mandate, the U.S. EPA provided guidance in NTIS 550\9-74-004, 1974 (“Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety”), commonly referenced as the “Levels Document” that establishes an L_{dn} of 55 dBA as the requisite level, with an adequate margin of safety, for areas of outdoor uses including residences and recreation areas. The U.S. EPA recommendations contain a factor of safety and do not consider technical or economic feasibility (i.e., the document identifies safe levels of environmental noise exposure without consideration for achieving these levels or other potentially relevant considerations), and therefore should not be construed as standards or regulations.
CA	California Administrative Code, Title 4	The California Administrative Code, Title 4, which applies to airports operating under permit from the Caltrans Division of Aeronautics, defines a noise-impacted zone as any residential or other noise-sensitive use with CNEL 65 and above. The California Administrative Code, Title 2, establishes CNEL 45 as the maximum allowable indoor noise level resulting from exterior noise sources for multi-family residences.

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

CA	Land Use Compatibility Guidelines from the now defunct California Office of Noise Control	<p>State regulations for limiting population exposure to physically and/or psychologically significant noise levels include established guidelines and ordinances for roadway and aviation noise under Caltrans as well as the now defunct California Office of Noise Control. The California Office of Noise Control land use compatibility guidelines provided the following:</p> <p>An exterior noise level of 60 to 65 dBA Community Noise Equivalent Level (CNEL) is considered "normally acceptable" for residences.</p> <p>A noise level of 70 dBA CNEL is considered to be "conditionally acceptable" (i.e., the upper limit of "normally acceptable" noise levels for sensitive uses such as schools, libraries, hospitals, nursing homes, churches, parks, offices, and commercial/professional businesses).</p> <p>A noise level of greater than 75 dBA CNEL is considered "clearly unacceptable" for residences.</p>
4.12 AESTHETICS/VISUAL RESOURCES		
CA	Coastal Act Chapter 3 Policies (see also under Multiple Environmental Issues)	<p>The Coastal Act is concerned with protecting the public viewshed, including views from public areas, such as roads, beaches, coastal trails, and access ways. Section 30251 states: <i>Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of the surrounding area, and, where feasible, to restore and enhance visual quality in visually degraded areas.</i></p>
4.13 CULTURAL, HISTORICAL, AND PALEONTOLOGICAL RESOURCES		
U.S.	Archaeological and Historic Preservation Act (AHPA)	<p>The AHPA provides for the preservation of historical and archaeological data that might be irreparably lost or destroyed as a result of (1) flooding, the building of access roads, the erection of workmen's communities, the relocation of railroads and highways, and other alterations of terrain caused by the construction of a dam by an agency of the U.S. or by any private person or corporation holding a license issued by any such agency; or (2) any alteration of the terrain caused as a result of a Federal construction project or federally licensed project, activity, or program. This Act requires Federal agencies to notify the Secretary of the Interior when they find that any federally permitted activity or program may cause irreparable loss or destruction of significant scientific, prehistoric, historical, or archaeological data. The AHPA built upon the national policy, set out in the Historic Sites Act of 1935, "...to provide for the preservation of historic American sites, buildings, objects, and antiquities of national significance...."</p>
U.S.	Archaeological Resources Protection Act (ARPA)	<p>The ARPA states that archaeological resources on public or Indian lands are an accessible and irreplaceable part of the nation's heritage and:</p> <p>Establishes protection for archaeological resources to prevent loss and destruction due to uncontrolled excavations and pillaging;</p> <p>Encourages increased cooperation and exchange of information between government authorities, the professional archaeological community, and private individuals having collections of archaeological resources prior to the enactment of this Act;</p> <p>Establishes permit procedures to permit excavation or removal of archaeological resources (and associated activities) located on public or Indian land; and</p> <p>Defines excavation, removal, damage, or other alteration or defacing of archaeological resources as a "prohibited act" and provides for criminal and monetary rewards to be paid to individuals furnishing information leading to the</p>

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

		finding of a civil violation or conviction of a criminal violator. ARPA has both enforcement and permitting components. The enforcement provision provides for the imposition of both criminal and civil penalties against violators of the Act. The ARPA's permitting component allows for recovery of certain artifacts consistent with the standards and requirements of the NPS's Federal Archeology Program.
U.S.	National Historic Preservation Act (NHPA) (16 USC 470 et seq.)	This applies only to Federal undertakings. Archaeological resources are protected through the NHPA, as amended, and its implementing regulation, Protection of Historic Properties (36 CFR 800), the AHPA, and the ARPA. This Act presents a general policy of supporting and encouraging the preservation of prehistoric and historic resources for present and future generations by directing Federal agencies to assume responsibility for considering the historic resources in their activities. The State implements the NHPA through its statewide comprehensive cultural resource surveys and preservation programs coordinated by the California Office of Historic Preservation (OHP) in the State Department of Parks and Recreation, which also advises Federal agencies regarding potential effects on historic properties. The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State's jurisdictions. Under the NHPA, historic properties include "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places" (16 U.S.C. 470w [5]).
U.S.	Omnibus Public Land Management Act of 2009 - Public Law 111-11 (123 Stat. 991)	Public Law 111-011 at title VI, subtitle D lays out statutory requirements for Paleontological Resources Preservation (PRP). PRP provides definitions but requires the definition of some terms, and uses other terms and concepts that need further definition or details to clarify intent or enforcement. PRP identifies management requirements, collection requirements, curation requirements, need for both criminal and civil penalties, rewards and forfeiture, and the need for confidentiality of some significant resource locations. PRP at section 6310 also states that "As soon as practical after the date of enactment of this Act, the Secretary shall issue such regulations as are appropriate to carry out this subtitle, providing opportunities for public notice and comment."
CA	California Environmental Quality Act (CEQA) (see <i>Multiple Environmental Issues</i>)	As the CEQA lead agency, the CSLC is responsible for complying with all provisions of the CEQA and State CEQA Guidelines that relate to "historical resources." A historical resource includes: (1) a resource listed in, or eligible for listing in, the California Register of Historic Resources (CRHR); (2) a resource included in a local register of historical or identified as significant in an historical resource surveys; and (3) any resource that a lead agency determines to be historically significant for the purposes of CEQA, when supported by substantial evidence in light of the whole record. The CRHR was created to identify resources deemed worthy of preservation on a State level and was modeled closely after the National Register. The criteria, which are nearly identical to those of the National Register but focus on resources of statewide significance (see State CEQA Guidelines § 15064.5, subdivision (a)(3)), are defined as any resource that meets any of the following criteria: (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; (2) Is associated with lives of persons important in our past; (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or (4) Has yielded, or may be likely to yield, information important in prehistory or history. Properties listed, or formally designated as eligible for listing, on the National Register are automatically listed on the CRHR, as are certain State Landmarks and Points of Interest. A lead agency is not precluded from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1, subdivision (j), or 5024.1 (State

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

		CEQA Guidelines § 15064.5, subdivision (a)(4)).
CA	Coastal Act Chapter 3 Policies (see also under Multiple Environmental Issues)	Coastal Act Section 30244 states: Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required. (See also Coastal Act, under Multiple Environmental Issues)
CA	California Public Resources Code section 5097.5	Section 5097.5 of the California Public Resources Code prohibits excavation or removal of any “vertebrate paleontological site or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands.” Penal Code section 623 spells out regulations for the protection of caves, including their natural, cultural, and paleontological contents. It specifies that no “material” (including all or any part of any paleontological item) will be removed from any natural geologically formed cavity or cave.
CA	Health and Safety Code section 7050.5	This code states that if human remains are exposed during construction, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code section 5097.998. The Coroner has 24 hours to notify the Native American Heritage Commission (NAHC) if the remains are determined to be of Native American descent. The NAHC will contact most likely descendants, who may recommend how to proceed.
4.14 ENERGY AND MINERAL RESOURCES		
U.S.	CFR, Titles 10, 18, and 30	10 CFR addresses energy consumption and the establishment of the Department of Energy. 18 CFR addresses the Federal Energy Regulatory Commission (FERC). 30 CFR establishes the Bureau of Ocean Energy Management (BOEM, formerly the MMS), which manages energy resources in the Federal OCS.
CA	Surface Mining and Reclamation Act (SMARA) (Pub. Resources Code, §§ 2710-2796).	The California Department of Conservation is the primary agency with regard to mineral resource protection. The Department is charged with conserving earth resources (Pub. Resources Code, §§ 600-690) and has five program divisions: California Geological Survey; Division of Oil, Gas, and Geothermal Resources; Division of Land Resource Protection; State Mining and Geology Board (SMGB); and Office of Mine Reclamation. The SMGB develops policy direction regarding the development and conservation of mineral resources and reclamation of mined lands. In accordance with SMARA, the California Geological Survey classifies the regional significance of mineral resources and assists in the designation of lands containing significant aggregate resources. Mineral Resource Zones (MRZs) have been designated to indicate the significance of mineral deposits. The MRZ categories are: MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence. MRZ-2: Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence. MRZ-3: Areas containing mineral deposits the significance of which cannot be evaluated from available data. MRZ-4: Areas where available information is inadequate for assignment to any other MRZ.
CA	Coastal Act Chapter 3 Policies (see also under Multiple	Section 30254 states: New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane

Table 4.0-1 Major U.S. and State Laws, Regulations, and Policies Potentially Applicable to the Project (continued)

	Environmental Issues)	road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal-dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development. Section 30254.5 states in part: Notwithstanding any other provision of law, the commission may not impose any term or condition on the development of any sewage treatment plant which is applicable to any future development that the commission finds can be accommodated by that plant consistent with this division....
CA	Other	Public Resources Code section 6801 (Oil and Gas and Mineral Leases) Warren-Alquist Act, adopted in 1974 to encourage conservation of non-renewable energy resources.
4.15 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE		
U.S.	Executive Order 12898	On February 11, 1994, President Clinton issued an “Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” (Executive Order 12898). This Executive Order was designed to focus attention on environmental and human health conditions in areas of high minority populations and low-income communities, and promote non-discrimination in programs and projects substantially affecting human health and the environment (White House 1994). The Executive Order requires Federal agencies (as well as State agencies receiving Federal funds) to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.
CA	CSLC	The CSLC has developed and adopted an Environmental Justice Policy to ensure equity and fairness in its own processes and procedures. The CSLC adopted and amended the Environmental Justice Policy on October 1, 2002, to ensure consideration of environmental justice as part of CSLC processes, decisions, and programs. The policy stresses equitable treatment of all members of the public and commits to consider environmental justice in its processes, decision-making, and regulatory affairs. It is implemented, in part, through identification of, and communication with, relevant populations that could be adversely and disproportionately affected by CSLC projects or programs, and by ensuring that a range of reasonable alternatives is identified that would minimize or eliminate environmental issues affecting such populations. This discussion is provided in this document consistent with and in furtherance of the CSLC’s Environmental Justice Policy. The staff of the CSLC is required to report back to the Commission on how environmental justice is integrated into its programs, processes, and activities (CSLC 2002).

Abbreviations used in this table include (see also List of Abbreviations and Acronyms following the Table of Contents): AB = Assembly Bill; Caltrans = California Dept. of Transportation; CARB = California Air Resources Board; CCC = California Coastal Commission; CDFW = California Dept. of Fish and Wildlife; CDP = Coastal Development Permit; CEQA = California Environmental Quality Act; CFR = Code of Federal Regulations; CSLC = California State Lands Commission; CWA = Clean Water Act; CZMA = Coastal Zone Management Act; LCP = Local Coastal Program; MPA = Marine Protected Area; NMFS = National Marine Fisheries Service; NPS = National Park Service; RWQCB = Regional Water Quality Control Board; SB = Senate Bill; SWRCB = State Water Resources Control Board; USACE = U.S. Army Corps of Engineers; USC = U.S. Code; USCG = U.S. Coast Guard; U.S. EPA = U.S. Environmental Protection Agency; USFWS = U.S. Fish and Wildlife Service.

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1 **4.1 GEOLOGICAL RESOURCES**

2 This section of the Environmental Impact Report (EIR) discusses potential geological
3 issues that may be associated with the Project. Specifically, this section focuses on the
4 potential for structural instability of Project facilities given impacts on the Project from
5 (1) seismic hazards including earthquakes, faulting, surface rupture, ground shaking,
6 liquefaction, subsidence, and tsunamis, and (2) coastal processes including erosion,
7 scour, coastal bluff instability and landslides. In addition, this section includes a
8 summary of the existing geologic condition of the reservoir from which the State Oil and
9 Gas Lease PRC 421 (PRC 421) wells have historically extracted oil. The information
10 presented below outlines the environmental setting, regulatory setting, significance
11 criteria, the potential for impacts to the facilities from various geological events, and the
12 significance of these impacts. This section also presents projects identified in the
13 cumulative impacts analysis.

14 This analysis is based on a review of publicly available information on the soils,
15 stratigraphy, and geologic structures present in the study area vicinity. It does not
16 include design-level engineering geology or geotechnical investigations, subsurface
17 explorations, or any laboratory testing of any media, as these analyses are not required
18 by the California Environmental Quality Act (CEQA). This document incorporates by
19 reference the conclusions of the Line 96 Modification Project EIR (Santa Barbara
20 County 2011) regarding geological resources associated with operation of the Line 96
21 pipeline to the Plains All American Pipeline, L.P. (PAAPLP) Coastal Pipeline west of Las
22 Flores Canyon (LFC), and summarizes these where appropriate.

23 **4.1.1 Environmental Setting**

24 **Study Area Location and Description**

25 The primary Project study area comprises the immediate onshore and near-shore areas
26 of the Ellwood coast that would be subject to direct impacts from geologic and structural
27 hazards as a result of Project implementation. This area includes existing PRC 421
28 facilities, the access road, and the pipeline route along the access road, coastal bluff,
29 golf course easement, and tie-in at the Ellwood Onshore Facility (EOF). The secondary
30 Project study area includes the Gaviota Coast and is only discussed in environmental
31 issue areas where the potential exists for impacts that are different from those identified
32 in the certified Line 96 Modification Project EIR (refer to Section 4.1.4 below). In
33 addition, the environmental setting includes the current pressure regime of the
34 Vaqueros Reservoir, located in the Ellwood Oil Field, and a discussion of other wells
35 that historically produced from the same reservoir. Figure 4.1-1 shows a schematic
36 diagram of the Ellwood Oil Field in relation to other oil fields located along the coast in
37 the Project vicinity.

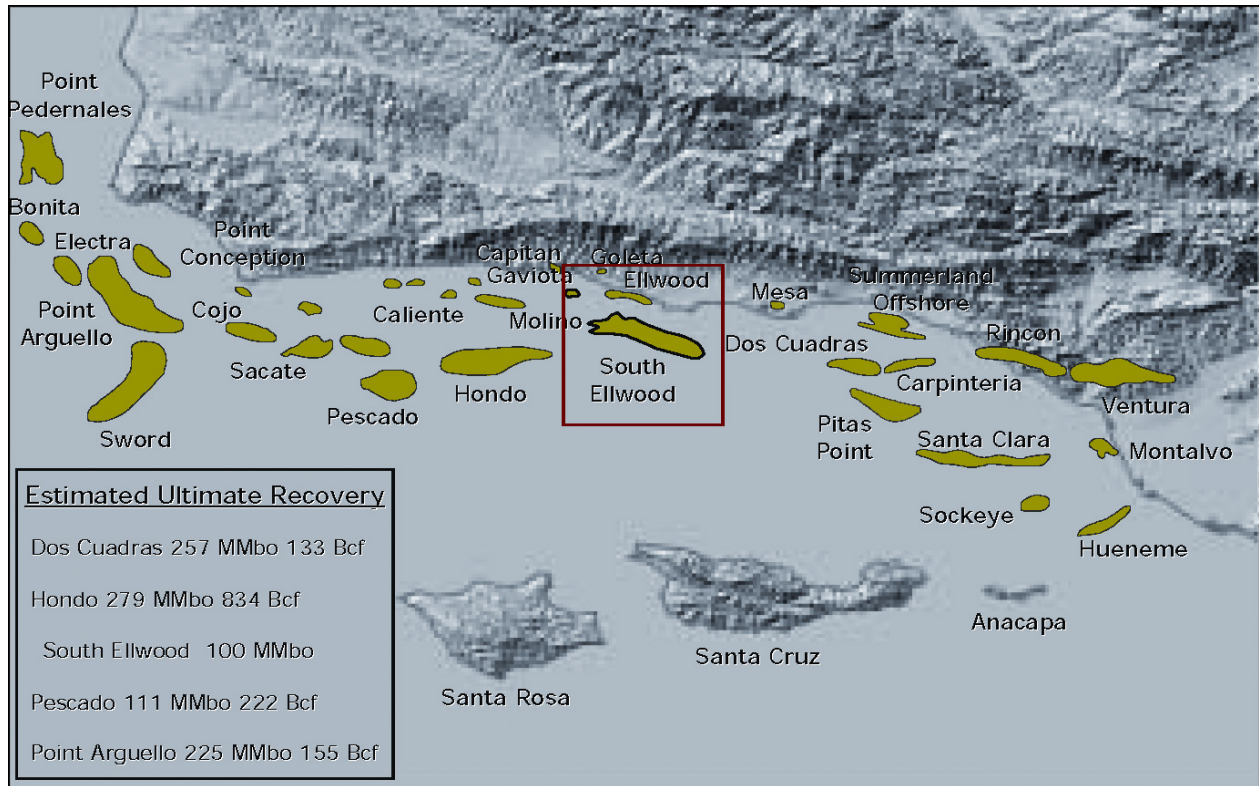


FIGURE 4.1-1. MAJOR OIL AND GAS FIELDS OF THE SANTA BARBARA CHANNEL

Source: From Venoco, Inc., presentation titled "Revitalizing South Ellwood Field, Offshore California" (West Coast Petroleum Technology Transfer Conference [PTTC] 2001).

1 Physiography

2 The PRC 421 piers are located beneath a coastal bluff that rises approximately 80 feet
 3 above mean sea level (msl). The existing access road intersects the bluff at its base
 4 (i.e., below 20 feet above msl) to the northwest of the piers near the EOF, and traverses
 5 the bluff nearly 20 feet above msl in the direction of the piers to the southeast. To the
 6 northeast, a north-south trending canyon is incised into the bluff where Bell Canyon
 7 Creek discharges into the ocean. Another small east-west trending gully exists along
 8 the bluff above the access road and piers. Accumulations of beach sand deposits exist
 9 at the base of the bluff in the surf zone (U.S. Geological Service [USGS] 1995).

10 The local physiography consists of a wave-cut platform with an associated sea cliff. The
 11 cliff marks the locations of older marine terraces which have been uplifted, and the
 12 beach marks the modern wave-cut platform. Bell Canyon Creek and the other incision
 13 along the sea cliff mark the locations of eroded gullies and/or fault scarps.

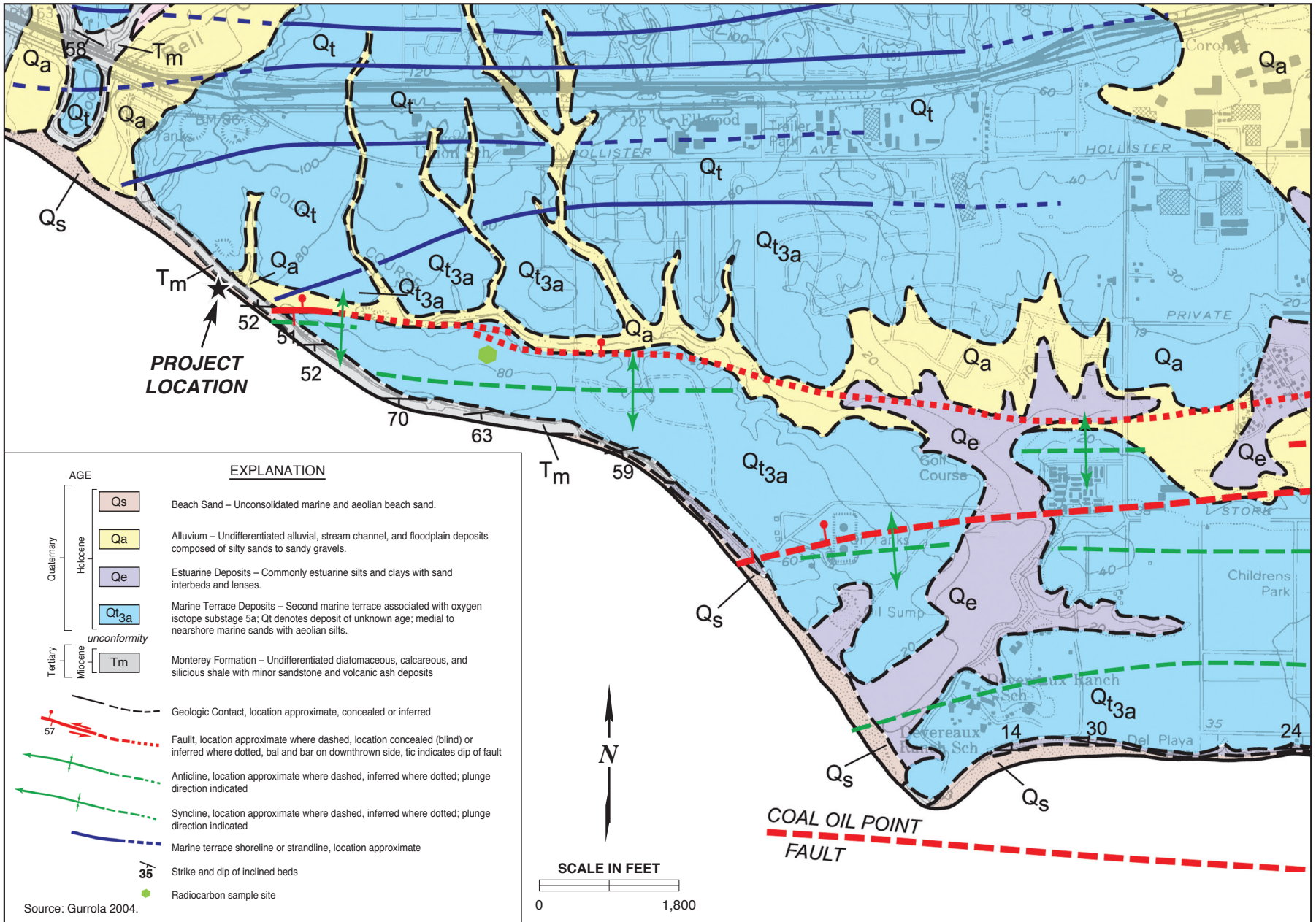
1 Stratigraphy

2 The geologic strata exposed onshore in the Project vicinity include (Gurrola 2004)
3 (Figure 4.1-2):

- 4 • *Quaternary Beach Sand* (Qs)—unconsolidated marine and wind transported
5 beach sand. This unit is exposed along the beach in the surf zone.
- 6 • *Quaternary Alluvium* (Qa)—undifferentiated alluvial, stream channel, and
7 floodplain deposits composed of silty sands to sandy gravels. This unit is
8 exposed along Bell Canyon Creek and an unnamed incision near the golf course.
- 9 • *Quaternary Marine Terrace Deposits* (Qt and Qt3a)—marine terrace deposits
10 composed of medial to near-shore marine sands and wind transported silts.
11 Based on Gurrola’s mapping, there is a sequence of marine terrace deposits.
12 There are also several ancient shorelines, as depicted in Figure 4.1-2 (shown as
13 blue lines), that trend generally east-west across the Project study area. The
14 typical thickness of these deposits is less than 100 feet (City of Goleta 2003).
- 15 • *Tertiary Monterey Formation* (Tm)—undifferentiated diatomaceous, calcareous, and
16 silicious shale with minor sandstone and volcanic ash deposits. This unit is
17 exposed along the coastal bluff beneath units Qt and Qt3a. The formation
18 averages approximately 1,000 feet in thickness, and is impregnated with tar.
19 Where exposed, Monterey Formation is usually white and stained with limonite,
20 and the weaker portions are easily eroded by both marine and non-marine
21 processes including wave action, wind erosion and erosion due to rainfall (City of
22 Goleta 2003). The stratigraphy of the offshore area along the continental shelf
23 generally consists of shale deposits overlying the Monterey Formation (PTTC
24 2001).

25 In addition to the units exposed at the surface, another unit, the *Tertiary Vaqueros*
26 *Formation* (Tvq), exists in the subsurface beneath the study area. This unit consists of
27 sandstone with siltstone and shale interbeds and is located approximately 3,000 feet
28 below the ground surface (City of Goleta 2003).

29 A combination of organic-rich rocks (i.e., containing oil and gas), such as those formed
30 in a marine environment, combined with folds and faults, allows for oil and gas to
31 become trapped in the subsurface. Within the Vaqueros Formation, an oil and gas
32 reservoir exists which has been folded and faulted. The Vaqueros is folded into two
33 anticlines. The oil and gas rises to and accumulates at the top of the axes (the top of the
34 center of the folds) of the anticlines. One of the axes of the anticlines (to the southeast –
35 referred to as the eastern high) is higher than the other (the western high), and this
36 corresponds to the location of the PRC 421 wells.



1 **Structure**

2 The Project is located in a tectonically active area. Folds consisting of anticlines
3 (concave down), and synclines (concave up) whose axes trend east-west are shown in
4 Figure 4.1-2 as green dashed lines. Thrust faults (i.e., reverse faults) also trend east-
5 west in the area, and the main faults consist of the More Ranch Fault Zone, Coal Oil
6 Point Fault, and Lavigia Fault (not exposed at the surface in the study area). The folding
7 and faulting in the study area are characteristic of compressional forces caused by
8 tectonic plates moving toward one another (Gurrola 2004).

9 A study was conducted on the More Ranch faults located just southeast of the Project
10 site, where one of the segments is exposed in the sea cliff at Ellwood Beach. The study
11 results show that the fault deforms the first emergent marine terrace, and is expressed
12 at the surface as a north-facing fold scarp approximately 5 meters high. Additionally, the
13 sea cliff exposure reveals the fault as a south-dipping reverse fault that offsets the
14 Miocene Monterey Formation and wave-cut platform. A channel fill whose upstream
15 reach is Devereux Creek is also exposed along the fold scarp in the sea cliff, and has
16 been truncated by coastal erosion (Keller and Gurrola 2000).

17 **Soils and Soil-Related Hazards**

18 Surface soils in the Project area are generally found at the top of the coastal bluff, and
19 were formed in alluvium derived from sedimentary rock. The soils are generally fine
20 sandy loams over dense, very low permeable clay subsoil. The depth to the clay subsoil
21 is approximately 30 inches. Below the bluff, no soils are formed due to active coastal
22 processes.

23 The soils in the Project vicinity consist of Goleta Loam with 0 to 2 percent slopes
24 (exposed at EOF and Bell Canyon Creek), Milpitas-Positas Fine Sandy Loams with 9 to
25 15 percent slopes and 30 to 50 percent slopes, eroded (exposed at EOF and Sandpiper
26 Golf Course), and Diablo Clay with 2 to 9 percent slopes and 9 to 15 percent slopes
27 (exposed southeast of the golf course). The Diablo series soils are well-drained, formed
28 in soft shale and mudstone, with slight to moderate erosion hazards. Goleta Loam is
29 formed on broad floodplains and the hazard of erosion is slight. Milpitas series soils
30 consist of moderately well-drained soils on terraces formed in mixed alluvial deposits,
31 runoff is rapid, and the erosion hazard potential is high (U.S. Department of Agriculture
32 [USDA] 1981). According to a map of compressible soils, none of the soils within the
33 Project study area are compressible (City of Goleta 2006a). However, the City of Goleta
34 (2003) indicated that some of the soil types present at the Project area (Diablo and
35 Milpitas) could have high expansion potential whereas Santa Barbara County has
36 classified the Project study area as having a low to moderate potential of having
37 problems associated with expansive soils (Moore and Taber 1979). Both of these
38 classifications are based on the fact that smectites (a clay mineral group) are present in

1 the study area soils. The origin, type, and stability of fill soils used to construct the
2 Project access road along the toe of the bluff are unknown.

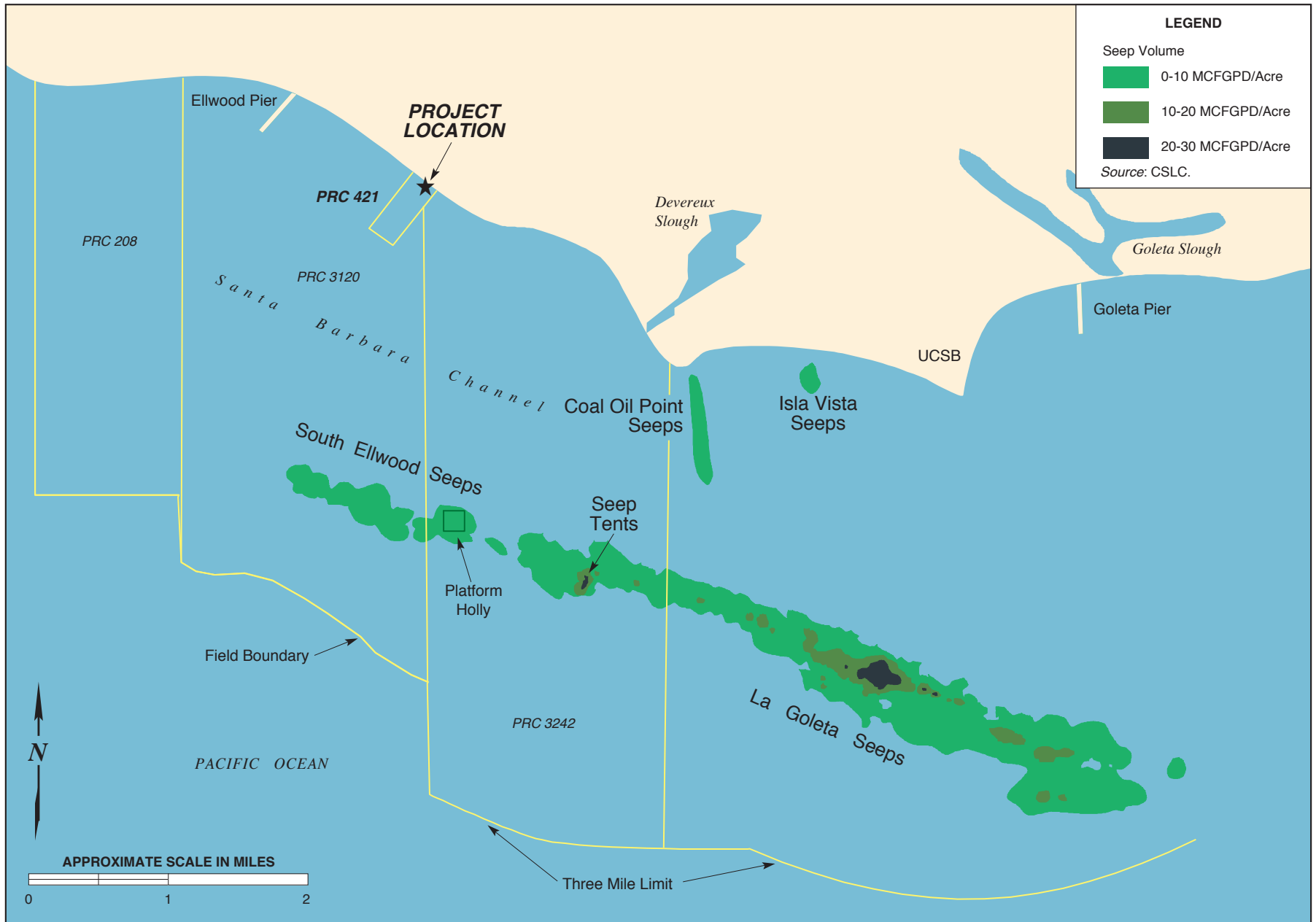
3 The presence of expansive soils does not by itself constitute a geologic hazard. The
4 hazard arises when clay minerals with expansive potential exist in an environment
5 where they are constantly subjected to periods of wetness and periods of dryness.
6 Buildings and structures developed in these areas can then be damaged due to
7 shrinking and swelling of the clay minerals in the soil beneath the foundations.

8 The study area includes both onshore and surf zone areas. The structures located in
9 the surf zone (i.e., piers and causeways) are in a constant state of saturation; therefore,
10 the risk of damage to the foundations of the piers and causeways caused by expansive
11 soils is minimal, as these soils would not be expected to undergo wetting and drying
12 periods. The onshore areas of the Project located above the high water line could
13 undergo wetting and drying periods, and could include expansive soils.

14 **Natural Oil Seeps**

15 Prolific natural marine hydrocarbon seepage in the Project vicinity occurs offshore in the
16 Santa Barbara Channel (Figure 4.1-3) (University of California Santa Barbara [UCSB]
17 2006; Quigley et al. 1999a; Hornafius et al. 1999). Natural oil and gas have been
18 released from submarine seeps in the Channel for thousands of years. The seeps emit
19 both liquid and gaseous hydrocarbon phases, with gas predominating. The most active
20 gas seeps form visible boils where they intersect the sea surface. Based on the
21 mapping of the seep locations and comparison with other data, the oil and gas are
22 thought to migrate upward through the overlying cap rock (Sisquoc Formation) along
23 fractures on the axis of the South Ellwood anticline and the Coal Oil Point fold complex.
24 The seep locations follow linear trends that mirror the axes of the folds, suggesting that
25 the release of oil and gas along seeps in the Channel is controlled by geologic structure
26 (Bartsch et al. 1999). Seepage is most intense at submarine fault conduits and at
27 structural closures along anticline axes (Quigley et al. 1999a; Hornafius et al. 1999).

28 Evidence of the natural oil seeps can be directly observed on the beach at the study
29 area. Black tar ball deposits exist and are mixed in with the sand on the beach. Because
30 the natural oil seeps originate offshore, the source of the seeps is not the Vaqueros
31 Formation, the reservoir for the PRC 421 wells. This conclusion is supported by multiple
32 lines of study including seep location, seep discharge, variations of seep emissions
33 through time, and by geochemical analyses performed on oil samples from offshore
34 platforms and beach tar balls. Based on the laboratory analysis, the beach tar ball
35 geochemistry is most similar to oil samples collected from Platform Holly, which
36 produces from the Monterey Formation (Lorenson et al. 2004). Therefore, the tar balls
37 are considered to originate offshore, from where they travel onshore via wave action
38 and other coastal processes.



1 **Faulting and Seismicity**

2 *Regional Seismicity*

3 The Santa Barbara/Goleta area is located in the Western Transverse Ranges, which is
4 a seismically active region of Southern California. The North Branch of the More Ranch
5 Fault trends roughly east-west to northwest-southeast less than 0.25 mile south of the
6 Project study area (Gurrola 2004). The Santa Barbara County General Plan Safety
7 Element classifies the More Ranch Fault Zone as *active*, which the California Geological
8 Survey (CGS), formerly the California Division of Mines and Geology (CDMG), defines
9 as those along which movement has occurred within the last 11,000 years. *Potentially*
10 *active* faults have displayed evidence of movement during the past 1.6 million years.
11 *Inactive* faults demonstrate no evidence of movement in the same timeframe (CDMG
12 1994). However, the More Ranch Fault Zone has not been zoned as *active* by the State
13 of California (Jennings 1994; CDMG 1999), or through the creation of an Alquist-Priolo
14 special studies zone (City of Goleta 2003). The North Branch of the More Ranch Fault
15 has deformed a 45,000-year old marine terrace deposit, and is therefore considered
16 *potentially active* (Gurrola 2004).

17 The reverse Lavigia Fault is located beneath the Project area, but is buried in the
18 Project vicinity. This fault is believed to act as a trap for oil and gas in the Vaqueros
19 Reservoir at depth and is classified as *potentially active* (Keller and Gurrola 2000).

20 Ground motion in the Project vicinity is generally the result of sudden movements of
21 large blocks of the earth's crust along *active* faults, which result in an earthquake.
22 Southern California is recognized as one of the most seismically active areas in the U.S.
23 having been subjected to over 50 major earthquakes of magnitude 6 or greater since
24 1796. Earthquakes of magnitude 7.8 or greater occur at the rate of about two or three
25 per 1,000 years, corresponding to a 6 to 9 percent probability in 30 years.

26 The Santa Barbara/Goleta area has experienced numerous seismic events over the last
27 two centuries, including a few historic large-scale (magnitude greater than 6.0) events,
28 such as the 1812 earthquake, which had a probable Richter magnitude of 7.1
29 (Topozada et al. 1981) and likely occurred either offshore, on the San Cayetano Fault
30 to the east (Dolan and Rockwell 2001), or on the Santa Ynez River Fault to the
31 northwest (Santa Barbara County 2004; UCSB 2004; Sylvester and Darrow 1979).
32 Other destructive earthquakes struck the Santa Barbara/Goleta area in 1857 (San
33 Andreas Fault, magnitude 8.4), in 1925 (Santa Barbara vicinity, possibly the More
34 Ranch or Mesa Fault, magnitude 6.3), in 1927 (offshore Point Arguello, magnitude 7.3),
35 and in 1978 (offshore North Channel Fault, magnitude 5.9). A magnitude 4.4
36 earthquake was centered near the Project site in Isla Vista in 2004 (USGS 2004).

37 Movement along active and potentially active faults, either onshore or offshore near the
38 Project area, including the San Andreas Fault, Santa Ynez/Santa Ynez River Fault

1 Zone, More Ranch Fault Zone, Lavigia Fault, and several others could induce seismic
2 shaking. The Project location is classified as an area where shaking from earthquakes
3 will occur 1 to 2 times per century, and those events will exceed 20 percent of the force
4 of gravity. At this level, significant damage to older buildings is expected to result
5 (Southern California Earthquake Center [SCEC] 1995).

6 Additional geologic hazards associated with seismicity include surface rupture,
7 liquefaction, subsidence, and tsunamis. These hazards which also have the potential to
8 affect the Project are described in detail below.

9 *Surface Rupture and Other Types of Seismic Ground Failure*

10 Surface ruptures comprise the displacement and cracking of the ground surface along a
11 fault trace. Surface ruptures are visible instances of horizontal or vertical displacement,
12 or a combination of the two, typically confined to a narrow zone along the fault.
13 Developments near the More Ranch faults, which would include the Project, would have
14 the most significant potential to be affected by surface rupture (City of Goleta 2003).

15 Differential settlement is a process whereby soils settle non-uniformly, potentially
16 resulting in stress and damage to pipelines or other overlying structures. Such
17 movement can occur in the absence of seismically induced ground failure, due to
18 improper grading and soil compaction or discontinuity of naturally occurring soils;
19 however, strong ground shaking often greatly exacerbates soil conditions already prone
20 to differential settlement, resulting in distress to overlying structures. Elongated
21 structures, such as pipelines, are especially prone to damage as a result of differential
22 settlement.

23 Lateral spreading is a type of seismically induced ground failure that occurs when
24 cracks and fissures form on an unsupported slope, resulting in lateral propagation and
25 failure of slope material in a downslope direction. This type of failure is common in
26 unconsolidated river or stream bank deposits, where lateral stream scour creates
27 oversteepened banks in unconsolidated silts and sands.

28 *Liquefaction*

29 Liquefaction is a form of earthquake-induced ground failure that occurs primarily in
30 relatively shallow, loose, granular, water-saturated soils. Liquefaction is defined as the
31 transformation of a granular material from a solid state into a liquefied state as a
32 consequence of increased pore pressure, which results in the loss of grain-to-grain
33 contact. Unconsolidated silts, sands, and silty sands are most susceptible to
34 liquefaction. While almost any saturated granular soil can develop increased pore water
35 pressures when shaken, these excess pore water pressures can lead to liquefaction if
36 the intensity and duration of earthquake shaking are great enough. During recent large
37 earthquakes where liquefaction occurred, structures that appeared to be most

1 vulnerable to liquefaction included buildings with shallow foundations, railways, buried
2 structures, retaining walls, port structures, utility poles, and towers.

3 Santa Barbara County identifies the Project study area as having moderate liquefaction
4 hazard (Moore and Taber 1979). According to the City of Goleta, there is no historical
5 evidence of structures being damaged by liquefaction in the city or adjacent
6 unincorporated portions of Santa Barbara County (City of Goleta 2003). However, areas
7 of beach sand could have a high liquefaction potential, due to unconsolidated sand
8 layers below the water table at shallow depths. During ground shaking, loose saturated
9 soils and beach sands can undergo liquefaction, and differential settlement of buildings
10 and structures can occur. In addition, as noted above, the types of soils used in
11 construction of the Project access road are unknown. Portions of this access road
12 appear to be saturated due to inflow from springs in the bluff which may increase the
13 potential for liquefaction of these fill soils of unknown origin.

14 *Subsidence*

15 Subsidence is a type of ground failure, defined as settlement or compression of
16 subsurface soils following the loss of interstitial materials such as water or gas.
17 Subsidence can also result from wetting of collapsible soils, typically loose deposits of
18 silt or sand. Subsidence can occur over a broad region or in localized areas, and can
19 occur gradually over time or as a sudden collapse. The loss of interstitial material can
20 result from shaking of the soil mass during an earthquake, or it can result from other
21 non-seismic factors such as the extraction of oil and gas reserves. Because the
22 Vaqueros Reservoir is thought to naturally repressurize due to influx of groundwater into
23 the reservoir rock, subsidence is not expected to occur in the study area as a result of
24 the Project.

25 *Tsunamis*

26 Tsunamis are large ocean waves generated by large-scale, short duration submarine
27 earthquakes, volcanic activity, and submarine landslides. A seismic event on any
28 moderate offshore fault could result in a tsunami in the Project vicinity. A major
29 earthquake that occurred off the coast of Point Arguello in 1927 initiated a tsunami,
30 which was recorded on tsunami gages as far away as Hawaii and reached heights of 6
31 feet above msl along the coast. Another historical tsunami may have resulted from an
32 1812 earthquake that was generated along a fault in the Santa Barbara Channel (Keller
33 and Gurrola 2000). Tsunamis affecting the Project area can also be generated by
34 distant earthquakes, such as the one that occurred in March 2011 in Japan. A
35 significant tsunami in the area could affect areas as high as 40 feet above msl; areas
36 most susceptible to the effects of a tsunami would be along the oceanfront (Santa
37 Barbara County 2001).

1 The stream discharge area of Bell Canyon Creek and the beach area to the southeast
2 of the Project site are designated as potential tsunami runup areas. The runup area was
3 calculated by the University of Southern California using a tsunami model and potential
4 earthquake sources. The calculated runup area of Bell Canyon Creek includes the area
5 occupied by the EOF (City of Goleta 2006a).

6 **Coastal Process Hazards**

7 *Erosion and Scour*

8 Erosion of exposed soils and rocks along the coastal bluff, and in gullies and creeks,
9 naturally occurs as a result of physical weathering and ongoing coastal processes.
10 Active erosion caused by water and wind action is evident along the sea cliff where
11 outcrops expose old filled channels and fault planes (Keller and Gurrola 2000). Scour
12 can be considered an aggressive form of water erosion where soil or sediment particles
13 are removed from gullies, creeks, and the sea cliff exposed to wave action. Erosion and
14 scour, while ongoing and naturally occurring in a beach environment, can be affected by
15 human-induced changes including changes to topography, addition of structures, roads,
16 and artificial fill, or other disturbances to the existing natural setting. In areas of
17 increased erosion, deeper incision of gullies and creeks can occur, which causes
18 accumulation of sediments downstream where slopes are less steep and sediments can
19 settle out of the water column. In areas of increased scour, a net increase in removal of
20 mass including soil, sediment (beach sand), and bedrock can occur.

21 The Project is located within the active wave-cut platform along the coast of the Pacific
22 Ocean. Historical wave-cut platforms and ancient shorelines exist at the top of the
23 coastal bluff, and are marked by emergent marine terraces. The terrace deposits record
24 a geologic history of ongoing coastal erosion processes that have created the sequence
25 of marine terraces. Accumulation and removal of soil (or beach sand) are transient
26 features, and in a wave-cut platform environment, there is an overall net removal of soil,
27 rock, and beach sand. This area has been continually eroded and scoured through time
28 as waves have cut into the existing soil and rock to form the wave-cut platform and
29 coastal bluff. This continual cutting into the sea cliff by waves will continue to erode the
30 coastal bluff over time. This process would be expected to continue for the foreseeable
31 future (on the order of thousands of years).

32 The southwest-facing shoreline of the beach in the Project area is subject to direct wave
33 energy which causes off-shore migration of sediments. Sediment removal is greatest in
34 the winter when wave action increases in response to tidal variation (see Section 4.5,
35 Hydrology, Water Resources and Water Quality). Beach width ranges from 35 meters to
36 90 meters and is subject to seasonal variation and long-term weather patterns including
37 El Niño and the Pacific Decadal Oscillation. A 65-year study of beach width (1938–
38 2003) in the Project area found that beach width was the lowest during 1983 and 1998,

1 following El Niño events (Revell and Griggs 2003). The maximum beach width was
2 observed in 2001 and 2003. The seasonal change in beach width also exposes the pier
3 structures and tops of the caissons to greater level of wave action during winter months.

4 As mentioned previously, the soils in the Project vicinity are classified as having
5 moderate to high erosion potentials. Because these soils are formed on the terraces at
6 the top of the bluff and along Bell Canyon Creek, there is a potential for these soils to
7 erode. Erosion of the terrace soils could result in downstream sedimentation at the
8 mouth of Bell Canyon on the beach. Any eroded soil or sediment particles from the
9 discharge area at Bell Canyon Creek are likely transported away by wave action and
10 scour processes.

11 As noted in Section 2.1.1, Project History, Venoco made several repairs to PRC 421
12 structures in 2001, including to the existing access road between the two PRC 421 piers
13 which was severely eroded. During the initial repair project, approximately 200 tons of
14 rip-rap rock was placed within the gaps of the existing beachside mixed timber and rock
15 revetment to allow for vehicle access to the piers. This repair included only
16 reinforcement of the existing revetment, and did not include seaward encroachment.
17 The access road also was graded, compacted, and topped with at least 3 inches of road
18 base gravel. Float rock was installed beneath the road base in areas where poor
19 subsurface drainage had been observed.

20 In 2004, additional repair was needed when a large section of the original outer caisson
21 wall of Pier 421-1 sheared off during a storm. According to the 2006 Mitigated Negative
22 Declaration (MND), the damage resulted from increased wave action on the structure
23 (City of Goleta 2006b).

24 In September 2010, CSLC inspectors noted that significant new damage to Pier 421-2
25 had occurred during the previous year and the lower portion of the original caisson wall
26 at the southwest corner was fully exposed to storms and ocean waves. Emergency
27 permits for repair of the caisson wall were issued by the City of Goleta (10-120-EMP),
28 California Coastal Commission (CCC) (E-10-013-G), and U.S. Army Corps of Engineers
29 (USACE) (2010-959-JWM), and repairs were completed in July 2011.

30 *Coastal Bluff Instability and Landslides*

31 Because the Project study area includes a coastal bluff, the potential exists for slope
32 failure and landslides to impact the Project. The stability of slopes is affected by a
33 number of factors including gravity, rock and soil type, amount of water present, and
34 amount of vegetation present. The Santa Barbara County Seismic and Safety Element
35 and the City of Goleta General Plan/ Coastal Land Use Plan (GP/CLUP) Safety Element
36 have classified the Project area as having a high potential for slope instability (Moore
37 and Taber 1979; City of Goleta 2006).

1 Failure of the bank below the access road during the winter of 2000/2001 occurred in
2 areas where previously buried pipelines were exposed beneath the access road. During
3 the road repair project, some of the pipelines were removed and the bank failure areas
4 were back-filled. In addition, a French drain and wooden dam were installed to divert
5 water flow around the perimeter of the Pier 421-2 approach area and to relieve
6 hydraulic pressure on the access road. The diverted water is directed onto the beach.

7 Previous measures to prevent slope undercutting and destabilization included
8 placement of a 12-foot-wide limit to the access road repairs, minimizing cut and fill
9 volumes during access road repairs, and best management practices (BMPs) designed
10 to prevent additional soil erosion during the road repair activities. It appears that the
11 temporary vibrations generated during pile driving in 2001 did not result in further
12 destabilization of the road or slope.

13 During the well repair projects in 2001 and 2004, issues with a broken sprinkler head
14 and a damaged water line occurred in association with the golf course at the top of the
15 sea cliff. These issues caused saturation of soil in some areas of the slope and access
16 road. Saturation of the soil in the slope can contribute to slope failure and landslides.

17 **4.1.2 Regulatory Setting**

18 Many Federal and State laws and regulations govern security of oil and gas production
19 and transport facilities, and emergency response/contingency planning. These laws
20 address, among other things, design and construction standards, operational standards,
21 and spill prevention and cleanup. The primary Federal and State laws, regulations, and
22 policies that pertain to the Project are summarized in Table 4.0-1, while local laws,
23 regulations, and policies are summarized below.

24 **Local**

25 *City of Goleta General Plan, Coastal Land Use Plan, and Ordinances*

26 Development in the city is subject to and must conform with the city's GP/CLUP and
27 unified zoning code, both of which include regulations applicable to inland and coastal
28 areas, and Venoco would need to obtain all applicable permits with the City for
29 construction of Project components. Because the City's GP/CLUP has not yet been
30 certified by the CCC, Venoco would also need to obtain a Coastal Development Permit
31 (CDP) from the CCC.

32 *Santa Barbara County Fire Department (SBCFD)*

33 The SBCFD is the Certified Unified Program Agency (CUPA), a consolidation of six
34 state environmental regulatory programs under one authority, responsible for
35 administering state environmental programs in Santa Barbara County. The SBCFD Fire

1 Prevention Division (FPD) Site Mitigation Unit coordinates with the Regional Water
2 Quality Control Board (RWQCB) for sites involving both groundwater and solvent
3 contamination and provides regulatory oversight for the assessment and remediation of
4 all unauthorized material releases other than petroleum releases from underground
5 storage tanks and crude oil releases.

6 *System Safety and Reliability Review Committee (SSRRC) and Safety Inspection,*
7 *Maintenance and Quality Assurance Plan (SIMQAP)*

8 The Santa Barbara County Board of Supervisors originally established the SSRRC—a
9 committee of County departments plus the Santa Barbara County Air Pollution Control
10 District (APCD)—in 1985 to identify and require correction of possible design and
11 operational hazards for oil and gas projects prior to construction and startup of the
12 project and for project modifications. The goal of the SSRRC is to substantially reduce
13 the risks of project-related hazards that may result in loss of life and injury and damage
14 to property and the natural environment. The SSRRC has delegated authority to review
15 the technical design of facilities, as well as to review and approve the SIMQAP. The
16 purpose and scope of the SIMQAP is to identify procedures that will be used during the
17 operation of a facility and to insure that all equipment will function as designed. The
18 SIMQAP identifies items to be inspected, maintained or tested, defines the procedure
19 for such inspection, maintenance, or testing, and establishes the frequency of
20 inspection, maintenance or testing. SIMQAP audits are conducted on facilities to ensure
21 compliance, and are conducted annually at the EOF. For some projects, the City of
22 Goleta contracts with the County Energy Division for energy related planning services,
23 which includes SSRRC project review; however, the County Energy Division is not
24 currently providing energy planning services for the PRC 421 Project.

25 **4.1.3 Significance Criteria**

26 Impacts are considered significant if any of the following conditions apply:

- 27 • Ground motion due to a seismic event that could include surface rupture,
28 liquefaction, subsidence, landslides or tsunami and damage to structural
29 components;
- 30 • Substantial soil erosion or the loss of topsoil;
- 31 • Unstable soils which result from Project implementation and cause landslide, slope
32 failure, lateral spreading, subsidence, liquefaction or collapse;
- 33 • Damage of structural components as a result of soil expansion;
- 34 • Soil settling that could substantially damage structural components of the wells;
- 35 • Deterioration of structural components of PRC 421 due to corrosion, weathering,
36 fatigue, or erosion that could reduce structural stability;

- 1 • Damage to petroleum pipelines and/or valves along the pipelines from any of the
- 2 above conditions that could release crude oil into the environment; or
- 3 • Erosion-induced siltation of nearby waterways as a result of ground disturbing
- 4 activities.

5 **4.1.4 Impact Analysis and Mitigation**

6 The Project was evaluated to identify potential geologic hazards that could result in
7 impacts to people or structures over the Project's production horizon. A qualitative
8 evaluation of potential Project impacts was conducted based on the site-specific
9 information described in Section 4.1.1, Environmental Setting.

10 Project-related geologic impacts would be confined primarily to the Project study area
11 and would be associated with seismic hazards; seismically induced hazards including
12 earthquakes, ground shaking, slope failure and landslides, and tsunamis; and coastal-
13 process-related hazards including erosion and coastal bluff instability. Potential geologic
14 impacts associated with the Line 96 pipeline (e.g., seismically related potential for
15 pipeline rupture) within the secondary study area were fully addressed and considered
16 as part of the certified Line 96 Modification Project EIR (Santa Barbara County 2011)
17 and are incorporated by reference.

18 As Pier 421-1 would be decommissioned upon operation of the Project and all related
19 infrastructure would be removed, it would be exposed to potential geologic impacts only
20 during the initial operating phases of Pier 421-1 (e.g., 1 year) and potential impacts are
21 considered in this context. In general, given the limited time that Pier 421-1 would
22 remain in place and the lack of any active oil production activity at this pier and caisson,
23 geologic impacts would be less than significant. Project implementation is not
24 anticipated to result in substantial soil erosion or loss of topsoil when compared to the
25 overriding coastal processes of the Pacific Ocean. Removal of Pier 421-1 would result
26 in some additional sand being exposed to wave action, but this would represent
27 resumption of a natural condition.

28 Table 4.1-1, located at the end of Section 4.1.4, provides a summary of impacts
29 associated with geological resources impacts and recommended mitigation measures
30 (MMs) to address these impacts.

31 **Impact GEO-1: Seismic and Seismically Induced Hazards**

32 **Seismic activity along the More Ranch Fault Zone or other regional faults could**
33 **produce fault rupture, seismic ground shaking, liquefaction, or other seismically**
34 **induced ground failure that could expose Pier 421-2 facilities, including the pier,**
35 **caisson and pipeline, to damage during the Project life; Pier 421-1 would be**
36 **exposed to seismic hazards for approximately 1 year before decommissioning is**
37 **completed (Less than Significant with Mitigation).**

1 **Impact Discussion**

2 The Project is located in an area that is subject to seismic and seismically induced
3 hazards, such as earthquakes, surface rupture, ground shaking, slope failure and
4 landslides, liquefaction, subsidence, and large wave events. If movement were to occur
5 along the active North Branch More Ranch Fault, people or structures in the study area
6 could be exposed to seismic hazards. Given the study area's proximity to this fault
7 segment (less than 0.25 mile away), the potential exists for surface rupture, ground
8 shaking, slope failure and landslides to impact the Project site. Any one of these
9 hazards or a combination of these hazards could occur during the life of the Project, and
10 can neither be accurately predicted nor avoided in the Santa Barbara/Goleta region.

11 Because the Project is also located along the coast, movement along an offshore fault
12 in the Santa Barbara Channel or in more distant faults could result in a large wave event
13 at the study area. Santa Barbara County has indicated that the wave height in the area
14 could reach as high as 40 feet, which could overtop the piers and access road and
15 potentially compromise the structural integrity of the Pier 421-1 or 421-2 caissons (see
16 also, Section 4.2, Safety; Impacts S-2 and S-3).

17 Pier 421-1 would remain in place for an estimated further 1 year after commencement
18 of production at Pier 421-2. During this period, this pier and caissons could be exposed
19 to damage from seismic events, including both earthshaking and tsunamis. Although the
20 seaward caisson face at Pier 421-1 was upgraded in 2001, potential exists for damage
21 to the pier during this interim 1 year. Such impacts would be considered less than
22 significant as the pier is proposed for removal and active oil production equipment and
23 facilities would not be exposed to damage. Full removal of Pier 421-1 would eliminate
24 seismic impacts to this facility.

25 Based on the engineering design information for existing Pier 421-2 infrastructure, the
26 Project design may be inadequate to sustain the effects of seismic loading, which could
27 result in damage to structural components during a seismic event. While the Project
28 includes major upgrades to the caissons at Pier 412-2, including drilling pilings and
29 installation of sheet piles walls on all sides, some existing structures at Pier 421-2 that
30 would be recommissioned as part of this Project were constructed in 1928. Repairs to
31 portions of the structures in the surf zone were conducted in 2001 and 2011; these
32 included installation of a seaward-facing sheet pile walls at the caissons at Piers 421-1
33 and 421-2, replacing decking and pilings at both piers and placing rock revetment at
34 gaps in the aging timber bulkhead seawall. The design of these repairs and the Project
35 include an assumption that subsurface conditions for the repair were accurately
36 characterized by one soil boring that was completed approximately 80 feet north of the
37 structure in the access road as part of the 2001 repair project.

1 Based on a review of engineering plans associated with those repairs and the current
2 Project, it does not appear that the previous engineering designs or current Project
3 specification included analysis of seismic loading. Although Pier 421-2 would be greatly
4 strengthened by proposed caisson improvements, the Project infrastructure would be at
5 risk of being damaged in a seismic event. A seismic event could also damage sections
6 of the pipeline connecting Pier 421-2 to Line 96 as well as Line 96 itself. Therefore,
7 impacts to Project facilities resulting from seismicity or seismically induced hazards are
8 considered to be less than significant with mitigation.

9 **Mitigation Measures**

10 In addition to the MMs described below, MM GEO-4c Seismic Inspection from the Line
11 96 Modification Project EIR (described in Appendix H) would ensure protection of the
12 Line 96 pipeline from seismic events during Project operation.

13 **MM GEO-1a. Include Seismic Loading Evaluation.** Venoco shall have the caisson
14 at Pier 421-2 evaluated to ensure its ability to withstand effects of dynamic
15 earth pressures, seismic overturning and base shear, and to support Project
16 facilities through the production life of the facility. Results of the evaluation,
17 together with any redesign plans determined to be necessary to ensure the
18 ability of the caisson to withstand effects of dynamic earth pressures, seismic
19 overturning and base shear, and to support Project facilities through the
20 production life shall be reviewed and certified by a professional engineer and
21 submitted to California State Lands Commission staff for approval. Prior to
22 recommencement of production, and subject to receipt of all necessary
23 approvals and permits to undertake the work, Venoco shall construct the
24 necessary improvements to meet the criteria of this mitigation measure.

25 **MM GEO-1b. Field-Verify Subsurface Condition Assumptions.** Venoco shall
26 establish a procedure to field-verify that the subsurface conditions used in the
27 design of the past repairs and proposed improvements at the 421-2 caisson
28 are representative of actual conditions to be encountered. The procedure
29 established by Venoco for field-verification shall be submitted to California
30 State Lands Commission (CSLC) staff for approval prior to implementation. If
31 the field conditions encountered require a design modification of past repairs
32 and proposed improvements, then the revised design plans shall be reviewed
33 and certified by a registered professional civil/structural engineer, and shall be
34 submitted to the CSLC staff for approval. Prior to recommencement of
35 production, and subject to receipt of all necessary approvals and permits to
36 undertake the work, Venoco shall construct the necessary improvements to
37 meet the criteria of this mitigation measure.

38 **MM GEO-1c. Seismic Inspection.** Venoco shall inspect the structures, including
39 Pier 421-2, pipeline, and associated infrastructure following any seismic event
40 in the region (for these purposes defined as Santa Barbara County and
41 offshore waters of the Santa Barbara Channel and Channel Islands) that
42 exceeds a Richter magnitude of 4.0 (see also Appendix H, MM GEO-4c

1 Seismic Inspection). Venoco shall report the findings of such inspection to the
2 California State Lands Commission staff and City of Goleta staff. Venoco shall
3 not reinstate operations of the pipeline within the City of Goleta until authorized
4 by the City of Goleta.

5 **MM GEO-1d. Tsunami Preparedness.** In the event that a tsunami warning is
6 issued for an area that includes PRC 421, Venoco shall cease production
7 activities at PRC 421 as quickly as possible within the constraints of operations
8 and safety. When the tsunami warning is lifted, Venoco shall conduct a
9 thorough inspection of Pier 421-2, pipeline, and associated infrastructure
10 before resuming production. Venoco shall report the findings of such
11 inspections to the California State Lands Commission and City of Goleta staffs.

12 **Rationale for Mitigation**

13 Based on the local geologic environment, which includes seismic and seismically
14 induced hazards, Pier 421-2 should be designed to account for seismic loading.
15 Because the structural components of Pier 421-2 are located in the surf zone, the
16 potential for a large wave event also exists; therefore, wave loading would also be
17 included in the design (see Section 4.2, Safety; MM S-2a). Seismic inspections and any
18 necessary improvements would test the effectiveness of the design and ensure that the
19 design is adequate for the Project life.

20 Evaluation of subsurface conditions is necessary to ensure that previous assumptions
21 are sufficient since the design must rely on existing subsurface conditions in the vicinity
22 of the structures. Regular inspections of Project facilities, such as the pipeline from Pier
23 421-2 to the tie-in at the EOF after seismic events, would permit timely repairs.
24 Cessation of operation during tsunami threat warnings would avoid or minimize potential
25 for spills during a large wave event.

26 Implementation of MMs GEO-1a through GEO-1d would reduce impacts associated
27 with damage from seismicity and tsunamis to Project facilities to less than significant.
28 See also Section 4.2, Safety, for a discussion of accidental release of oil.

29 **Impact GEO-2: Landslide and Slope Failure**

30 **The Project would be located on a geologic unit or soil that is unstable, which**
31 **could create potentially significant damage to the project access road and**
32 **pipeline from a landslide or slope failure (Less than Significant with Mitigation).**

33 **Impact Discussion**

34 The Project is located within an active wave-cut platform beneath a coastal bluff. All
35 components of the Project (e.g., access road, coastal cliff, Pier 421-2) are located on
36 soil units or fill that overlie the Monterey Formation. The Monterey Formation is visibly
37 eroded and weathered on the face of the cliff where it is exposed to wave action and

1 other physical and chemical weathering processes. The Monterey Formation and the
2 soils that overlie it in this area are considered to be geologically unstable, and have the
3 potential for slope failure or landslide. The potential instability of the coastal bluff
4 increases when saturated with water, which may occur due to the presence of several
5 springs along the bluff face. Saturation has also occurred from past sprinkler leaks from
6 the Sandpiper Golf Course that reached the bluff. The existing rock revetment reduces,
7 but does not eliminate, the potential for slope failure. The pipeline that is buried beneath
8 the access road is partially protected from wave-caused erosion by the existing rock
9 revetment, if the revetment is properly maintained (see Impact S-2). However, if the
10 coastal bluff experiences slope failure, the pipeline in the access road may be
11 damaged. Although the Project includes measures to ensure the integrity of this section
12 of pipe (including hydrotesting, internal plastic coating, and enhanced cathodic
13 protection), the pipeline may still be damaged or broken during slope failure or
14 landslide. Further, the Line 96 pipeline from the EOF to the connection with the
15 PAAPLP Coastal Pipeline traverses several steep hillsides, including those underlain by
16 the highly unstable Rincon Shale Formation.

17 Therefore, the impact to the Project area that could result from unstable soils or rocks is
18 considered less than significant with mitigation. A detailed geologic impacts evaluation
19 for the Line 96 pipeline, with MMs to reduce the risk of failure related to unstable slopes,
20 was conducted as part of the Line 96 Modification Project EIR (Santa Barbara County
21 2011) and is incorporated by reference (refer to Appendix H).

22 **Mitigation Measures**

23 **MM GEO-2a. Monitor Coastal Bluff and Access Road.** Venoco shall monitor the
24 coastal bluff and access road weekly for signs of water saturation, including
25 during and/or heavy rains, or after a sprinkler line leak from the Sandpiper Golf
26 Course. If saturation is apparent, the source of the water infiltration shall be
27 evaluated and, diverted (if possible) or removed. Venoco shall provide written
28 weekly statements regarding bluff and access road stability and saturation
29 conditions to the City of Goleta. If saturation is apparent, Venoco shall
30 immediately report such finding to the City of Goleta. Within 24 hours of such a
31 finding, Venoco shall identify the source of water infiltration and shall divert or
32 remove the water source within 24 hours, and shall provide a written report
33 with photo documentation to the City within one week of the action. If native
34 habitats could be impacted as a result of related activities, Venoco shall
35 coordinate the activities with the Project Biologist and implement MM TBIO-1b
36 Project Biological Monitors and MM TBIO-1c Restoration Plan/Restoration.

37 **MM GEO-2b. Maintain Existing Seawall and Rock Revetment.** Venoco shall
38 inspect the existing seawall and rock revetment weekly for signs of erosion or
39 need for repairs. If eroded areas are observed, these shall immediately be filled
40 in, and any areas in need of repair or addition of rip-rap shall be repaired
41 consistent with applicable permit requirements. Venoco shall provide written
42 weekly reports regarding existing seawall and rock revetment stability to the

1 City of Goleta. If erosion is observed, Venoco shall immediately report such
2 finding to the City of Goleta. Within 24 hours of such a finding, Venoco shall
3 repair the erosion and shall provide a written report with photo documentation
4 to the City within one week of the action. Venoco shall coordinate the activities
5 with the Project Biologist and implement MM TBIO-1b Project Biological
6 Monitors and MM TBIO-1c Restoration Plan/Restoration.

7 **MM GEO-2c. Inspect and Repair Access Road and Pipeline after Landslide**
8 **Events.** Venoco shall monitor the access road and pipeline after bluff failure or
9 landslide events and shall repair any damaged areas or add rip-rap consistent
10 with applicable permit requirements. In addition to clearing the road of debris,
11 Venoco shall test or inspect the pipeline immediately after any major slope
12 failure to determine if pipeline damage has occurred and shall implement
13 repairs to this infrastructure. If damage is observed, Venoco shall immediately
14 report such finding to the City of Goleta. Within 24 hours of such a finding,
15 Venoco shall repair the erosion and shall provide a written report with photo
16 documentation to the City within one week of the action. Venoco shall
17 coordinate the activities with the Project Biologist and implement MM TBIO-1b
18 Project Biological Monitors and MM TBIO-1c Restoration Plan/Restoration.

19 **Rationale for Mitigation**

20 Because water-saturated soils have been observed along the coastal bluff in the past,
21 and because saturation could cause the slope to fail, routine monitoring for water
22 saturated soils is necessary to mitigate the risks associated with a potential slope
23 failures or landslides. The seawall and revetment must also be maintained since these
24 structures provide added stability to the base of the bluff, which reduces the potential for
25 slope failure. Although the potential for major bluff failures to occur over the Project life
26 is unknown, in the event of such a failure, inspection and any required repair of the road
27 and pipeline would be necessary to prevent potential releases of oil. Implementation of
28 MMs GEO-2a through GEO-2c would reduce this impact to less than significant.

29 **Impact GEO-3: Soil Settlement and Liquefaction**

30 **The recommissioning of PRC 421 could potentially expose Project facilities such**
31 **as the caisson and proposed pipeline to soil settlement or liquefaction that could**
32 **damage these facilities, particularly the pipeline (Less than Significant with**
33 **Mitigation).**

34 **Impact Discussion**

35 Soils beneath the structural components of the caissons and wells at PRC 421 are
36 composed of beach sands on the active wave-cut platform, which are underlain by
37 Monterey Formation bedrock. Because the structural design did not include placing
38 foundations of any portions of the structures in the beach sand, settlement of the beach

1 sand beneath the structure would not be anticipated to result in settlement problems
2 beneath the pier.

3 Other portions of the Project, including the access road, seawall, and revetment, may
4 have been constructed on beach sand and may consist of fill soils of unknown origin.
5 The subsurface conditions of the beach sand, including potential for saturated
6 unconsolidated sands are not known. One soil boring was drilled through the access
7 road during the caisson wall repair for Pier 421-1 in 2004. However, the subsurface
8 conditions were not logged for the first 20 feet below the surface of the road. Therefore,
9 the potential for settlement and liquefaction of these soils must be assumed until
10 evaluated. If settlement or liquefaction of the fill or soils beneath the access road were
11 to occur, the pipeline in the access road could be damaged and an oil spill could
12 potentially occur. Impacts related to settlement beneath these structural components
13 are considered less than significant with mitigation.

14 **Mitigation Measures**

15 **MM GEO-3. Perform Subsurface Evaluation.** An evaluation of soils within and
16 beneath the Pier 421-2 caisson, seawall, revetment, and access road shall be
17 performed to ascertain if the soil is fit for purpose. The evaluation shall be
18 performed by a California-registered Geotechnical Engineer, and shall propose
19 maintenance and repair procedures as needed to ensure these areas remain fit
20 for purpose for the life of the Project. The conclusions and recommendations
21 shall be incorporated into Project engineering design components, as
22 applicable, and submitted to the California State Lands Commission, City of
23 Goleta, and California Coastal Commission staffs for review and approval prior
24 to issuance of permits for construction clearance.

25 **Rationale for Mitigation**

26 Because the previous subsurface evaluation did not assess the conditions within the
27 upper 20 feet of the ground surface, a subsurface evaluation is needed to address the
28 potential for settlement and/or liquefaction. The findings would be incorporated into the
29 engineering design to improve the ability of the Project infrastructure to withstand
30 expected localized conditions. If MM GEO-3 is implemented, the potential for damage to
31 Project infrastructure would be reduced to less than significant.

32 **Impact GEO-4: Corrosion, Weathering, and Erosion**

33 **Corrosion, weathering, fatigue, or erosion could cause deterioration of structural**
34 **components of PRC 421 (Less than Significant with Mitigation).**

35 **Impact Discussion**

36 The Project is located in a naturally corrosive and erosive environment. Weathering of
37 soils, rocks, and structures is active where there is constant action by wind and waves.

1 Previous deterioration of the existing structures has been documented, and resulted in
2 emergency repairs in 2001, 2004, and 2011. During those repairs, corrosion of
3 structural components was noted. The Project design plans indicate that corrosion
4 protection will be included as part of the upgrades to the existing structural components,
5 including the steel piles and exposed metal. However, the design plans do not include
6 the corrosion protection specifications. Based on the record of emergency repairs,
7 corrosion-related impacts to Project structures require mitigation and would be less than
8 significant with mitigation.

9 Because the geologic environment is highly conducive to physical weathering, the potential
10 exists for impacts associated with weathering of the caisson wall to occur. Further, pipeline
11 and valves associated with the Project may be exposed to cyclic and continual wave action
12 in the surf zone and could experience fatigue as a result (see Impact S-2).

13 With regard to erosion, the Project design plans indicate that the sheet piles will be
14 founded four inches into the underlying bedrock (Monterey Formation). Based on the
15 continual erosion that occurs at the wave-cut platform on which Pier 421-2 is located,
16 there is a potential for the sheet pile foundations to be eroded at the base.

17 *Issues Related to Sea Level Rise*

18 Sea levels have risen between 4 and 10 inches during the past century and are projected
19 to be affected by climate change in the future. Global average sea level rose at an
20 average rate of 0.07 inch per year from 1961 through 2003 and at an average rate of
21 about 0.12 inch per year from 1993 to 2003 (Intergovernmental Panel on Climate Change
22 [IPCC] 2007). Whether this faster rate for 1993 to 2003 reflects decadal variation or an
23 increase in the longer-term trend is unclear. The IPCC (2007) predicts that sea level rise
24 for the next century could range between 0.59 and 1.94 feet. However, a range of
25 projections exists for sea level rise and sea level rise could be much greater depending
26 on the rate and extent of polar ice sheet melting. Ice-sheet disintegration is a complex
27 phenomenon and still involves many uncertainties which are reflected in the lack of
28 published literature regarding the issue. Because of this lack of consensus, sea level
29 estimates do not include the full effects of changes in ice sheet flow. For example,
30 complete melting of the Greenland ice sheet could contribute approximately 23 additional
31 feet to average global sea level rise (IPCC 2007).

32 The National Research Council (2012) has also projected sea-level rise for California,
33 Oregon, and Washington, taking into account both global and regional factors. For the
34 California coast south of Cape Mendocino, the NRC projects that, relative to 2000, sea
35 level will rise 2 to 12 inches (4 to 30 centimeters [cm]) by 2030, 5 to 24 inches (12 to 61
36 cm) by 2050, and 17 to 66 inches (42 to 167 cm) by 2100. These projections are close
37 to global sea-level rise projections. However, for the Washington, Oregon, and
38 California coasts north of Cape Mendocino, sea level is projected to change between -2

1 inches (–4 cm, sea-level fall) and +9 inches (23 cm) by 2030, –1 inch (-3 cm) and +19 inches (48 cm) by 2050, and 4 to 56 inches (10 to 143 cm) by 2100.

3 Higher water levels result in greater wave energy reaching higher on the shoreline and
4 directly onto the face of cliffs. According to the best available models, a 4.6-foot
5 increase in sea level by 2100 would cause the coastline of Santa Barbara County to
6 recede by an average of 178 feet (California Climate Change Center 2009). Sea level
7 rise of these higher magnitudes could potentially affect the Project because the loss of
8 beaches would likely result in greater wave force on Pier 421-2, resulting in increased
9 weathering and corrosion. If sea level rise and resultant beach erosion were to occur at
10 much greater rates than currently forecast, Venoco could potentially request
11 construction of seawalls, groins, or beach nourishment projects to protect PRC 421
12 infrastructure and other coastal oil infrastructure such as the EOF. Coastal protection
13 structures are documented to often have adverse effects on beaches and sand supply,
14 whereas beach nourishment projects can be expensive and require repeat applications
15 of sand (Titus 1991). However, due to the limited Project lifetime, such protective
16 structures are highly unlikely to be needed or requested.

17 **Mitigation Measures**

18 **MM GEO-4a. Corrosion Protection Design Specifications.** The corrosion
19 protection design specifications shall be included on the design drawings.
20 Once included, the revised design plans shall be reviewed and certified by a
21 registered corrosion engineer or qualified mechanical or electrical engineer,
22 and submitted to the California State Lands Commission staff for approval.
23 Prior to commencement of production, and subject to receipt of all necessary
24 approvals and permits to undertake the work, Venoco shall construct all
25 corrosion protection improvements specified in the approved plans. If corrosion
26 protection is required for the Project, with the exception of the caisson walls
27 which are just beyond the City limits, all design plans shall be submitted to the
28 City of Goleta for review and approval.

29 **MM GEO-4b. Check Overall Structural Stability against Wind and Wave Action.**
30 The Project design shall include evaluation of cyclic wind and wave action on
31 structural components. Once included, revised design plans shall be reviewed
32 and certified by a professional civil/structural engineer then submitted to the
33 California State Lands Commission staff for approval. These revised design
34 plans shall identify any additional construction required as part of the Project.
35 Prior to commencement of production, and subject to receipt of all necessary
36 approvals and permits to undertake the work, Venoco shall construct all
37 structural improvements specified in the approved plans. Venoco shall submit
38 the design plans to the City of Goleta, for review and approval for any part of
39 the Project within City limits.

40 **MM GEO-4c. Evaluate Embedment of Concrete Panels and Lean Concrete**
41 **Backfill.** Venoco shall include in the Project design an evaluation of the
42 potential depth of scour and erosion during the lifetime of the Project within the

1 Monterey Formation in the area of Pier 421-2. Venoco shall ensure that the
2 concrete shoring panels and lean concrete backfill shall be embedded into the
3 Monterey Formation to a depth greater than the maximum potential scour
4 depth. Venoco shall submit all plans to the City of Goleta for work within City
5 limits and California State Lands Commission staffs.

6 **MM GEO-4d. Inspect Structures During and/or After Storm Events.** Venoco shall
7 conduct inspections of the structural components including the pier, caisson,
8 causeway, seawall and revetment during and after major storm events. Venoco
9 shall immediately report inspection results to the California State Lands
10 Commission and the City of Goleta staffs and conduct repairs accordingly and
11 per agency authorization.

12 **Rationale for Mitigation**

13 The Project would be located in an environment that could cause deterioration of
14 structural components if the components are not appropriately designed. Therefore,
15 incorporating these hazards into the structural design should anticipate and prevent
16 potential deterioration. Additionally, once construction is complete, routine inspections
17 of Project facilities conducted during and after major storm events would ensure that the
18 structural components have not deteriorated and provide opportunities for repairs to be
19 conducted immediately following the detection of any deterioration. With implementation
20 of MMs GEO-4a through GEO-4d, impacts are anticipated to be less than significant.

21 **Impact GEO-5: Erosion-Induced Siltation**

22 **Erosion-induced siltation could occur during ground disturbing activities (Less**
23 **than Significant).**

24 **Impact Discussion**

25 Erosion-induced siltation may occur along nearby waterways from ground-disturbing
26 activities during Project construction, such as trenching for electrical cable installation,
27 and during the decommissioning and removal of Pier 421-1. In compliance with the
28 Clean Water Act (CWA) Section 402, Venoco would obtain a National Pollutant
29 Discharge Elimination System (NPDES) storm water discharge permit and develop a
30 Storm Water Pollution Prevention Plan (SWPPP) prior to Project construction; separate
31 permits would be required for the future decommissioning and removal of PRC 421
32 infrastructure. The SWPPP includes erosion and sedimentation control measures and
33 monitoring specific to the activities being performed at the construction site. Based on
34 implementation of these measures, impacts related to erosion-induced siltation during
35 construction activities would be less than significant.

36 **Mitigation Measures**

37 None required.

Table 4.1-1. Summary of Geological Resources Impacts and Mitigation Measures

Impact	Mitigation Measures
GEO-1: Seismic and Seismically Induced Hazards	GEO-1a. Include Seismic Loading Evaluation. GEO-1b. Field-Verify Subsurface Condition Assumptions. GEO-1c. Seismic Inspection. GEO-1d. Tsunami Preparedness.
GEO-2: Landslides and Slope Failure	GEO-2a. Monitor Coastal Bluff and Access Road. GEO-2b. Maintain Existing Seawall and Rock Revetment. GEO-2c. Inspect and Repair Access Road and Pipeline after Landslide Events.
GEO-3: Soil Settlement and Liquefaction	GEO-3. Perform Subsurface Evaluation.
GEO-4: Corrosion, Weathering, and Erosion	GEO-4a. Corrosion Protection Design Specifications. GEO-4b. Check Overall Structural Stability Against Wind and Wave Action. GEO-4c. Evaluate Embedment of Concrete Panels and Lean Concrete Backfill. GEO-4d. Inspect Structures During and/or After Storm Events.
GEO-5: Erosion-Induced Siltation	None Required.

1 **4.1.5 Cumulative Impacts Analysis**

2 With regard to geologic hazards, Project implementation is not anticipated to add to the
3 cumulative impacts of other projects in the area. Because geologic hazards such as
4 seismicity and seismically induced hazards exist in the region that includes the study
5 area, implementation of the Project and other projects would not increase the likelihood
6 of such events.

7 Structural development of individual projects is subject to California Building Code
8 requirements and would be completed in accordance with recommendations by a
9 licensed civil/structural engineer and the City of Goleta Planning and Environmental
10 Review Department or its designee. Therefore, impacts associated with projects in the
11 Project vicinity would generally be site-specific and less than significant. Impacts to
12 human health associated with oil spills are addressed in Section 4.3, Hazardous
13 Materials. Therefore, cumulative impacts with regard to geological resources are
14 expected to be less than significant.

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1 4.2 SAFETY

2 This section addresses potential upset conditions during Project construction and
3 operation that could result in release of oil or hazardous materials, fire, explosion or
4 other conditions that could be hazardous to the public and environment. Detailed
5 analyses of impacts of upset conditions on specific resources are addressed in their
6 respective sections (e.g., Section 4.6, Marine Biological Resources). Potential safety
7 effects of the Project are based on a change from existing conditions. Significance
8 criteria are used to assess the significance of the impacts, and whether mitigation
9 measures (MMs) can be applied to reduce the level of significance.

10 Assembly of information presented in this section involved a review of PRC 421
11 production facilities by licensed structural and petroleum facility engineers to address
12 the adequacy and ability of these facilities to operate safely throughout the life of the
13 Project. The assessment of the physical integrity of primary existing and proposed
14 facility components serves as the basis for analyzing the potential hazards of resuming
15 production from State Oil and Gas Lease PRC 421 (PRC 421). The engineering
16 assessments incorporate existing conditions and facility improvements implemented by
17 Venoco since 1997 and further improvements proposed as part of this Project. The
18 facility engineering assessment is provided as a technical report in Appendix C.

19 This section relies upon information contained in the South Ellwood Field Emergency
20 Action Plan (EAP), the California Department of Fish and Wildlife (CDFW) Office of Spill
21 Prevention and Response (OSPR) Area Contingency Plan for Region 4, Los
22 Angeles/Long Beach, and Venoco's EAP and Fire Prevention and Preparedness Plan.
23 This document incorporates by reference the conclusions of the Line 96 Modification
24 Project Environmental Impact Report (EIR) (Santa Barbara County 2011) regarding
25 impacts to safety associated with operation of the Line 96 pipeline extension to the
26 Plains All American Pipeline, L.P. (PAAPLP) Coastal Pipeline west of Las Flores
27 Canyon (LFC), and summarizes these where appropriate. Where this document relies
28 upon MMs contained in the Line 96 Modification Project EIR to address Project impacts,
29 these are summarized to allow report reviewers to understand their relationship to the
30 Project.

31 4.2.1 Environmental Setting

32 Study Area Location and Description

33 The primary Project study area comprises the immediate onshore and near-shore areas
34 of the Ellwood coast that would be subject to direct impacts from safety hazards as a
35 result of Project implementation. This area includes existing PRC 421 facilities, access
36 road, and the pipeline route along the access road, coastal bluff, golf course easement,
37 and tie-in at the existing Ellwood Onshore Facility (EOF), as well as areas up and down
38 coast that may be subject to the effects of an oil spill, a 2-mile reach of coast that

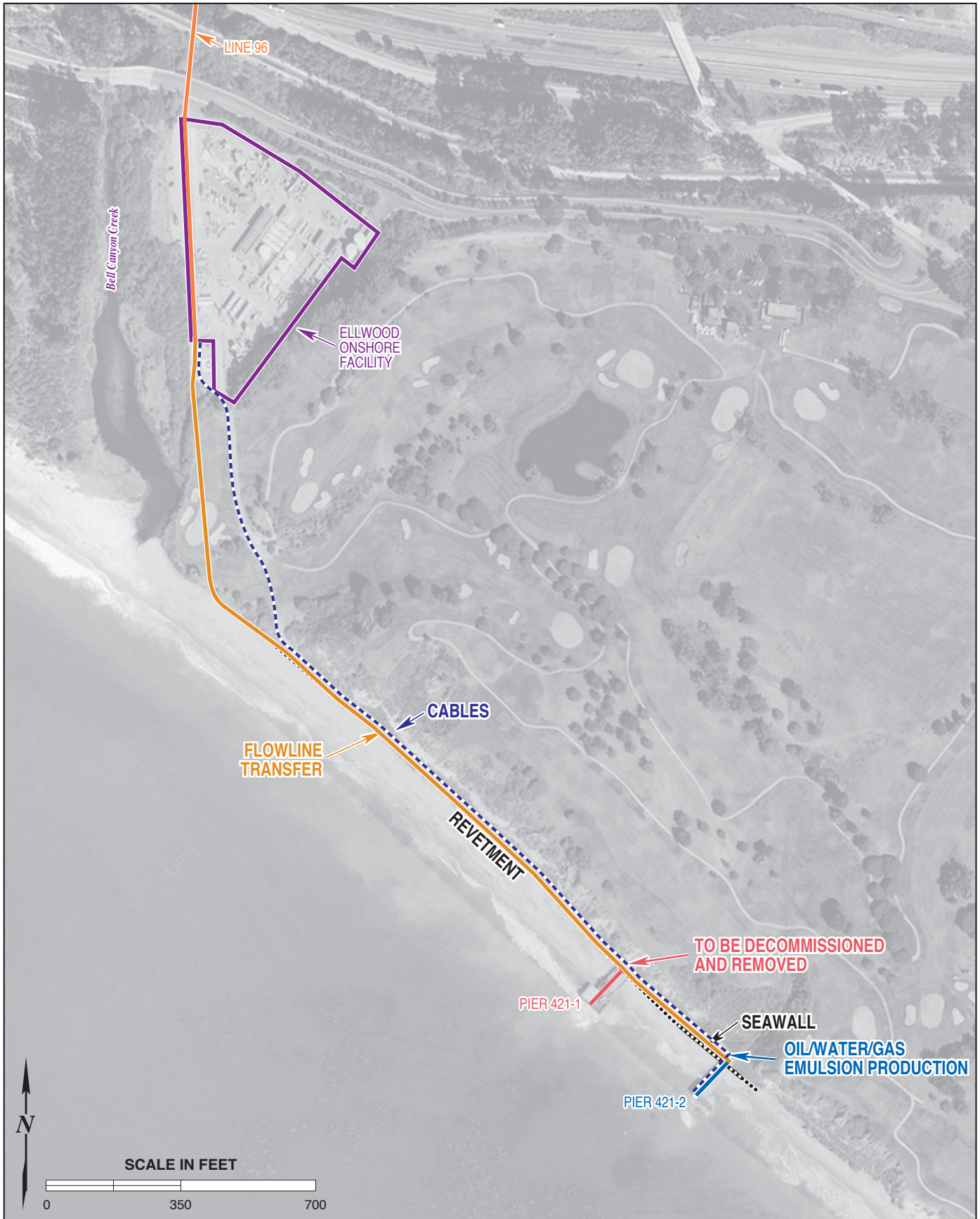
1 extends roughly from Coal Oil Point west to the Tecolote Creek estuary. The secondary
2 Project study area includes the Gaviota Coast and is only discussed in environmental
3 issue areas where potential exists for impacts that are different from those identified in
4 the certified Line 96 Modification Project EIR.

5 **Existing Conditions**

6 The Project would use a number of existing facilities integral to historic PRC 421
7 operations and involve upgrades to some of these facilities, new construction, and use
8 of, but not substantial alteration to components of the EOF (Figure 4.2-1). Most of the
9 existing facilities at PRC 421 were originally constructed in the late 1920s or early
10 1930s. As a result, the age of these facilities and their ability to support continued oil
11 and gas production safely has been a focus of agency attention and public concern
12 regarding the safety and potential impacts of recommissioning PRC 421 (see comments
13 on the Notice of Preparation [NOP] in Appendix B).

14 Project piers and caissons were subject to structural engineering review in 2000
15 (Thomas and Beers 2000). That report assessed the condition of the existing caissons
16 and noted that construction plans were unavailable to fully identify construction
17 characteristics and provide support for detailed structural engineering review. The report
18 also disclosed that corrosion had collapsed the upper reaches of the seaward-facing
19 portions of both caisson walls in the early 1980s and that both seaward-facing walls had
20 been subject to major repairs completed in approximately 1985. The report concluded
21 although it was “impossible to know for certain if the caisson islands have adequate
22 structural integrity” that the caissons have survived 50 years of inclement weather and
23 that the repairs completed in 1985 appear to be in good condition and that it appeared
24 likely that sound engineering and design had been used in these caissons along with
25 “robust” construction. As discussed below, four years after completing this assessment,
26 major portions of the previously repaired seaward-facing wall on Pier 421-1 collapsed
27 during a severe weather event.

28 Since Venoco’s acquisition of the lease, both PRC 421 and some Ellwood area facilities
29 have undergone rigorous inspection and review by regulatory agencies, and Venoco
30 has implemented a series of upgrades and improvements. These improvements have
31 been designed to repair degraded or failing facility components and to correct potential
32 safety deficiencies. In particular, major improvements were performed on the Project
33 piers in 2004 and 2011 incorporating the detailed engineering recommendations of the
34 Thomas and Beers report.



Project Facilities and Functions [Revised]

FIGURE 4.2-1

1 The Project would use the EOF for processing of the oil/gas/water emulsion produced at
2 Pier 421-2 as well as support functions (control-room functions, security, and power)
3 and create an additional source of crude oil throughput in the Line 96 pipeline; however,
4 physical change to the EOF would be limited to the installation of the power cable, the
5 connecting pipe and tie-in to the 6-inch pipeline from Platform Holly, the multiphase flow
6 meter, and the process monitoring equipment. This equipment would be used for
7 operations through the life of production.

8 **Sensitive Receptors and Populations in the Project Area**

9 A variety of land uses exist in the immediate vicinity of the Project site that could be
10 affected by upset conditions including areas of recreational, commercial, and residential
11 development. As a result, a number of populations could be impacted by potential upset
12 conditions, including patrons and employees at the Sandpiper Golf Course and the
13 Bacara Resort and populations living in Ellwood and Santa Barbara Shores
14 neighborhoods along Hollister Avenue east of the site. In addition, users of the local
15 beaches, trails, and ocean could also be impacted. (Refer to the Line 96 Modification
16 Project EIR for additional details on population densities and distances from the
17 approved pipeline route.) Further, the shoreline in the Project vicinity includes sensitive
18 resources and habitats that could be affected by Project activities, including biological,
19 cultural, historic, and archaeological resources (see resource-specific sections for a
20 discussion of impacts from upset conditions). Sensitive sites in the area are identified in
21 the Area Contingency Plan (ACP) for the Los Angeles/Long Beach region (ACP 4). The
22 ACP contains site-specific resources, response considerations (e.g., seasonal factors,
23 access points, and hazards), as well as protective strategies and logistics (CDFW and
24 U.S. Coast Guard [USCG] 2011; accessed January 10, 2014).

25 **Historical Activity and Relation to Project**

26 As discussed in Section 2.0, Project Description, the Project area has been used for oil
27 and gas production since 1928. Currently, Federal, State, and local lands are used for
28 onshore and offshore oil and gas production. There are 23 existing platforms offshore
29 Southern California (one of which is used for processing only) on the Federal Outer
30 Continental Shelf (OCS) and 20 fields in State tidelands (Bureau of Ocean Energy
31 Management [BOEM]) 2011; CSLC 2010).

32 In addition, within the immediate Project vicinity, the Ellwood Marine Terminal (EMT)
33 discontinued operation in 2012 when the Line 96 pipeline to the west of LFC became
34 available. This facility is proposed to be decommissioned and removed prior to or within
35 180 days of January 1, 2016, as per the lease agreement with University of California,
36 Santa Barbara (UCSB) (see Section 1, Introduction). Additional oil production and
37 processing facilities in the Ellwood area include Platform Holly located approximately 1
38 mile south of the Project site and the EOF, located northwest of the PRC 421 facilities.

1 Operational and abandonment practices associated with early oil and gas development
2 were less protective of the environment than modern practices and requirements;
3 consequently, present conditions may have unknown or unquantified oil-related
4 contamination as a result of this earlier development. Further, the adequacy of the
5 abandonment of production wells in the area is also an issue of concern, with at least 21
6 of the 72 wells drilled into the reservoir from offshore piers having potential deficiencies
7 in their abandonment procedures when compared to modern standards (CSLC 2006).

8 As described in Section 2.1.1, Project History, PRC 421 was shut-in in 1994 in response
9 to a leak in the 6-inch line, which delivered oil to the old Line 96 that runs from the EOF
10 to the EMT. Since the facilities were shut-in, additional problems have occurred,
11 including methane and oil leaks at Piers 421-1 and 421-2, as well as the partial collapse
12 of the Pier 421-1 caisson. These issues and activities at PRC 421 relevant to this safety
13 analysis are described below:

- 14 • *1994 Pipeline Leak* – A release of 170 barrels was caused by a leak in the 6-inch
15 line that connected Pier 421-1 to the old Line 96. The pipeline is presently out of
16 service; Venoco proposes to use it as an outer “casing” for the internal liner and
17 the new 3-inch flowline that would be inserted into the 6-inch line. The proposed
18 repair of the damaged portions of this pipeline and removal of 90 degree bends,
19 along with installation of a new leak detection and automated shut-off (on the
20 well) on the existing pipeline would, in part, serve to resolve the conditions that
21 led to the release.
- 22 • *Methane Leak in 2000 and Repairs* – As noted previously, detection of the leak
23 during inspection triggered a series of repairs and upgrades to PRC 421 facilities,
24 which included the wellhead, well casings, and installation of surface and
25 subsurface safety valves. Prior to implementing these repairs, both piers were
26 largely reconstructed, the seawall was strengthened by the addition of riprap, and
27 the access road was resurfaced and upgraded. Historic production equipment
28 was removed from the piers.
- 29 • *Pier 421-1 Damage, 2004* – The seaward-facing wall of the caisson at Pier 421-1
30 partially collapsed into the surf during severe winter storms in 2004. In response,
31 Venoco instituted emergency repairs to the caisson wall.
- 32 • *Pier 421-2 Repairs, 2011* – The seaward-facing wall of the caisson at Pier 421-2
33 was also observed to be damaged during routine CSLC staff inspection in 2010.
34 Based on this damage and the potential for leakage of oil from the pier,
35 emergency permits were obtained and repairs similar to those performed on Pier
36 421-1 in 2004 were performed for Pier 421-2 in 2011. The structural integrity of,
37 and any needed improvements to, the caisson at 421-2 is an important concern
38 addressed in this EIR.

1 According to the South Ellwood Field EAP, none of the Ellwood area oil production
2 facilities, including the PRC 421 facilities (which, other than depressurization activities in
3 2001 to relieve well-head pressure, have been idle since 1994), has had a reportable
4 spill reaching marine waters in 19 years (Venoco 2013).

5 **Vaqueros Reservoir Repressurization**

6 A number of events and observations indicate that the Vaqueros Reservoir has been
7 repressurizing and continues to repressurize. The repressurization of the Vaqueros
8 Reservoir is a concern because at least 21 offshore wells in the area were not properly
9 plugged and abandoned to current standards in the 1930s, 1940s, and 1950s. These
10 abandonment deficiencies make these wells more likely to leak oil as pressure
11 increases in the reservoir. This section discusses the evidence of repressurization, the
12 potential cause of repressurization, and concerns created by old abandoned wells, in
13 which creates the risk of potential offshore oil releases.

14 *Evidence of Repressurization*

15 The empirical evidence demonstrates that reservoir pressures have risen, as shown by
16 the controlled release of nearly 17,000 barrels of pure oil from PRC 421-2 in 2001 while
17 undertaking emergency repairs (see Section 2.1.1). More specifically, following the
18 discovery of gas leaks, by the Santa Barbara County Air Pollution Control District
19 (APCD), from PRC 421, Venoco sought to recap the shut-in wells, but could not do so
20 safely without first relieving surface wellhead pressure observed by operating
21 personnel. After receiving authorization from the proper authorities, Venoco installed a
22 temporary pipeline at Well 421-2, which when opened flowed upwards or in excess of
23 17,000 barrels of nearly pure oil over the next 10 months. This free-flow of oil confirmed
24 that repressurization in the Vaqueros Reservoir was substantial and raised concern and
25 the realization that nearby poorly abandoned wells could leak under similar and
26 prolonged elevated reservoir pressures. The gradual increase in bottomhole pressure
27 (reflective of the reservoir pressure) has been displayed in the measurements of fluid
28 rise in Well 421-2 between the years of 1987-2000 (Figure 4.2-2).¹ The original
29 reservoir pressure was 1,525 pounds per square inch (psi) at the time development
30 began in the 1930's, which is equivalent to a pressure gradient of 0.46 psi per foot.
31 Years of oil, gas and water production from the field since that time caused significant
32 reservoir pressure decline (CSLC 2006). In 1987, fluid level measurements in well PRC
33 421-2 estimated the reservoir pressure at that time to be approximately 690 psi. The
34 Vaqueros Formation had for many years, prior to 1987, been subject to reservoir fluid
35 withdrawals by a significant number of wells, both onshore and offshore, which, with the

¹ An estimate of formation pressure can be made by using the height of the fluid column in a static well and the density of that fluid, by multiplying the column height (in feet) by the pressure gradient derived from the density (in psi per foot).

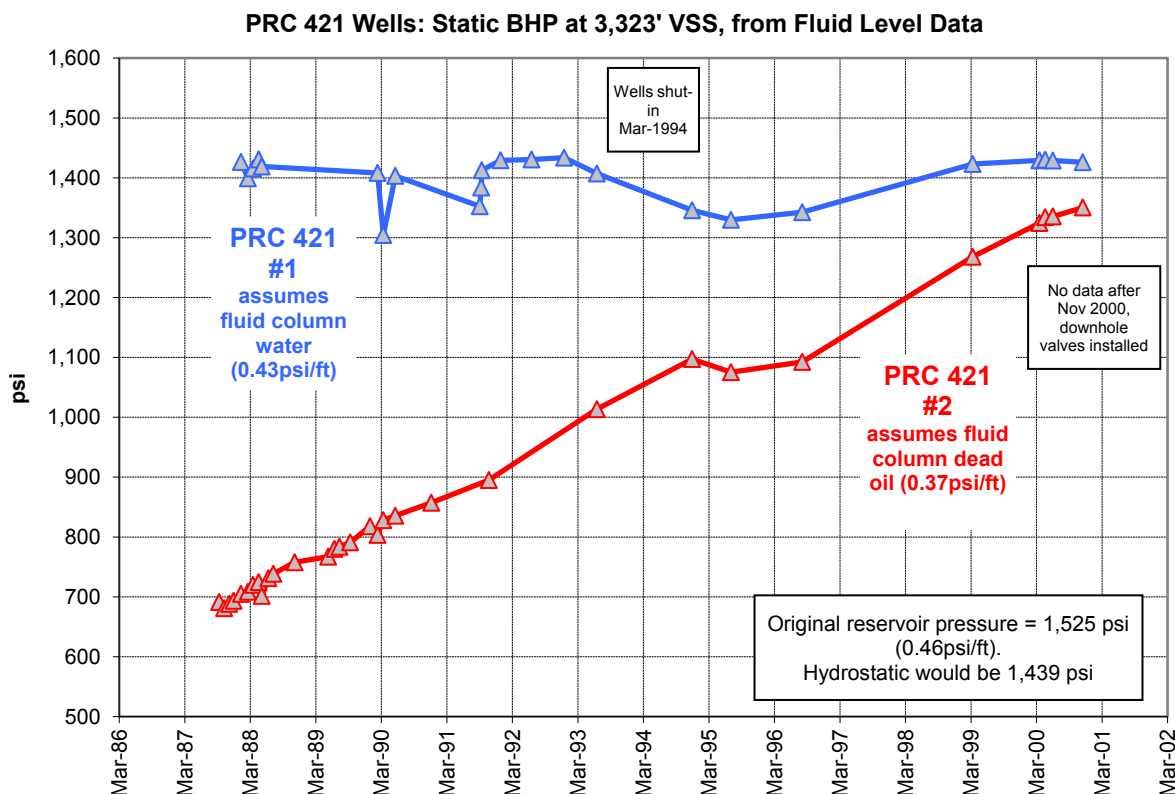


FIGURE 4.2-2. REPRESSURIZATION OF VAQUEROS RESERVOIR, 1987-2000*

* This graph represents bottom hole pressures measurements for Well 421-2 and 421-1 from August 1987 through November 2000. The bottomhole pressure readings were determined from measurement instruments that record fluid rise inside the wellbore. A higher fluid level in the wellbore indicates a greater pressure at the bottom of the well at reservoir depth. Since 1987 the graph shows that the bottomhole pressure increased approximately from 690 pounds per square inch (psi) to approximately 1100 psi by 1994, when the well was shut in because of a pipeline leak, to approximately 1350 psi in 2000.

1 exception of the PRC 421 wells, have since been plugged and abandoned (see
 2 Figure 4.2-3). The rate of reservoir fluid withdrawals from these wells over a great
 3 period of time exceeded the rate of aquifer influx, which has been and continues to be
 4 the source of reservoir pressure. The aquifer only began to replenish the void after
 5 production from the formation began to decline during the 1970's and eventually ceased
 6 in 1994. As production ceased, the natural influx into the aquifer slowly re-filled the
 7 reservoir thereby increasing the reservoir pressure. Continued and prolonged shut in of
 8 production from abandoned wells in the field allowed influx of aquifer water to gradually
 9 increase and restore reservoir pressure close to its original pressure. Fluid level
 10 measurements since 1987 have shown this to be the case, and by the year 2000, these
 11 measurements estimated a reservoir pressure of approximately 1,350 psi. The pressure
 12 near the well is a direct reflection of the increase in reservoir pressure in the
 13 surrounding formation. The rate of increase in pressure from the year 1987 to 1994 was

1 55 psi per year. During the time period Well 421-2 was shut in, the pressure continued
2 to increase at a slightly higher rate of climb, approximately 62 psi per year, from 1996 to
3 2000 (see Figure 4.2-2). No fluid measurements were recorded after the 2000 year as
4 the well was equipped with new surface equipment and mechanical shut off valves for
5 safety, which prevented further fluid level measurements.

6 The Commission's Mineral Resources Management Division staff has evaluated fluid
7 level measurement data from Well 421-2 during the period from August 1987 through
8 October 2000 and believes that pressures have continued to climb above the 1350 psi
9 measurement and will reach a pressure very close to original reservoir pressure. It is
10 important to highlight that during the period that the wells were abandoned, reservoir
11 pressures were low and the sealing effectiveness of the plugs were subject only to
12 these low pressures. This means that the sealing adequacy of the plugs placed in the
13 older abandoned wells, now subject to higher pressure conditions, will be increasingly
14 tested. The risks of leakage cannot be quantified; however, the relative risk can be
15 reduced if the reservoir pressure that has risen over time can be reduced by resuming
16 withdrawals from Well 421-2.

17 If production from Well 421-2 is resumed, oil in the reservoir that has accumulated near
18 this well will be withdrawn and prevented from leaking through nearby, poorly
19 abandoned, wells. While the degree of repressurization of the formation may be
20 speculative, the risk of significant offshore oil leaks, in the absence of the Project,
21 reinforces the findings in the EIR that the Project is an environmentally superior option.

22 Engineers with Venoco and the CSLC identified two possible sources of
23 repressurization: Aquifer influx (natural groundwater movement), or water influx from
24 onshore water injection Well WD-1.

25 *Aquifer Influx*

26 Substantial evidence exists that supports the basis of aquifer influx (natural groundwater
27 movement) being the source of the original Vaqueros reservoir pressure state, as well
28 as the cause of its present repressurization. First, geologic data from exploratory and
29 developmental drilling showed that oil accumulation lies on the surface of an extensive
30 aquifer. Second, an active water drive was suspected early in the field's development,
31 as most initial wells flowed and many experienced rapid water encroachment. Finally,
32 evidence of pressure support from aquifer influx, as well as gravity segregation, can be
33 seen in the production performance of Well 421-2 (CSLC 2006). Gravity segregation
34 refers to the tendency of fluids (water and oil in this case) to stratify into different layers
35 because of gravitational forces. In gravity segregation, the heaviest fluid (water) settles
36 near the bottom of the reservoir and the lightest fluid (oil) rises to the top.

37 Well 421-2, after initially flowing at more than 1,000 BOPD, experienced a steep decline
38 from 1930 to 1940. The water flow rate increased steadily during that time; however,

1 between the early 1940s to mid-1960s, its oil production rate held steady at 20 to 30
2 BOPD, with about 90 percent water cut. Then the oil rate increased, gradually but
3 steadily, to nearly 60 BOPD in 2000. The increase in production began more than a
4 decade prior to commencement of injection into Well WD-1. The production
5 performance of Well 421-2 appears to be unaffected by the onset of injection in Well
6 WD-1. Instead, the gradual increase in oil rate of Well 421-2 appears to be the result of
7 the well's position at the crest of the Vaqueros Reservoir, the elimination of competing
8 wells in the field, and the combined effect of both natural aquifer influx and produced
9 water re-injection into the adjacent Well 421-1, which was used for disposing water that
10 was produced with the oil from Well 421-2. By the mid-1960s and extending into the
11 early 1970s, most producing wells in the eastern part of the field were plugged and
12 abandoned due to production levels that were not economically viable. At the same
13 time, injection into the reservoir was initiated for the first time. From the 1930s through
14 the 1960s, most produced water from the Ellwood Oil Field was disposed of in the
15 ocean. Well 421-1 was converted from a producer to an injector in the early 1970s, and
16 the injection of water from this well appears to have increased the oil production rate in
17 Well 421-2 by at least 10 BOPD. Thus, natural aquifer influx and gravity segregation
18 appear to have caused both the repressurization in this portion of the Vaqueros
19 Reservoir and the improvement of the oil production rate from Well 421-2 (CSLC 2006).

20 *Injection Well WD-1*

21 Injection Well WD-1 disposes of produced water from Platform Holly; it is drilled into a
22 down-structure portion of the Vaqueros Reservoir. The well is located onshore, at the
23 EOF, about 2,500 feet northwest of PRC 421. The well location was chosen because
24 geologic data indicated that the Vaqueros Reservoir in that area selected for water
25 injection is isolated from the oil-bearing part of the reservoir (the Ellwood Oil Field) by
26 an east-west trending, high-angle reverse fault known as the La Vigia fault. Geologic
27 data further suggest that Well WD-1 does not penetrate an area of the Vaqueros
28 Reservoir that would affect the pressure at Well 421-2. Previous drilling showed that the
29 La Vigia Fault acts as a barrier to oil migration. Oil is trapped in the sands on the south
30 side of the fault, while no oil is found to the north of the fault (CSLC 2006).

31 In late 2004, Venoco submitted to the Commission a design for a pressure fall-off test of
32 the onshore water disposal well (WD-1), and a simultaneous build up test in Well 421-2.
33 These tests were designed to detect possible pressure connectivity between the
34 producer and disposal wells. The test was not performed because: 1) the disposal well
35 was needed for continuous service of produced water from Platform Holly; and 2) a
36 pressure build up test in Well 421-2 would require temporary production of the well, for
37 which Venoco had neither the permits nor the approvals to undertake the temporary
38 production.

1 An examination of cumulative production and injection data for the Ellwood Oil Field
2 also indicates that the volume of water injected into Well WD-1 has been insufficient to
3 cause an increase in pressure throughout the Vaqueros Reservoir, even if the La Vigia
4 did not exist. Cumulative liquid production from the Vaqueros Reservoir is
5 approximately 252 million barrels, which includes 104 million barrels of oil and 148
6 million barrels of water. Cumulative water injection in the field, including injected water
7 into Well WD-1, is only 97 million barrels. This leaves a net void of 155 million barrels of
8 liquid for the Ellwood Oil Field, and if natural gas withdrawals from the reservoir were
9 included in this calculation, the net voidage would be even greater. In a reservoir with
10 no other sources of water or other liquid entering the formation, this can only result in a
11 decrease in reservoir pressure. The presence of the isolating La Vigia fault, coupled
12 with the imbalance of injection to withdrawal volumes, makes Well WD-1 an unlikely
13 premise as the cause of Well 421-2 pressurization (CSLC 2006).

14 *Repressurization Monitoring*

15 Static reservoir measurements record the reservoir pressure condition of a
16 nonoperational well at the moment the pressure instrument reaches reservoir depth.
17 This is a single measurement and is a record of the reservoir pressure at that point in
18 time. Static measurements are usually taken when it is believed the reservoir pressure
19 at that location has reached a state of equilibrium. These measurements are useful for
20 identifying the pressure state of a reservoir and to determine the level of depletion a
21 reservoir has experienced at different times during its operating life. This single point
22 pressure measurement method is not, however, a method for evaluating a dynamically
23 changing reservoir, which is the condition of the Vaqueros reservoir in the Ellwood
24 Field. The pressure in the Vaqueros Formation has been in a state of flux over the past
25 25 years (see Figure 4.2-2). To evaluate a dynamic and changing pressure environment
26 within a reservoir, it is necessary to record the trend of pressure changes from within
27 wells in the reservoir. It is also necessary that pressure changes are recorded at
28 extreme well conditions. In order to utilize recorded data effectively from a producing
29 well, such as Well 421-2, a pressure increase trend must be developed, beginning at its
30 lowest possible recorded pressure. Reservoir pressure recordings in a dynamic
31 environment are only effectively recorded after a well has produced for a period of time
32 where the reservoir has been significantly depressurized at reservoir depth.
33 Depressurization can only occur through continuous withdrawal of reservoir fluids, until
34 the producing reservoir pressures have reached a constant state. It is not possible to
35 record this information without first producing the well to achieve a constant producing
36 pressure at the bottom of the well. Under the Project, the electric submersible pump
37 (ESP) will allow for producing pressure data and rate data that will be made available to
38 the Commission on a regular basis, allowing for a detailed reservoir analysis of the
39 Vaqueros Formation.

1 The Vaqueros pressure cannot be monitored as long as production at PRC 421 is shut-
2 in. PRC wells 421-1 and 421-2 are the only remaining wells where measurements can
3 be made. Section 2.4.5 of the Project Description provides a reservoir pressure
4 monitoring program through the life of the Project. Because Venoco has no obligation
5 under its lease to perform pressure testing or pressure monitoring without approval of a
6 Project to return PRC 421 to production, the CSLC does not have any current
7 mechanism by which to collect pressure data in the absence of the Project.

8 Gas leaks at PRC 421 were detected in 2000 from monitoring by the Santa Barbara
9 County APCD. APCD's testing and monitoring, however, does not provide any
10 information regarding the pressure within the reservoir, only whether there is a presence
11 of volatile organic compounds around the wells, which could signify the presence of a
12 leak. CSLC staff acknowledges the concern about leakage at Well 421-2, but believes
13 that the current absence of leakage at Well 421-2 is not a reliable indicator that the
14 reservoir is not repressurizing for the following reasons:

- 15 • installation of a subsurface safety valve occurred when Well 421-2 was shut-in
16 pursuant to the direction and oversight of Commission and Division of Oil and
17 Gas, and Geothermal Resources (DOGGR) staffs; and
- 18 • the risk of a leak from this well has been mitigated by the modern method by
19 which the well was closed and the addition of the subsurface safety valve.

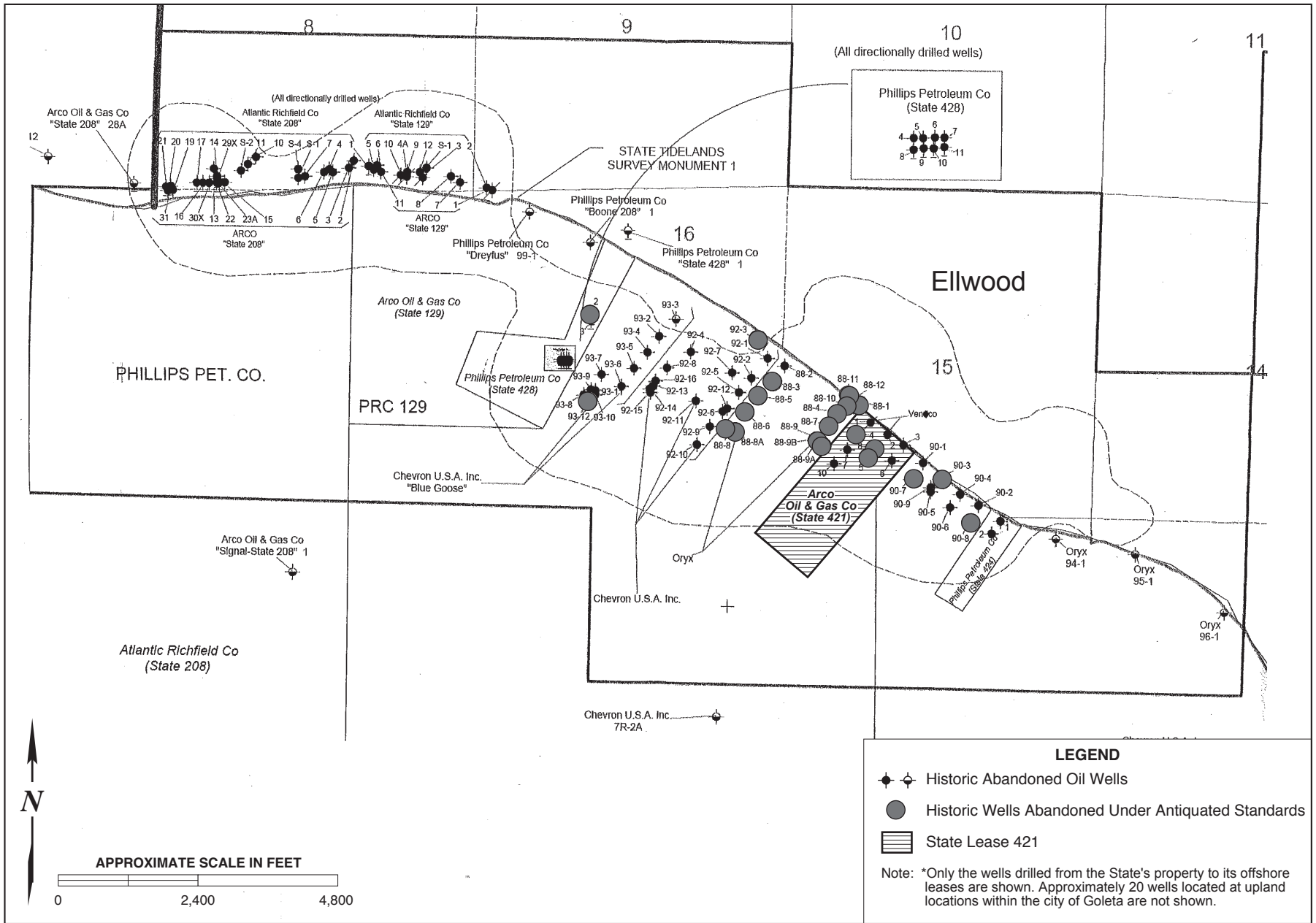
20 In the event that the APCD detects a leak through its testing at Well 421-2, CSLC staff
21 would be notified. CSLC staff believes the greater environmental risk, as identified in the
22 EIR, is that the older wells abandoned throughout the field, some of which were
23 abandoned many decades ago (see Figures 4.2-3 and 4.2-4), will leak oil and gas as
24 the reservoir repressurizes.

25 *Repressurization and Abandoned Wells*

26 According to a review conducted by the CSLC's Mineral Resources Management
27 Division in 2001, at least 21 of the offshore wells drilled into the Vaqueros Reservoir
28 from piers had potential deficiencies in their historic abandonment procedures, which
29 could make them more likely to leak. Figures 4.2-3 and 4.2-4 provide maps of the
30 locations of these wells, which only depict these offshore wells, and do not include
31 approximately 20 wells located at upland locations now within the City of Goleta. All of
32 these wells are currently abandoned, and PRC 421 is the only active lease remaining.

33 The potential concern for most of the wells is the inadequate volume of cement in the
34 casing shoe plugs and/or surface plugs.² Most wells have shoe plugs less than 100 feet

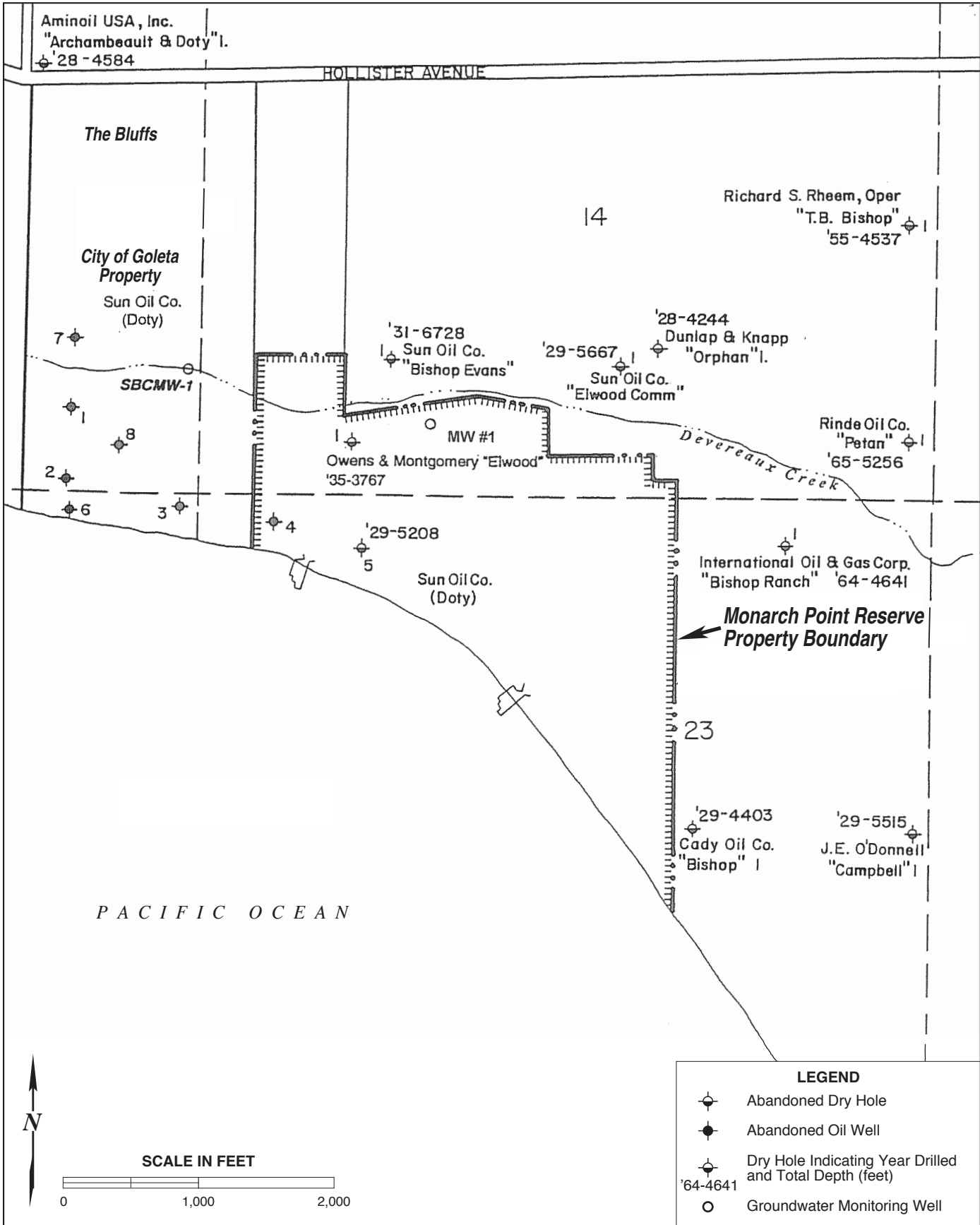
² A shoe plug consists of a concrete plug at the bottom of a string of open casing. A surface plug is placed from the surface down to a variable depth in the well bore, typically 50 feet in modern operations.



Historic Well Locations in the Project Vicinity*

FIGURE 4.2-3





Detailed Well Descriptions in the Project Vicinity

FIGURE 4.2-4

1 long, some wells have shoe plugs of only a few feet, and some have no shoe plug at all.
2 Like the shoe plugs, the surface plugs do not meet current standards and practices.
3 Some wells have no surface plugs; wells with surface plugs average only 30 feet in
4 length. Re-abandoning these wells could present significant problems, since many of
5 them had their inner/production strings cut and recovered, and the well casings were cut
6 off at or below the mud line, making it very difficult to locate the wells and re-entry to an
7 appropriate depth nearly impossible.

8 *Summary*

9 Pursuant to State CEQA Guidelines section 15144, while an agency cannot foresee the
10 unforeseeable, it must use its best efforts to find out and disclose all that it reasonably
11 can. As such, the CSLC staff is concerned that any build-up of pressure within the
12 Vaqueros Reservoir could potentially cause unintentional oil releases into the coastal
13 environment. The increased pressure in the reservoir could force a leak from historic
14 abandoned wells in offshore areas of the reservoir or possibly lead to additional release
15 of oil from a natural seep. Given current conditions – PRC 421 is shut-in and all other
16 wells that once tapped the reservoir have been abandoned – there is no active well
17 penetrating the reservoir into which pressure-testing equipment can be inserted.
18 Consequently, there is no existing mechanism to conduct pressure testing of the
19 reservoir to determine the extent of possible pressure build-up. The potential impacts of
20 repressurization cannot be adequately determined until the Commission has sufficient
21 data to evaluate. The pressure data that would be collected by the Project are integral
22 to assessing the future risks of pressurization of the formation and the determination of
23 any future risks and responses. Long-term risks and responses to repressurization will
24 be dealt with when the lease is quitclaimed or terminated.

25 **Existing Facility Conditions**

26 Existing facilities at PRC 421 have undergone structural improvements, repairs, and
27 removal of historic structures. The present conditions of these facilities, as they relate to
28 Project safety, are summarized in Table 4.2-1.

29 Hazards, conditions, or features that have the potential to be the source of a release,
30 fire, or explosion, are also noted. Figure 4.2-5 shows the piers in their existing condition,
31 and Figure 4.2-6 shows the conditions of the existing caisson walls of each pier.

32 **Existing Facility Hazards**

33 Sands within and possibly beneath both caissons at Piers 421-1 and 421-2 may contain
34 unknown quantities of residual oil and oil-containing materials, although no
35 contamination was discovered during repair work and associated excavation at
36 Pier 421-1 in 2004 or at Pier 421-2 in 2011. In their current condition, portions of either

Table 4.2-1. Summary of Area Facility Conditions

Facility	Condition
Used by Project	
Pier 421-1 (Pier and Caisson)	In 2000, the pier was reinforced, the well casing and wellheads were repaired, and subsurface safety valves were installed. In 2004, a new seaward-facing wall was installed on the caisson. Venoco has developed and is implementing a monitoring plan to identify and respond to leaks from the PRC 421 piers. The pier is fenced and patrolled twice daily by private security.
Pier 421-2 (Pier and Caisson)	In 2000, the pier was reinforced and upgraded and new subsurface safety valves were installed. In 2011, a new seaward-facing caisson wall was built. Venoco has developed and implemented a monitoring plan to identify and respond to leaks. This facility may have similar source and quantity of contaminated material as that found in Pier 421-1. The pier is fenced and patrolled twice daily by private security.
6-inch Pipeline	In 1994, 170 barrels of oil were released near the coastal bluffs. The line is currently out of service and is not suitable for modern "pigging" maintenance due to the presence of two 90 degree bends.
Access Road and Seawall	The access road was rebuilt and resurfaced during 2000 repair activity to permit use by heavy construction equipment. The seawall was expanded and reinforced by the addition of new riprap; however, there is a gap in the seawall between Piers 421-1 and 421-2 where a timber bulkhead provides the only protection for the access road. Security patrols along the access road are conducted by Venoco.
EOF	The EOF includes multiple redundant monitoring and safety systems with a control room that is staffed 24 hours per day, 7 days per week. Existing safety systems include onsite fire fighting capabilities, and personnel trained to respond to fires and other emergencies. Substantial upgrades to the EOF have been implemented to comply with the 1999 Santa Barbara County APCD Abatement Order and conclusions of the 2000 quantitative risk assessment and Safety audit (Santa Barbara County 2006).
Line 96 Pipeline from the EOF to the PAAPLP Coastal Pipeline	The Line 96 pipeline began operation in 2012. Standard regulatory conditions for pipelines and MMs in certified Line 96 Modification Project EIR (Santa Barbara County 2011) include pressure testing, pigging, and other methods to ensure safe operation consistent with industry and regulatory standards.
Other Area Ellwood Oil Facilities	
EMT	Not a part of Project. Operation was discontinued upon completion of the Line 96 pipeline in 2012; abandonment planning is underway.
Old Line 96 that runs from the EOF to the EMT	The old Line 96 that runs from the EOF to the EMT ceased operation in 2012 and will be removed or abandoned in place now that the Line 96 pipeline from the EOF to the PAAPLP Coastal Pipeline is in operation.
Historic Abandoned Oil Wells	There are many offshore oil wells that were drilled into the Vaqueros Reservoir from historic piers that are no long present in the area (see Figure 4.13-1 depicting the historic piers); however, the old wells remain in place and abandoned by historic abandonment practices.

- 1 caisson have the potential to deteriorate and release oil and oil-related contaminants,
- 2 despite the repairs conducted in 2004 and 2011.
- 3 Hazards and hazardous conditions associated with Project implementation would
- 4 potentially affect both the EOF and the Line 96 pipeline extension because the quantity
- 5 of oil and gas processed at the EOF and the total crude oil throughput in the pipeline
- 6 would increase. The Project would not modify the existing oil and gas processing



Figure 4.2-2a
Pier 421-1



Figure 4.2-2b
Pier 421-2 (shown under repair as of April 2011)
(Photo: Bruce Reitherman)



Figure 4.2-3a
Pier 421-1 Caisson Wall (facing ocean)

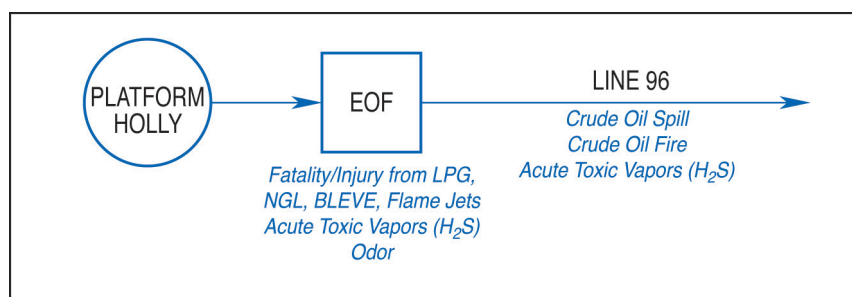


Figure 4.2-3b
Pier 421-2 Caisson Wall (facing ocean, shown under repair as of April 2011)
(Photo: John Storrer)

1 systems at the EOF or increase the quantity of oil processed beyond the processing
 2 limits for Platform Holly alone. Therefore, the Project would not generate significant
 3 changes in the operation of the EOF. The Line 96 pipeline was evaluated in a certified
 4 EIR, which contains proposed MMs that are required to be implemented as part of
 5 project construction and operation.

6 A 1999 Abatement Order by the Santa Barbara County Air Pollution Control District
 7 (APCD) required a series of audits, improvements, and other actions to address
 8 releases of gas containing hydrogen sulfide (H_2S) at Ellwood area facilities (Santa
 9 Barbara County APCD 1999). Although the Abatement Order notes PRC 421 as being
 10 included in the Ellwood facilities (i.e., EOF, EMT, and the old Line 96 pipeline from the
 11 EOF to the EMT), there were no specific references to PRC 421 in the Abatement
 12 Order; additionally, the oil produced at PRC 421 is light “sweet” crude oil, typically low in
 13 H_2S . The Abatement Order led to the preparation of a quantitative risk assessment
 14 (QRA) of these facilities (Arthur D. Little [ADL] 2000). The conclusions of the QRA are
 15 incorporated in this EIR both as background for issues affecting the Project and for use
 16 in assessing the risk associated with certain Project alternatives (see Section 5.0 for the
 17 alternatives analysis).

18 The Ellwood area oil production facilities have hazards and risks associated with them
 19 related to the crude oil produced from Platform Holly, for which crude oil production
 20 includes H_2S or “sour gas.” Crude oil with little or no sulfur content is referred to as
 21 “sweet” crude. Figure 4.2-7 is a simplified diagram presenting existing hazards and risks
 22 associated with the Ellwood area oil production facilities that would be affected by the
 23 Project. These are the baseline conditions against which Project effects are compared.



**FIGURE 4.2-7. BASELINE HAZARDS/RISKS
 FROM ELLWOOD OIL PRODUCTION FACILITIES**

24 Information about hazards and risks was obtained from CSLC (2009), ADL (2000), and
 25 Santa Barbara County (2011). Project-related hazards and risks associated with
 26 Ellwood facility components are summarized below (see the Line 96 Modification
 27 Project EIR for a full discussion of hazards associated with Line 96). Existing hazards
 28 associated with operation of Platform Holly are not addressed here as the Project would
 29 not require use of those facilities.

- 1 • **EOF** – The Project would require use of the EOF for separation and processing
2 of oil, gas, and water, reinjection of water, control-room and security support, and
3 electrical power (from the substation).
- 4 • **Line 96 Pipeline from the EOF to the PAAPLP Coastal Pipeline** – The Line 96
5 Modification Project EIR projected a failure rate for the approved pipeline of a
6 large spill once every 140 years, and a small spill once every 31 years. These
7 rates would not be expected to change substantially with the addition of Project
8 oil, and the Project’s use of the pipeline would occur during its first decades of
9 operation, when risks of pipeline spills and accidents are at their lowest levels.

10 Crude Oil Characteristics

11 Crude oil characteristics can vary significantly by origin and (after exposure to the
12 surface) weathering. At the wellhead, crude oil is typically a mixture of water,
13 hydrocarbons (liquid and gases), and solids. The crude oil produced from PRC 421 is
14 “sweet” crude, referring to its low sulfur content. Table 4.2-2 provides the crude oil
15 properties of oil produced from PRC 421 (Ellwood Field), compared to other crude oils
16 produced from the South Ellwood Field (Platform Holly).

Table 4.2-2. Crude Oil Characteristics, PRC 421 and the South Ellwood Field

	PRC 421	Holly ^a	EOF ^a
API Gravity	35	22.4	22.4
Sulfur Content, percent by weight	<0.6%	4.1%	4.1%
H ₂ S Concentration, (parts per million by weight (ppmw))	≤10 ^a	200	65

^a Venoco 2013.

17 The natural gas content of oil produced at PRC 421 is known to be low, and the gas that
18 is produced would have an H₂S content of approximately 10 parts per million (ppm).
19 The low gas content of this oil was confirmed during previous production under
20 emergency permit by Venoco in 2001 when approximately 17,000 barrels of oil
21 produced from 421-2 contained no detectable amounts of gas (Venoco 2007). The
22 Emergency Response Planning Guidelines (ERPG), which are used to develop
23 thresholds for injuries and fatalities, identify 30 ppm of H₂S as the level at which nearly
24 all individuals could be exposed for up to one hour without experiencing irreversible or
25 serious health effects (American Industrial Hygiene Association 2006). Therefore, the
26 crude oil produced by the Project would not be a source of acute toxic impacts to
27 human receptors, if released. This distinguishes the characteristics of oil produced from
28 PRC 421 from that currently produced at Platform Holly.

29 Crude oil released into the environment can pose a range of hazards, depending on the
30 specific properties of the crude oil, location, and condition under which it is released,
31 and the sensitivity and physical characteristics of the receiving environment and local

1 receptors. Crude oil can be toxic to biota, as well as cause physical harm or death to
2 animals following contact with oil. See Section 4.5, Hydrology, Water Quality, and Water
3 Resources, for discussion of effects of oil on water quality, and Section 4.6, Marine
4 Biological Resources, for more discussion about the effects of oil on biota.

5 Rapid response to a crude oil release is critical. Because crude oil contains a mixture of
6 constituents, as the lighter or more volatile fractions dissipate, the remaining material is
7 thicker and tends to be more persistent in the environment if it is not contained and
8 removed at the early stages of a response. Crude oil spilled in the marine environment
9 typically forms an emulsion that incorporates sand and debris as it weathers, which
10 causes it to sink after a period of time and is difficult to recover. This is especially true of
11 oil in the surf zone, which is a high-energy area.

12 Crude oil can ignite, which could result in a crude oil fire. As noted in the EMT Lease
13 Renewal EIR, the likelihood of an explosion related to a crude oil spill and fire related to
14 crude oil produced from Platform Holly is “virtually non-existent;” therefore, the EMT
15 analysis did not conduct further analysis on explosions (CSLC 2009; ADL 2000).
16 However, the Platform Holly crude oil is heavier than PRC 421 crude oil. The PRC 421
17 crude oil (35 API) has higher potential of explosion than Platform Holly crude oil due to
18 the presence of higher light ends. A more recent risk assessment was conducted for the
19 Keystone XL pipeline, which included a wide range of historical analyses of pipeline
20 accidents (U.S. Department of State 2013). That assessment concluded that explosions
21 from newer pipelines carrying single-phase crude oil (as Line 96 does) present an
22 extremely low risk of explosion or fire.

23 **Environmental Hazards**

24 The Project site is situated in a dynamic environment, with naturally occurring conditions
25 that may affect safety conditions. These are ocean/wind conditions, coastal processes,
26 seismicity, and subsurface pressure in the Ellwood Oil Field. See Section 4.1, Geologic
27 Resources, for a complete discussion of geologic processes that may impact Project
28 safety conditions; specifically erosion, seismicity, tsunamis, and subsurface pressure.

29 Prevailing winds in the coastal region are from the west/northwest during the day, with
30 an average speed of 7 to 12 miles per hour. Evening winds blow from the east, as the
31 air over the Pacific Ocean cools and creates a low pressure zone. Ocean conditions are
32 summarized below, and are described in more detail in the EMT Lease Renewal EIR
33 (CSLC 2009). These data are based on historic conditions in the Project area, and it is
34 uncertain to what degree, if any, these would evolve or change due to the effects of
35 global warming over the Project production horizon.

36 Although located in the relatively sheltered surf zone of the Santa Barbara Channel, the
37 Project site is subject to periodic high winter surf conditions (Table 4.2-3). Heavy winter

Table 4.2-3. Ocean and Wind Conditions

Weather Elements	Annual Average	Monthly Maximum
Wind > 33 Knots – Percent Frequency	1.3	2.2
Wave Height > 9 feet – Percent Frequency	6.4	10.6
Visibility < 2 nautical miles – Percent Frequency	6.3	8.7
Precipitation (inches)	16.8	5.8
Temperature > 69°F – Percent Frequency	1.7	4.2
Mean Temperature (°F)	58.8	62.8
Temperature < 33 °F – Percent Frequency	0	0.1
Mean Relative Humidity (percent)	82.0	86.0
Overcast or Obscured – Percent Frequency	31.4	50.6
Mean Cloud Cover (8ths)	4.5	5.4
Prevailing Wind Direction	NW	N/A

Sources: USCG 2002; CSLC 2009.

1 storms can generate wave heights in excess of 10 feet leading to scouring of all or most
 2 of the sand from beaches at the Project site and exposing primary Project facilities,
 3 such as the caissons, piers, and seawall to battering from heavy surf. When combined
 4 with winter high tides, which can reach the toe of the seawall, such high surf conditions
 5 may pose a hazard to Project facilities.

6 **Security, Prevention, and Response Capabilities for the Ellwood Facilities**

7 Venoco has existing security, accident prevention, and response capabilities that
 8 address the PRC 421 facilities. Preventive measures, plans, response equipment, and
 9 the programs required to implement a response (e.g., health and safety training, drills
 10 and exercises, and equipment inspection) contribute to Venoco's ability to prevent or
 11 respond to upset conditions. Most of these measures and programs are governed by
 12 agency and industry requirements and standards (see Section 4.2.2, Regulatory
 13 Setting), as well as corporate policies, to avoid or reduce harm to the public and the
 14 environment. Although these safeguards provide a level of confidence in the safety of
 15 operations, and an ability to respond to emergencies, they cannot reduce the potential
 16 for accidents or harm to zero. Existing security, prevention, and response capabilities in
 17 place that encompass PRC 421 facilities are listed in Table 4.2-4.

18 For releases of oil at the Ellwood facilities, Venoco has response equipment, vessels,
 19 personnel, and/or supplies located at the EOF and onboard Platform Holly. As required
 20 by various regulations, contingency plan implementation requires personnel training,
 21 equipment testing and inspections, and scheduled and unscheduled drills and exercises
 22 to maintain readiness. According to records provided of response drills and exercises
 23 held for the Ellwood facilities since 1999, 10 drills were held, of which nine were for H₂S
 24

Table 4.2-4. Security, Prevention and Response Plans and Capabilities In Place for PRC 421 Facilities

Measure	Purpose
Controlled Access	Each caisson has an 8-foot-high chain link fence that remains locked to prohibit entry to the equipment on the piers. EOF staff provides security.
Security Patrol	A private security firm patrols the PRC 421 facility area twice daily.
Emergency Action Plan (EAP)	Emergency plan for the South Ellwood facilities provides information and procedures for emergency shutdown, evaluation, and response to emergency conditions at the South Ellwood Field. The plan includes procedures for responding to and managing an oil spill emergency, and contains response checklists, roles and responsibilities of response personnel, inventories and locations of response equipment, supplies, and personnel (Venoco and contracted).
Spill Prevention Countermeasures and Control (SPCC) Plan	Description of systems (equipment, containment, related components) at PRC 421 used to prevent and manage releases of oil.
Fire Prevention and Preparedness Plan, South Ellwood Facilities	Fire prevention and response. This plan specifically addresses the EOF and EMT. PRC 421 facilities are not specifically addressed in this plan.
Mitigations from City of Goleta (2006) MND	Site-specific plans resulting from Pier 421-1 repair and subsequent monitoring for leakage which were completed in early 2007: <ul style="list-style-type: none"> • Emergency Response Plan • Prevention and Control Plan • Removal Action Plan

1 releases or H₂S-related drills at the EOF, and one was an unannounced oil spill drill at
2 the EMT, initiated by OSPR. None of the drills specifically addressed PRC 421;
3 however, a response to an event at the PRC 421 facilities would be similar to the
4 response to an event at the EOF facilities or formerly conducted at the EMT (with the
5 exception being the low likelihood for H₂S drills due to the low H₂S content of PRC 421
6 oil). According to the records provided, some included written evaluations by Santa
7 Barbara County, providing specific recommendations (Venoco 1999-2004).

8 The EAP includes descriptive information of and response procedures for PRC 421
9 (referred to as the “Beachfront Lease”), lists the historical components, and notes that
10 they will be replaced. Similarly, the Spill Prevention Countermeasures and Control
11 (SPCC) Plan would need to be updated as it lists a potential release volume of 900
12 barrels; however, the source of the volume noted was the crude oil storage tank on Pier
13 421-1, which has been removed. On-water containment procedures in the EAP include
14 booming strategies for a release from the piers.

15 The EOF has engineered fire protection systems and procedures (contained in the Fire
16 Prevention and Preparedness Plan) to prevent, detect, and manage a fire. According to
17 the Fire Prevention and Preparedness Plan, Venoco personnel are trained and

1 equipped to initiate a response to a fire at the incipient stage³ and to control the site in
2 preparation for the arrival of the SBCFD. In its existing form, the Fire Prevention and
3 Preparedness Plan does not specifically provide procedures or other information for the
4 PRC 421 facilities (Venoco 2003).

5 The Line 96 pipeline includes a number of measures related to response planning and
6 capabilities to address an oil spill. These measures are intended primarily to ensure
7 timely shut down of oil flows through the pipeline should a rupture occur and require
8 capabilities for active response to potential oil spills, particularly those that threaten
9 environmentally sensitive areas (e.g., creeks, shoreline). The specific measures have
10 been set forth in a revised Safety Inspection, Maintenance and Quality Assurance Plan
11 (SIMQAP), Oil Spill Contingency Plan (OSCP), and EAP which were completed and
12 approved prior to commencing operation of the new pipeline in 2012.

13 **4.2.2 Regulatory Setting**

14 The primary Federal and State laws, regulations, and policies that address security of
15 oil and gas production and transport facilities, emergency response/contingency
16 planning, design and construction standards, operational standards, and spill prevention
17 and cleanup that pertain to the Project, are summarized in Table 4.0-1, while local laws,
18 regulations, and policies are summarized below.

19 **Local**

20 *System Safety and Reliability Review Committee (SSRRC) and Safety Inspection,*
21 *Maintenance and Quality Assurance Plan (SIMQAP)*

22 The Santa Barbara County Board of Supervisors originally established the SSRRC—a
23 committee of County departments plus the Santa Barbara County APCD—in 1985 to
24 identify and require correction of possible design and operational hazards for oil and
25 gas projects prior to construction and startup of the project and for project modifications.
26 The SSRRC has authority to review the technical design of facilities, as well as to
27 review and approve the SIMQAP. The purpose and scope of the SIMQAP is to identify
28 procedures that will be used during the operation of a facility and to insure that all
29 equipment will function as designed. The SIMQAP identifies items to be inspected,
30 maintained or tested, defines the procedure for such inspection, maintenance, or
31 testing, and establishes the frequency of inspection, maintenance or testing. SIMQAP
32 audits are conducted annually at the EOF. The City of Goleta contracts with the County
33 Energy Division for energy related planning services, which includes SSRRC project

³ As defined by the Occupational Safety and Health Administration (OSHA) (29 Code of Federal Regulations [CFR] 1910.155[c][26]), an incipient stage fire is in its initial or beginning stage, and can be controlled or extinguished by portable fire extinguishers, class II standpipe or small hose systems without the need for protective clothing or breathing apparatus.

1 review; however, the County Energy Division is not currently providing energy planning
2 services for the PRC 421 Project.

3 *City of Goleta Safety Element*

4 The objective of the City's Safety Element is to minimize risk associated with the
5 operation of Venoco's Ellwood area facilities and other oil and gas operations. As part of
6 this objective and its adopted policies, the city has defined unacceptable risk as
7 involving new development as well as modifications to existing development if those
8 modifications increase risk. Several city policies address how to minimize or avoid risk
9 from H₂S and pipeline operations and set forth the requirements for preparation of QRA.
10 Pipeline policies address construction, location, operation, and safety, as well as the
11 location of sensitive receptors near pipelines.

12 *Santa Barbara County Public Safety Thresholds and Safety Element*

13 The county has established thresholds for classifying the significance of public safety
14 impacts, particularly public exposure to acute risks from activities with significant
15 amounts of hazardous materials. The county defines acute risk as being the "chance of
16 fatality or serious injury due to a single, short-term, involuntary exposure to the release
17 of hazardous gas, liquid, or solid, or to a fire or explosion." The thresholds are designed
18 for use in EIRs as significance criteria. The county's Safety Element automatically
19 requires some types of facilities, such as sour gas pipelines and processing facilities, to
20 perform a QRA to calculate risk and apply the criteria. These criteria were applied for
21 analyses related to the EOF which handles sour natural gas oil that contains higher
22 concentrations of H₂S, which is an acutely hazardous material. Findings from the QRA
23 that was performed for the EOF are discussed where appropriate below (see also
24 Section 4.4, Air Quality and Greenhouse Gases).

25 **4.2.3 Significance Criteria**

26 A safety impact is considered significant if any of the following apply:

- 27
- 28 • There is a potential for fire, explosion, releases of flammable/toxic materials
29 and/or oil, or other accidents resulting from Project operations that could cause
injury or death to members of the public;
 - 30 • Operations would increase the probability or volume of oil spills into the
31 environment, and existing or proposed emergency response capabilities are not
32 adequate to effectively mitigate Project spills and other accidents; or
 - 33 • Project operations are not consistent with Federal, State or local regulations.
34 Conformance with regulations does not necessarily mean that there are no
35 significant impacts.

1 **4.2.4 Impact Analysis and Mitigation**

2 This section evaluates Project construction and operational activities to identify potential
3 impacts and their severity with respect to the stated significance criteria. Activities and
4 conditions that, under upset conditions, could lead to a release of oil or hazardous
5 materials, fire, or explosion were identified based on a review of available materials, site
6 visits, independent engineering and structural analyses, and professional judgment.
7 Impacts were compared against baseline conditions and the significance criteria
8 established in the State CEQA Guidelines and the EMT Lease Renewal EIR (CSLC
9 2009) to determine the severity of the impact. Where relevant, a quantitative estimate of
10 frequency or probability is used. Where applicable, MMs have been developed to avoid
11 or reduce impacts. Baseline conditions for Ellwood area oil facilities were derived from
12 the EMT Lease Renewal EIR and other available reports, which were defined earlier in
13 this section.

14 Construction and operational impacts related to a release of hazardous materials are
15 also discussed in Section 4.3, Hazardous Materials. Best management practices
16 (BMPs) include monitors to direct public access during construction, installation of
17 temporary fencing as needed, removal of equipment or other hazards from the beach
18 and other publicly accessible areas at the end of each day of construction, posting of
19 warning signs, measures to prevent release of fuel during refueling, etc. (see Appendix
20 F). The Line 96 Modification Project EIR proposed mitigations that are incorporated by
21 reference into this document (Appendix H) that reduce the potential for crude oil
22 releases, and therefore the opportunity for crude oil fires.

23 Table 4.2-5, located at the end of Section 4.2.4, provides a summary of safety-related
24 impacts and recommended MMs to address these impacts.

25 **Impact S-1: Release of Oil During Cleanup of 6-inch Pipeline**

26 **Residual oil could be encountered and released during clean-up of the 6-inch**
27 **pipeline (Less than Significant).**

28 **Impact Discussion**

29 Prior to installation of the internal liner and 3-inch flowline within the 6-inch line that
30 connects Pier 421-2 to the tie-in at the EOF, a release of oil could occur. The 6-inch line
31 was the source of the 1994 leak; therefore, residual oil could be encountered within or
32 surrounding the pipeline during construction. If residual oil is encountered, it could be
33 controlled and removed to prevent further contamination or migration. BMPs would
34 include safety procedures for use of equipment in the presence of hydrocarbons, which
35 would reduce the potential for ignition if vapors are present (see Appendix F). As noted
36 previously, access to the construction area would be controlled to maintain safety and

1 prevent public contact with construction-generated materials or equipment. Therefore,
2 this impact would be adverse but less than significant.

3 **Mitigation Measures**

4 None required.

5 **Rationale for Mitigation**

6 Although no mitigation is required, BMPs, as discussed above, which establish Project
7 construction equipment operation and maintenance procedures, are designed to
8 prevent releases, and would also be protective of the public during the construction
9 process to avoid potential contact with hazardous materials and the introduction of
10 ignition sources. Such measures would include removal of equipment and construction
11 materials from the beach at night, use of tape or orange plastic construction fencing
12 around construction areas and the presence of monitors to direct the public around
13 construction activity (see Appendix F).

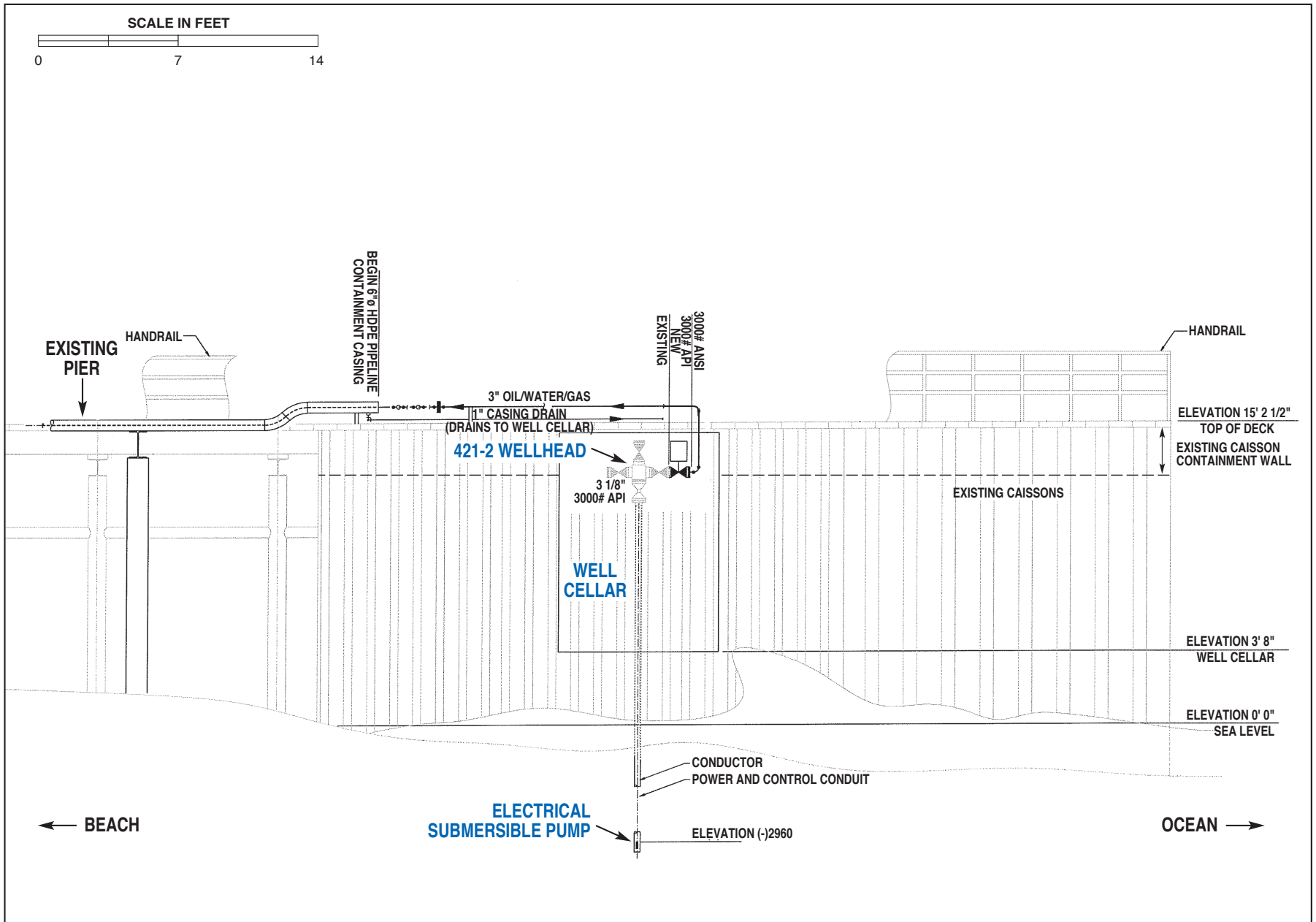
14 **Impact S-2: Exposure of the Public and Environment to Safety Hazards Due to** 15 **Collapse of the Pier 421-1 or 421-2 Caisson**

16 **The Project would prolong the use of the aging caisson on Pier 421-2, which**
17 **could collapse and lead to the release of hazardous materials and oil from within**
18 **the caisson or from Project-related pipelines (Less than Significant with**
19 **Mitigation).**

20 **Impact Discussion**

21 The caisson at Pier 421-1 would remain in place for an estimated 1 year after
22 resumption of production at Pier 421-2. Although the seaward-facing wall of the caisson
23 at Pier 421-1 was repaired in 2004, some potential exists for collapse of this structure
24 during its limited remaining life. Although no active oil production facilities would be
25 located on Pier 421-1, a collapse could release contaminated materials (e.g., sand,
26 concrete) into the surf zone as discussed below for Pier 421-2. Abandonment and
27 decommissioning of Pier 421-1 would eliminate this potential hazard.

28 The proposed well design and layout at Pier 421-2 is shown in Figure 4.2-8. Critical
29 features include the ESP, which would be at a depth of about 2,960 feet below sea
30 level, the subsurface safety valve (SSSV) located above the ESP, the well cellar within
31 the caisson, the wellhead and casing, the surface safety valve (SSV), and the oil
32 discharge line with High and Low pressure sensing switches. This system would pump
33 crude oil emulsion to the surface and deliver it directly to the EOF for processing. Safety
34 features included in this system are the pressure sensing switches for the oil discharge
35 line and the safety valves (SSSV and SSV), which require power to remain open. In the



Cross-Section of Proposed Layout for Pier 421-2

FIGURE 4.2-8

1 event that the pressure sensing switches report high or low pressure, or any alarm
2 forces a shutdown of the well, the safety valves will automatically close, which prevents
3 oil from being conveyed to the surface; the safety valves would also shut if there were a
4 loss of power. The well cellar within the caisson has a volume of approximately 213
5 barrels (8,946 gallons). It is believed to have sand and other materials packed around it,
6 but its actual condition and construction are unknown. The well cellar houses the
7 wellhead and casing and, in the event of leakage, would serve as containment within
8 the caisson, with some improvements likely required to permit these facilities to provide
9 complete containment (see MM S-4b below). The wall surrounding the caisson deck is
10 higher than the deck itself and would in its present state impede oil movement, but is
11 not specifically designed as secondary containment.

12 The wellhead was repaired in 2000-2001. Venoco proposes to equip the wellhead with
13 current safety equipment to adhere to design criteria specified in American Petroleum
14 Institute (API) Recommended Practice (RP) 14C, *Safety Analysis Function Evaluation*
15 *(SAFE) of Offshore Petroleum Production Systems*, and incorporated in 30 CFR
16 250.168.

17 AMEC engineers conducted an engineering review of the facilities to evaluate the
18 appropriateness and adequacy of the Project with respect to safe operations for the
19 Project duration. The conclusions of that review are:

- 20 • The Project design uses proven technologies and is consistent with industry
21 standards.
- 22 • Installation of an ESP is advantageous because it protects the equipment from
23 external forces (wave action) and avoids creating a noise source on the surface.
- 24 • The 3-inch flowline would be equipped with high- and low-pressure switches for
25 leak detection which would be important if the 6-inch line casing were
26 compromised.

27 As discussed above, a preliminary review of the structural integrity of Project caissons
28 and the seawall was conducted by a licensed structural engineer to determine the
29 current structural stability of key Project facilities and to analyze the potential for the
30 facilities to endure two decades of operation (Thomas and Beers 2000). This review
31 was conducted prior to the emergency repairs on Pier 421-2, so improvements to the
32 seaward-facing caisson in 2011 were not taken into account. The review of the
33 structural integrity of Project facilities consisted of:

- 34 • A visual inspection of all facilities by a licensed structural engineer;
- 35 • A review and analysis of structural diagrams of Project facilities from the 2006
36 Negative Declaration (ND) and other engineering diagrams and relevant
37 documents which address design standards and construction issues for marine
38 structures such as seawalls;

- 1 • Communication and information exchanges with CSLC engineering staff
2 regarding improvements at the Pier 421-1 and 421-2 caissons; and
- 3 • A review of a previous structural engineering report on the Project piers and
4 caissons (Thomas and Beers 2000).

5 No as-built plans were provided by Venoco for the seawall and older portions of the
6 caissons and no load calculations are available for the new walls; therefore, the stability
7 of the piers, caissons, and seawall at that
8 time is impossible to fully ascertain. The lack
9 of as-built plans was also referenced in the
10 Thomas and Beers (2000) structural
11 engineering report.

12 Although the structural stability of the
13 caissons was a concern at the time of the
14 engineering report, improvements have
15 since been made and additional
16 improvements will be made as part of the
17 Project. The seaward facing walls, as well as
18 portions of the east and west facing walls, of
19 both caissons have undergone major repairs
20 in 2004 and 2011, and the integrity of these
21 structures has been substantially improved. Additionally, the Project includes repairs to
22 the north wall of the Pier 421-2 caisson, as well as the remaining un-repaired portions of
23 the east and west walls.



24 The aging caisson on Pier 421-2 has been subject to more than 75 years of weathering
25 and corrosion associated with exposure to the surf zone of a marine environment.
26 Visual inspections of these facilities have revealed no major stress lines or cracks, but
27 the sides and rear of the caisson showed signs of wear and stress that would be
28 anticipated under such circumstances. This includes a number of smaller cracks and
29 irregularities, one of which appeared to very slowly seep oily or sulfurous fluid. In
30 addition, no as-built plans for this aging facility are available to assist in determining
31 probable structural stability for the life of Project operation. Further, review of the design
32 previously proposed for Pier 421-2 indicates that earthquake loading appears to not
33 have been considered in the design of this structure. Finally, as noted in the structural
34 engineering report, the seaward-facing walls of the two caissons at PRC 421 have
35 suffered a total of three substantial collapses in the last 25 years (Thomas and Beers
36 2000; CSLC 2010).

37 Although the caisson on Pier 421-2 has degraded, the seaward-facing wall of the
38 structure, as well of portions of the east- and west-facing walls, have been substantially
39 reinforced through repairs conducted in 2011. The Project includes repair of the walls

1 that were not repaired in 2011. However, the Project description provided by Venoco
2 (Appendix G) does not currently include information about how the design of these
3 repairs accounts for design wave loading conditions including hydrodynamic loading,
4 overturning, and base shear, as well as the maximum credible earthquake according to
5 the current CBC. An engineering analysis of the Project design has not been conducted;
6 however, the analysis conducted for the previous Draft EIR (CSLC 2005) remains
7 generally applicable to the Project and would be supplemented through the
8 implementation of MM S-2a.

9 The extent and quality of repairs made following the caisson's collapse in the 1980s are
10 not clearly documented as no engineering plans for these repairs are available. Under
11 these circumstances, based on the lack of definitive engineering information, the partial
12 collapse of the aging caisson on Pier 421-1 could occur during its remaining 1 year of
13 existence. Further, Pier 421-2 could also collapse during the life of Project operation,
14 particularly associated with sustained high winter surf, seismic activity, or in a low-
15 probability large wave event. The risk of collapse would also be increased incrementally
16 over the project life by sea level rise associated with global climate change. Such a
17 collapse could result in release of unknown quantities of sand contaminated with
18 hydrocarbons into the marine environment from either Pier 421-1 or 421-2, as well as
19 small quantities of oil associated with production at Pier 421-2. This impact would be
20 considered less than significant with mitigation.

21 **Mitigation Measures**

22 **MM S-2a. Design Review/Wave Loading Evaluation.** Prior to implementing
23 caisson repairs at Pier 421-2, Venoco shall develop design improvement plans
24 that account for design wave loading conditions including hydrodynamic
25 loading, overturning, and base shear, as well as the maximum credible
26 earthquake according to the current California Building Code; these
27 improvements shall be sufficient to support Project facilities through the
28 production life. The revised design plans shall be reviewed and certified by a
29 professional civil/structural engineer and shall be submitted to the California
30 State Lands Commission staff for approval. Caisson repair shall be performed
31 in accordance with approved design plans prior to recommencement of
32 production at Pier 421-2.

33 **MM S-2b. Post Storm Inspection, Monitoring and Cleanup.** Venoco shall amend
34 the existing monitoring program to include regular monitoring and inspection of
35 both caissons during the winter storm season. Damage to caissons shall be
36 reported to California State Lands Commission staff and cleanup and removal
37 of any debris immediately initiated (see also MM S-4e).

38 **Rationale for Mitigation**

39 The existing repaired seaward-facing walls on the caissons of Piers 421-1 and 421-2
40 have improved the integrity of these structures and appear adequate to protect the

1 seaward-facing side of these structures from severe winter storm damage; however,
2 data are unavailable to demonstrate the ability of the structures to withstand damage
3 from low-probability, high-magnitude events, such as the maximum probable design
4 waves and earthquakes. For Pier 421-2, MM S-2a would require provision of such data
5 as well as review and approval of the planned reinforcement of the non-seaward-facing
6 walls of this caisson, which have not been subject to any recent improvement. These
7 improvements include construction of walls similar to those built for the seaward-facing
8 walls of the caissons for all non-seaward-facing walls of the caissons to address the
9 potential for failure of these non-seaward-facing walls from both high-magnitude, low-
10 frequency events (i.e., design wave events and earthquakes) and from more typical
11 severe winter storms. MM S-2b would improve existing monitoring protocols to ensure
12 regular winter storm season monitoring and response. Full implementation of these
13 measures would reduce Impact S-2 to less than significant.

14 **Impact S-3: Exposure of the Public and Environment to Safety Hazards Due to**
15 **Collapse of or Damage to the Existing Timber Bulkhead or Rip-Rap Seawall**

16 **The Project would prolong the use of the existing causeway and supporting,**
17 **aging timber bulkhead and rip-rap seawall, which would be exposed to high**
18 **winter surf and large wave events over the Project's life, leading to possible**
19 **erosion or collapse and the potential for release of hazardous materials and oil**
20 **from within the causeway or Project-related pipelines (Less than Significant with**
21 **Mitigation).**

22 **Impact Discussion**

23 The stability of the existing seawall is difficult to assess because as-built plans are also
24 not available for this structure. In addition, based on previous environmental review of
25 past seawall improvements, it is unknown if seawall construction followed standard
26 Santa Barbara County construction practices for such structures (e.g., if the seawall
27 was keyed into bedrock underlying the beach sand to prevent undercutting) (Santa
28 Barbara County 2001).

29 This seawall is faced with generally large 1- to 3-ton boulders consistent with standard
30 seawall construction practices in Santa Barbara County. The use of large 1- to 3-ton
31 boulders should provide adequate protection and prevent remobilization of these rocks
32 during larger storm events; however, several gaps exist in the rip-rap portions of this
33 seawall, and minor areas have been repaired with smaller sized rock that could become
34 remobilized during high surf events.

35 This segment of the wall is partially shielded from some wave action by the caissons
36 and pilings at Piers 421-1 and 421-2; however, some level of existing protection would
37 be lost through the removal of Pier 421-1. For example, an unquantifiable large storm
38 event and associated major wave action could result in total failure of the wall. This is



The Project's existing timber and rock seawall appears generally intact along most of its reach, although the eastern end (outside of critical pipeline areas) has suffered some wave damage.



The existing aging timber bulkhead seawall has been reinforced through much of its length with a rip-rap boulder revetment, although some gaps in this protection exist.

1 evidenced by the fact that major unmaintained portions of this historic seawall have
2 suffered collapse and substantial damage over the last decade along other portions of
3 the Ellwood Coast (AMEC 2006). Frequency and intensity of strong wave impact on this
4 bulkhead and seawall could be increased by sea level rise related to climate change;
5 however, the Project's production life would minimize such effects. Collapse of this
6 segment of the seawall in a high-surf or low-probability, large-wave event could
7 undermine the Project access road and expose the proposed oil, produced water and
8 gas pipeline and power cables to wave action, creating impacts related to the accidental
9 release of oil into the marine and terrestrial environment that would be less than
10 significant with mitigation.

11 Further, visual observations of the seawall at the east end of the Project site, between
12 Piers 421-1 and 421-2, reveal that in this area, the seawall consists of the original
13 timber bulkhead, which has not been reinforced with rip-rap and thus should be
14 considered as marginally stable.

15 **Mitigation Measures**

16 **MM S-3. Design Review by Civil/Structural Engineer.** Prior to construction on the
17 Project and subject to receipt of all necessary approvals and permits to
18 undertake the work, Venoco shall complete the following:

- 19 • Venoco shall retain a licensed civil/structural engineer to review seawall
20 design and recommend improvements to the Project seawall to permit it to
21 support Project access road, pipelines, and power cables through the
22 production life.
- 23 • These potential design improvements, including a maintenance and repair
24 plan to ensure fitness for purpose, shall account for anticipated winter surf
25 conditions and for a design wave event.

- 1 • West of Pier 421-1, improvements to the seawall may include use of
2 additional appropriately sized (i.e., 1- to 3-ton boulders) rip-rap if needed to
3 fill in small gaps in the wall.

4 Between Piers 421-1 and 421-2 and east of 421-2, to the maximum extent feasible, any
5 needed seawall improvements shall consist of minor repairs to and strengthening of the
6 existing timber bulkhead, unless seawall design review indicates that such
7 improvements would be insufficient to protect the pipeline and power cables over the life
8 of the Project.

9 **Rationale for Mitigation**

10 The existing seawall appears adequate to protect Project facilities over most of its
11 length. However, portions of the seawall may require repair and upgrade to ensure that
12 damage to pipelines and other facilities does not occur during winter surf or a design
13 wave event. However, consistent with the intent of City of Goleta policies to minimize
14 new coastal protection structures, MM S-3 would permit only focused repair of minor
15 gaps in the Project seawall, but not the extension of rip-rap into new areas solely
16 protected by the aging timber bulkhead. These areas would be subject to limited repair
17 and strengthening of the aging bulkhead as needed, through repairs to the existing
18 timber bulkhead. The relatively intact condition of this portion of the timber bulkhead and
19 the fact that it is partially shielded from direct wave action by Pier 421-2, seem to
20 support lesser improvements to this segment. This would be confirmed as part of design
21 review. Repair of the timber seawall would also provide protection for the proposed
22 extension of the 6-inch line from Pier 421-2 to the EOF in the event of partial collapse of
23 this timber bulkhead. If design review determines that additional rip-rap is necessary to
24 protect aging timber bulkhead between Piers 421-1 and 421-2, such improvements
25 would be subject to appropriate permits from the City of Goleta.

26 Full implementation of these measures would reduce Impact S-3 to less than significant.

27 **Impact S-4: Potential for Release of Oil or Hazardous Materials from Pier 421-2**

28 **Project operations could result in the release of oil or hazardous materials from**
29 **Project facilities, including the 421-2 well and caisson, drilling and separation**
30 **equipment (Significant and Unavoidable).**

31 **Impact Discussion**

32 Because of Well 421-2's shoreline location, a release of oil during production into the
33 marine environment or nearby sensitive habitats is a significant concern. The potential
34 for oil to be released and enter the marine environment is a function of the potential
35 frequency of a release over the life of the Project, and the ability of the released volume
36 to exceed or otherwise breach the containment within the pier and caisson.

1 Spill frequency can be estimated for operations for which there are data to support
2 calculations. Oil spill occurrence rates for offshore oil spills from production platforms
3 are based on years of data collected for activities on the OCS (Anderson and LaBelle
4 2000). However, unlike the well-established statistics for OCS platform and pipeline
5 operations and tank vessel transit operations, past and proposed PRC 421 operations
6 are somewhat anomalous. A spill frequency estimate was not calculated due to: (1) low
7 PRC 421 throughput relative to spill volume data collected for OCS spill occurrence
8 rates,⁴ and (2) applicability of the OCS data to PRC 421 operations. For this analysis,
9 the release of a worst-case discharge was assumed, regardless of likelihood. A
10 reasonable worst-case discharge of oil from Pier 421-2 would involve an uncontrolled
11 release of oil as follows:

- 12 • Shutdown of the ESP delayed 5 minutes, assuming a maximum flow rate of
13 approximately 0.35 barrel per minute between the wellhead and the separation
14 vessel (1.7 barrels);⁵ or
- 15 • Wellhead drilling and production and well workovers could lead to a failure along
16 the casing leading to a blowout, which, if it occurred below the caisson on Pier
17 421-2, could release oil into sub-surface areas and eventually the ocean. As
18 discussed below, the amount of oil released from such a spill would be roughly
19 equivalent to that from a delayed shut down of the ESP (1.7 barrels).

20 Based on these assumptions, the maximum spill volume, which is the maximum amount
21 that could spill during peak instantaneous production of 500 barrels of oil per day
22 (BOPD), is estimated to be 1.7 barrels; the potential spill volume based on average
23 production of 150 BOPD would be 0.5 barrels. See Impact S-5 below for the maximum
24 spill volume for the 3-inch flowline. The containment capacity of the well cellar within the
25 caisson is 213 barrels. Because the caisson deck wall is not specifically designed to act
26 as containment, no containment capacity is assumed for the caisson deck. However,
27 the well casing has adequate capacity to contain the entire volume of oil that could be
28 released; no oil is expected to be released to the shore or marine waters.

29 Production at PRC 421 would use a submersible pump. The risk of a blowout would be
30 minimized due to the relatively low pressures of this system (978 pounds per square
31 inch gauge [psig]) when compared to the ability of the safety systems at PRC 421 to
32 control the pressure and the rating of 3,000 psig for the well casing. However, the wells
33 could produce releases at the wellhead due to failures associated with the piping,
34 fittings, or safety valves. A release could also be produced during a workover in the
35 event that operations encounter a gas pocket or pressurized zone during drilling. In
36 addition, sub-surface damage to the well casing and liner could result in accidental

⁴ Spill occurrence rates are a function of historic volumes of oil handled (the “exposure variable”), and address only spills of 1,000 barrels or more.

⁵ Derived from flow curves provided by Venoco of estimated maximum instantaneous production of 500 BOPD (2013).

1 release of oil. Such damage, while very unlikely, could occur from several sources such
2 as corrosion, aging of the casing, and seismic damage. If such a failure occurred near
3 the surface, and the pump continued to run for five minutes prior to shutdown, a
4 relatively small quantity of oil contained in the casing (estimated 1.7 barrels) could reach
5 the surface. In addition, the slight potential exists under these circumstances that
6 artesian pressure present in Well 421-2 could force the rotors in the ESP to spin, slowly
7 releasing oil into the casing and environment, until repairs were affected. However, only
8 a small proportion of blowouts release significant volumes of oil, and as discussed
9 above, minimal gas production is anticipated to be associated with this Project.

10 Well workovers are also a possible source of blowouts. The Hydrocarbon Leak and
11 Ignition Database (1992) estimates well workovers are performed every 7 years. As
12 such, the potential exists for the Project to require two or more workovers during its
13 productive life. Blowouts have the potential to occur in sub-surface areas hundreds to
14 thousands of feet below the caisson deck. These blowouts would not be contained by
15 the well cellar or caisson deck and would therefore be released directly to the sub-
16 surface areas and potentially into the ocean. Blowouts that occur at the wellhead or the
17 caisson deck could be contained by the well cellar and caisson deck; however, larger
18 blowouts could directly affect the ocean. There have been four blowouts from Pacific
19 OCS oil/gas projects since 1992; two of which occurred in the years 2000 and 2004
20 from Platform Gail, which is currently operated by Venoco. Neither resulted in release of
21 significant volumes of oil into the ocean; however, both were due, at least in part, to
22 human error (D. Dusetta, Santa Barbara County, pers. comm. 2007).

23 Over the Project life, oil produced from extracted products would range from 85 to 11
24 percent by volume, as the fraction of produced water increases over time. Therefore,
25 the oil portion of the product available for release from Pier 421-2 would decline over
26 the Project life. This analysis uses the maximum volume of oil.

27 The location of the well at the water line and surf zone affects the possible movement
28 and dispersion of any released oil; under most conditions a release would reach shore.
29 Because of the location of the facility at the water line, and the low estimated release
30 volumes, spill simulations were not conducted. Instead, for the purposes of evaluating
31 the potential impacts of released oil from the Project and considering the site's exposure
32 to winter storm conditions, based on predominant ocean currents (see Sections 4.5,
33 Hydrology, Water Resources, and Water Quality and 4.6, Marine Biological Resources),
34 oil released to marine waters is assumed to be transported approximately 1 mile
35 northwest of the site and 2 miles to the southeast, as shown in Figure 4.2-9.

36 Although there are sensitive locations throughout the Project area, two down-coast
37 sensitive sites identified in the ACP would be immediately vulnerable if an oil spill
38 occurred at PRC 421: Bell Canyon Creek (Site 4-640-A) and Devereux Slough estuaries



Estimated Oil Spill Coverage in Project Area

FIGURE 4.2-9

1 (Site 4-645-A). Excerpts of the ACP entries for these sites are included in Figures
2 4.2-10 and 4.2-11. In addition, rocky intertidal habitat and kelp beds exist within 0.5 mile
3 east of the site and an additional estuary associated with Tecolote Creek exists 0.25
4 mile west of the site.

5 Although predominant currents would generally prevent oil from drifting westward from
6 PRC 421 more than 1 mile, in the event an oil slick drifted farther westward three other
7 sensitive sites identified in the ACP: Naples, Eagle Canyon Creek, and Tecolote Creek,
8 could also experience adverse impacts. Although they are not included in the 2011 ACP
9 as they were designated in 2012, Naples MPA and Campus Point MPA would also be
10 vulnerable to adverse impacts in the event oil reached these sensitive habitats.

11 Venoco maintains a response capability at Ellwood based on discharges estimated for
12 the South Ellwood Field. The worst-case discharge planning volume for this field is ~~3,000~~
13 30,811 barrels, and Venoco has response resources capable of handling a ~~3,000-30,811~~
14 barrel shoreline clean-up (Venoco 20052014). On-water containment and recovery would
15 be conducted by Clean Seas, an oil spill response organization, ~~and e.~~ Clean Seas has
16 demonstrated its ability to meet the OSPR daily recovery capability standards for the
17 Santa Barbara Channel of 19,531 barrels per day within 12 hours, 35,156 barrels per
18 day within 36 hours, and 66,406 barrels per day within 60 hours. Onshore oil spill
19 response and clean-up would be conducted by Advanced Cleanup Technologies Inc.
20 (ACTI) NRC Environmental Services, a contractor. Both Clean Seas and ACTI NRC
21 Environmental Services maintain equipment lists and certifications as required by State
22 and Federal regulations (Venoco 20052014). The oil spill contingency plan is
23 implemented, in part, by conducting drills to test and improve the response capabilities
24 over time.

25 Oil dispersants are one potential method to respond to in-water oil spills. Depending on
26 the size, location, weather conditions, and type of oil spilled, differing combinations of
27 droplet size, concentration, and rate of application are administered. Once dispersants
28 are applied, dispersed oil laterally spreads while dropping down the water column
29 between 3 and 30 feet. As a result, dispersant use is limited to waters deeper than 30
30 feet to avoid possible sea floor contamination, which would likely limit its utility to
31 respond to spills from Pier 421-2 (see Appendix E for more details on dispersant use).

32 Aside from booming strategies for an on-water release, most procedures contained in
33 the Ellwood emergency plans are not specific to PRC 421. Recent emergency drills
34 have focused on H₂S and similar emergencies at the EOF and EMT (Venoco 1999-
35 2004). Because Venoco has not been producing from the PRC 421 lease area since
36 1994, the current EAP for South Elwood does not contain any response procedures for
37 response to a release at PRC 421 and thus would need to be updated to address a
38 release associated with recommissioned production.



SITE DESCRIPTION

Bell Canyon Creek is a moderate sized creek with a well developed lagoon just west of Sandpiper Golf Course; the sand berm which develops during summer is usually relatively low and the lagoon is subject to wash over especially during high tides. The creek flow during winter is usually enough to breach the berm. The beaches to the east and west are of fine- to medium-grained sand, and often have very high volumes of debris (mostly wood and kelp) especially after rains. The Venoco oil facility lies less than 1/4 mile inland.

SEASONAL AND SPECIAL RESOURCE CONCERNS

Whenever the lagoon mouth is open or subject to high tide wash over, wetland biota are at risk.

RESOURCES OF PRIMARY CONCERN

Wetland biota including Tidewater goby and possibly Steelhead trout; plus waterfowl and marsh vegetation.

Waterfowl, seabirds (including Brown pelicans) and various shorebirds.

Sea otters have been known to pass through the area.

CULTURAL, HISTORIC, AND ARCHEOLOGICAL SENSITIVITIES

Cultural, historical, and archeological sites are known to exist in the area; however, the exact locations of these sites must be ascertained by contacting the Native American Heritage Commission at (916) 653-4082, the State Office of Historical Preservation at (916) 653-6624, and/or the Central Coast Archeological Information Center at (805) 893-2474.

Source: Area Contingency Plan October 2005.



SITE DESCRIPTION

Devereaux Slough lies just north of Coal Oil Point. This 45-acre slough contains freshwater emergent vegetation, salt marsh, tidal flats and sand dune habitats. The mouth is generally cut off from the ocean by a well developed sand berm except during heavy rainfall. East and west of the slough are extensive medium-grained sand beaches backed by vegetated dunes. Large surf and strong winds are common, especially in winter. The slough is part of the larger Coal Oil Point natural reserve, managed by the University of California at Santa Barbara.

SEASONAL AND SPECIAL RESOURCE CONCERNS

Whenever the slough is open to the ocean, typically only during heavy rainfall, wetlands biota are at risk.

RESOURCES OF PRIMARY CONCERN

Western snowy plovers (all year), California least terns (April through September), American coot, American wigeon, Black-crowned night heron, Canvasback, Green winged teal (March through July), Mallard, Pintail, and Red-breasted merganser.

Sea otters have been known to pass through the area.

California spiny lobster

Tidewater goby (August through November).

Eelgrass, Surfgrass.

CULTURAL, HISTORIC, AND ARCHEOLOGICAL SENSITIVITIES

Cultural, historical, and archeological sites are known to exist in the area; however, the exact locations of these sites must be ascertained by contacting the Native American Heritage Commission at (916) 653-4082, the State Office of Historical Preservation at (916) 653-6624, and/or the Central Coast Archeological Information Center at (805) 893-2474.

Source: Area Contingency Plan October 2005.

1 Crude oil is ignitable and can cause a fire. Design features incorporated into the Project
2 include regulatory and industry standards for safety and fire prevention, which reduce
3 the probability of a fire significantly. Coupled with the absence of ignition sources
4 available to ignite released oil, the likelihood of a fire is remote.

5 **Impact Summary**

6 Because of safeguards designed into the system, there is a low probability for a release
7 of oil from the production process at Pier 421-2 (i.e., loss of power would shut in the
8 valves and would prevent oil from reaching the surface under non-routine conditions).
9 Containment capacity in the well cellar, in the event oil is released, is adequate to
10 contain expected volumes of oil given design capacity and pumping rates. However, the
11 well cellar is an old structure of unknown condition, and its ability to fully contain spills is
12 unknown. Sands and materials enclosed in the caisson could be contaminated by
13 leakage produced by the Project if the cellar is not adequately sealed. As discussed
14 below, the cellar would require improvements to ensure its condition and suitability to
15 prevent additional migration of oil from Pier 421-2. Because the caisson deck wall is not
16 specifically designed as containment, it would also require improvements and no
17 containment capacity is assumed as part of the impact analysis for the caisson deck.
18 Although remote, the potential also exists for a well blowout to occur below the well
19 cellar and caisson, with an associated potential for release into the marine environment.
20 Such a blowout could occur during routine operations due to human error or during the
21 estimated one to two well workovers that may occur over the life of the Project.

22 Venoco currently maintains response capability adequate to respond to the likely spill
23 volumes at PRC 421, although site-specific procedures would need immediate revision
24 and drills to test new procedures and equipment.

25 A release of oil to marine waters would be a significant impact. However, the Project
26 design incorporates safety features that would substantially reduce the potential for a
27 release. The short operating period also contributes to a low potential for release.
28 Further, containment provided by the caisson is adequate to capture maximum spill
29 volumes, should the spill occur on the caisson deck.

30 The public could also face potentially hazardous conditions if leaks of hydrocarbons and
31 sulfur compounds occurred from the sides of the caisson structures, as happened
32 recently from the side of Pier 421-1 and the seaward side of Pier 421-2. MM S-2a
33 requires that the repairs and improvements being made to the caisson walls as part of
34 the Project would meet design standards that would ensure the integrity of this structure
35 during the Project life. These repairs would minimize the risk of direct public exposure to
36 potential leaks, and restricted access to the pier and equipment would limit public
37 exposure to hazardous conditions. However, because of the remote potential for
38 blowouts or other failures to occur, with subsequent release of oil into the marine

1 environment; no matter how low the probability, this impact would be significant and
2 unavoidable.

3 **Mitigation Measures**

4 **MM S-4a. Containment.** As the primary containment at Pier 421-2, the well cellar
5 shall be tested by Venoco to determine whether it is leaking, and coated with a
6 rubber type liner or other sealant to prevent migration from the cellar walls or
7 bottom to surrounding areas. If the well cellar is leaking, an engineering
8 evaluation shall be performed to determine the best method to achieve
9 containment; which may include replacement with a double wall cellar or retrofit
10 with a membrane coating capable of containing oil and preventing migration.
11 The revised design, which includes these improvements, shall be reviewed and
12 certified by a registered engineer and submitted to the California State Lands
13 Commission staff for approval, and Venoco shall construct all approved
14 improvements prior to recommencing production.

15 **MM S-4b. Response Drills and Planning.** Venoco shall revise its existing Oil Spill
16 Contingency Plan (OSCP) to include site-specific procedures for response to a
17 release from Pier 421-2, in accordance with applicable State and Federal
18 regulations. The revised OSCP shall be submitted to the City of Goleta, county
19 of Santa Barbara, California Department of Fish and Wildlife Office of Spill
20 Prevention and Response, California Coastal Commission, and California State
21 Lands Commission (CSLC) staffs for review and approval prior to issuance of
22 the Land Use Permit. Venoco shall demonstrate spill response capability by
23 responding to at least two surprise drills each year – one at Pier 421-2 and one
24 along the pipeline route. A tabletop exercise shall be conducted within six
25 months of operation to test and improve upon the revised procedures. The
26 Venoco shall prepare and submit a critique and recommendations of Venoco's
27 OSCP, regarding Pier 421-2, to CSLC staff and shall demonstrate the
28 effectiveness of Venoco's oil spill response plan. Any recommended
29 adjustments to the frequency of drills required to improve the effectiveness of
30 the measure, in consideration of all other Ellwood oil spill response drill
31 operations by Venoco, and a timetable for implementation of drill schedules
32 may be considered by CSLC staff. In addition, Venoco shall participate in the
33 Santa Barbara County Area Oil and Gas Industry Emergency Response Plan
34 (P-4 Plan).

35 **MM S-4c. Casing Pressure Testing.** Prior to initiating active pumping, Venoco shall
36 perform pressure testing on the well casing to ensure that the casing meets
37 required operating specifications. The exact pressure shall be determined by
38 the reviewing agencies. If the casing does not meet required test pressure as
39 reviewed and approved by the California Department of Conservation's
40 Division of Oil, Gas, and Geothermal Resources (DOGGR), Venoco shall
41 implement casing repairs and improvements subject to review and approval by
42 the DOGGR and California State Lands Commission staffs.

43 **MM S-4d. Regular Facility Inspections.** As part of its daily facility inspections,
44 Venoco shall check the caisson at Pier 421-2 for signs of oily or sulfurous

1 leaks. If leaks are detected, Venoco shall report this occurrence to the City of
2 Goleta, Santa Barbara County Office of Emergency Management, California
3 Coastal Commission, and California Department of Fish and Wildlife Office of
4 Spill Prevention and Response, and California State Lands Commission staffs,
5 and in coordination with these agencies, take immediate steps to clean up or
6 repair such leaks and prevent public exposure to any hazards.

7 **MM S-4e. Quantitative Risk Assessment (QRA) and Implementation of QRA-**
8 **Recommended Measures.** Prior to issuance of land use permits, Venoco shall
9 prepare a QRA to determine long-term risk of upset potential for the PRC 421
10 facilities. The QRA should assume the best estimate for the duration of the
11 project. The QRA shall identify any deficient facilities with potential for creation
12 of hazards associated with production from PRC 421 and processing of
13 oil/gas/water at the Ellwood Onshore Facility and identify any improvements
14 needed to reduce such hazards to acceptable levels. The QRA shall be
15 submitted to the California State Lands Commission, City of Goleta, Santa
16 Barbara County Fire Department Fire Protection Division staffs for review and
17 comment prior to approval. Subsequent to approval, Venoco shall implement
18 any modifications to facilities or processes recommended in the QRA.

19 **Rationale for Mitigation**

20 The MMs are intended to improve prevention of releases by providing for additional
21 containment and response planning to reduce the potential for spilled oil to be
22 uncontrolled. Facility-specific response drills are intended to refine existing plans and
23 procedures to address operation of PRC 421. The purpose of the QRA is to ensure that
24 all facilities associated with PRC 421 can effectively and safely produce process and
25 transport this resumed production and to assure that any deficiencies are rectified.

26 **Residual Impacts**

27 Although there is a low probability of an oil release to marine waters, and the application
28 of MMs would further reduce the potential for and effects of released oil on the
29 environment, under the thresholds of significance *any* release of oil to the marine
30 environment would be considered significant.

31 **Impact S-5: Potential for Release of Oil or Hazardous Materials from the Crude Oil** 32 **Flowline**

33 **Project operations could result in the release of oil or hazardous materials from**
34 **the crude oil flowline as oil is transported from Well 421-2 to the tie-in at the EOF**
35 **(Less than Significant with Mitigation).**

36 **Impact Discussion**

37 Produced oil/gas/water emulsion would be transferred from Pier 421-2 to the tie-in at
38 the EOF via a 3-inch diameter flowline. The 3-inch flow-line would be contained within

1 the existing 6-inch line that would be repaired, cleaned, extended, lined, and fitted with
 2 cathodic protection (external) and a leak detection system. Figure 4.2-12 illustrates a
 3 cross-section of the flowline within the pipeline.

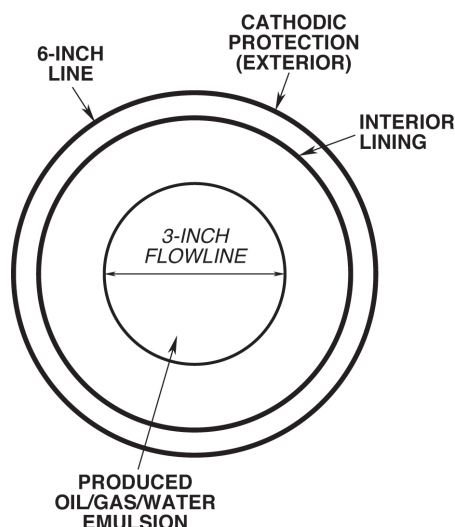


FIGURE 4.2-12. FLOWLINE CROSS-SECTION DIAGRAM

4 The leak detection system would consist of high- and low-pressure sensing switches
 5 that would be installed in the new 3-inch flowline. Within 15 seconds of a change in
 6 pressure (high or low), the subsurface and safety valves would be shut, which would
 7 stop flow of oil into the flowline. The 6-inch line would serve as a protective conduit and
 8 would not have pressure switches.

9 A flow safety valve at the tie-in at the EOF would prevent backflow into the flowline,
 10 which limits the emulsion available for release. The 6-inch line would act as secondary
 11 containment if there were a leak or break in the flowline.

12 The volume of oil/gas/water emulsion that would be contained in the 3-inch flowline,
 13 between the valve at Pier 421-2 and the tie-in at the EOF, is approximately 756 gallons.
 14 An additional volume resulting from the time to shut off the flow (conservatively using 5
 15 minutes instead of 15 seconds) is approximately 75 gallons, assuming a flow rate of 15
 16 gallons per minute based on projected pumping rates. Therefore, the total volume of
 17 emulsion available for release from the flowline is 831 gallons (20 barrels). Based upon
 18 a 2,150 foot length from Pier 421-2 to the EOF where the tie-in to the EOF occurs
 19 (1,800 feet of existing pipeline and 350 feet of new pipeline), it is estimated that the 6-
 20 inch line could contain approximately 2,082 gallons (50 barrels) of emulsion in the event
 21 of a spill. Therefore, the containment capacity of the 6-inch line would be more than
 22 sufficient to contain the maximum projected spill from the 3-inch flowline.

1 As described above, the design of the 3-inch flowline provides a system of detecting
2 leaks, shutting down flow, and containing released emulsion within the 6-inch line,
3 which would be tested and lined prior to operation. Therefore the likelihood of an
4 uncontained release is low.

5 Although the 6-inch line is located within a road and area known to contain sub-surface
6 oil facilities such as pipelines, there is some potential for accidental damage to occur to
7 this oil line during trenching or other unanticipated future construction activities. A
8 catastrophic break (e.g., from construction equipment) could potentially cause a release
9 of the entire contents of the line, although such damage would be detected by the leak
10 detection system, the well would be automatically shut in, and an alarm would sound at
11 the EOF. Because of the proximity of the pipeline to the surf zone, Bell Canyon Creek,
12 and other nearby sensitive resources, however, a release from the flowline is of
13 particular concern, even though the volume is relatively low and spills to land are
14 typically contained more readily than spills to water. This impact would be less than
15 significant with mitigation.

16 **Mitigation Measures**

17 **MM S-5a. Install Pipeline Warning Markers.** Venoco shall modify Project design to
18 include installation of several pipeline markers with reflective warning tape
19 along the 6-inch line to identify the pipeline route and associated excavation
20 hazards. Venoco shall submit the modified Project design to the City of Goleta
21 for review and approval prior to issuance of the Land Use Permit.

22 **MM S-5b. Develop Emergency Action Plan (EAP)/Update South Ellwood Field**
23 **EAP.** Venoco shall develop and incorporate into the EAP updated descriptions
24 of the pipeline and flowline, detection systems, emergency shutdown, and
25 response procedures specific to the new system prior to the initiation of
26 operation. Venoco shall update the existing South Ellwood Field EAP to include
27 descriptions of the new flowline interconnection with Platform Holly production
28 within the EOF and other EOF modifications such as the programmable logic
29 controller cabinet, variable speed drive facility, and transformer. Venoco shall
30 submit the EAPs to the City of Goleta and Santa Barbara County Office of
31 Emergency Management for review and approval prior to recommissioning
32 start-up. The City of Goleta and Santa Barbara County Office of Emergency
33 Management shall coordinate updates; notice for these revisions shall be
34 provided to the current plan holders within two months of initiating operations of
35 the EAPs with the operator on a regular basis or as conditions change that
36 warrant review of emergency response protocols.

37 **MM S-5c. Safety, Inspection, and Maintenance of Oil and Gas Pipelines.**
38 Venoco shall prepare a Safety Inspection, Maintenance, and Quality
39 Assurance Program (SIMQAP) or similar mechanism for Project-related
40 pipelines to ensure adequate ongoing inspection, maintenance, and other
41 operating procedures. Any such mechanism shall be subject to approval by the
42 City of Goleta prior to commencement of pipeline operations and provide for

1 systematic updates as appropriate. Requirements shall be commensurate with
2 the level and anticipated duration of the risk. The City of Goleta and Venoco
3 would update the SIMQAP or similar mechanism biennially or sooner if
4 conditions change that warrant review of the program.

5 Rationale for Mitigation

6 MMs S-5a would reduce the potential for release by alerting future workers in the area to
7 the pipeline location, while updates to emergency plans and procedures, as required
8 under MM S-5b, would provide responders with better information to manage emergency
9 conditions. Implementation of MM S-5c would ensure pipelines are regularly inspected
10 and maintained, and that such measures are consistent with City requirements.

11 With the implementation of the above measures, Impact S-5 would be reduced to less
12 than significant.

13 **Impact S-6: Increased Amount of Oil or Hazardous Materials Potentially Released** 14 **from Oil Transfer in Line 96**

15 **Project implementation would increase throughput in the Line 96 pipeline, and**
16 **therefore increase the amount of oil or hazardous materials potentially released**
17 **(Significant and Unavoidable).**

18 Impact Discussion

19 The Project includes transporting processed oil from the EOF to the PAAPLP Coastal
20 Pipeline via the Line 96 pipeline. This pipeline was analyzed in the Line 96 Modification
21 Project EIR (Santa Barbara County 2011), which is also incorporated by reference. The
22 Project would not require physical modification to Line 96 or changes in its operations.
23 Although risks from oil transportation by pipeline are the lowest of any form of crude oil
24 transportation, pipeline transportation of oil still has the potential to result in impacts
25 through an accidental spill. As the Line 96 pipeline from the EOF along the Gaviota
26 Coast to is equipped with the most modern cathodic protection and internal inspection
27 (“smart pigging”) capabilities, it has a lower failure rate than older pipelines. In addition,
28 eight mainline block valves and check valves were installed along this pipeline to limit
29 the volume of oil spilled in the event of a rupture (refer to Figure 4.2-7). However, a risk
30 of a crude oil release to the environment would exist, including a release from the
31 pipeline into Gaviota Coast drainages and perennial streams, which could also
32 subsequently reach the marine environment. Figure 4.2-13 shows the elevation profile
33 of the Line 96 pipeline, including automatic and manual check valves.

34 The largest drain-down locations (i.e., where the potential exists for largest oil spill)
35 along the pipeline would be located at Llagas Canyon and near the entrance to the
36 ExxonMobil LFC facility at Corral Canyon. Estimated worst-case drain-down volumes in

4.2 Safety

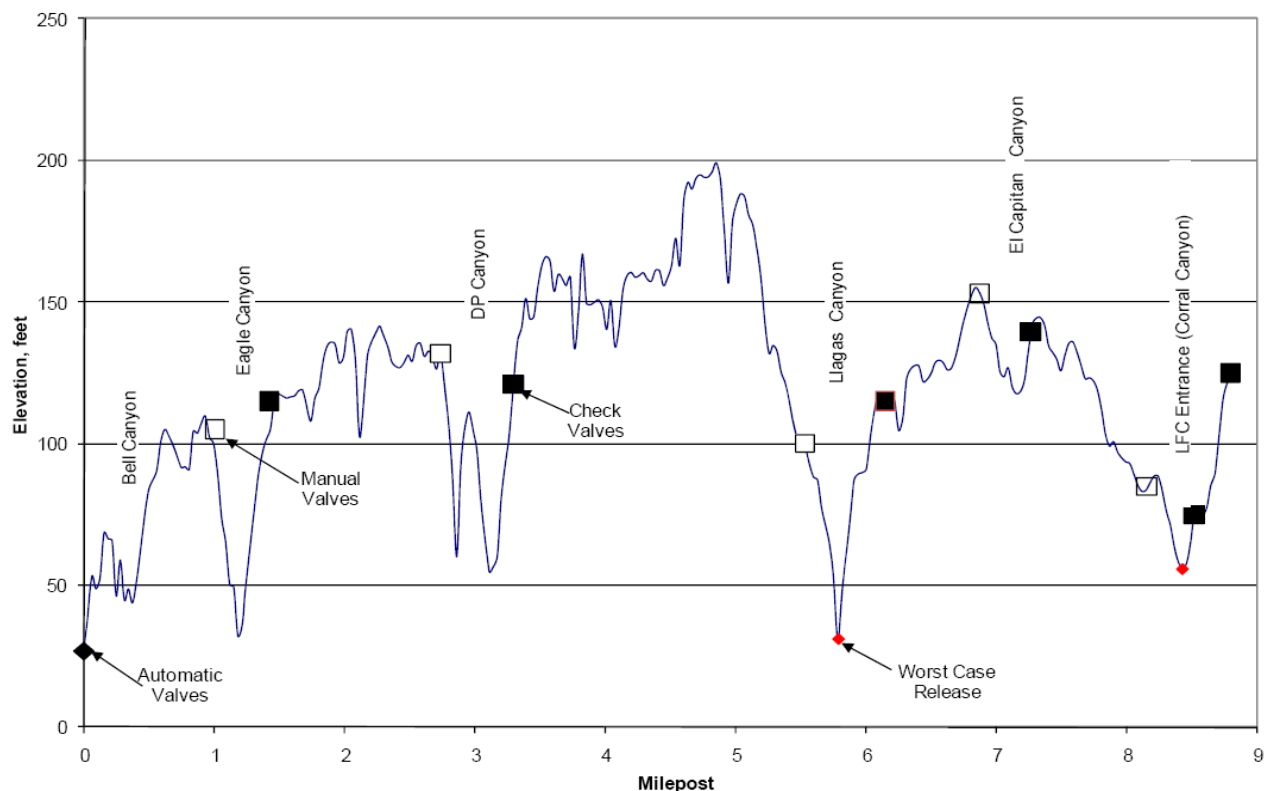


FIGURE 4.2-13. ELEVATION PROFILE OF LINE 96 PIPELINE

Source: Santa Barbara County 2011

1 the event of a large pipeline rupture range from about 40 barrels at Dos Pueblos
2 Canyon east, to 60 barrels at Bell Canyon, Eagle Canyon, and Dos Pueblos Canyon
3 west, to 194 barrels at Corral Canyon and 237 barrels at Llagas Canyon. However,
4 potential spill volumes would be reduced further as result of additional automatic valves
5 installed around low points are in the onshore Line 96 pipeline located both upstream
6 and downstream. With the automatic valves, spill volumes for Llagas Creek would be
7 reduced to 60 barrels and Corral Canyon would be reduced to 52 barrels (Ellwood
8 Pipeline Company 2011).⁶ Pipeline safety is affected by several factors, including both
9 the length and the duration of service of the pipeline. Information on historical risks from
10 pipeline operations, including the size and number of spills and the causes of such
11 spills, are available from a number of sources, two of which are noted below.

12 Information on the number and causes of pipeline spills greater than 50 barrels in size is
13 available from the U.S. Department of Transportation/Office of Pipeline Safety
14 (DOT/OPS). These data were obtained for spills from 1968 to 2000 (information from

⁶ The Line 96 Modification Project EIR required MM HM-3 to reduce spill capacity of pipeline. A portion of this potential spill material (approximately 3.61 percent) would be associated with PRC 421, as the pipeline would convey product from both Platform Holly (4,000 barrels per day [bpd]) and PRC 421 (150 bpd).

1 pre-1985 is less reliable in the DOT/OPS data). Information is available from the OPS
2 for crude-oil pipelines, as well as for all liquid pipelines (DOT/OPS 1990). Since 1985,
3 crude oil has comprised 42 to 51 percent of the liquid spilled from pipelines, and
4 petroleum products have made up 47 to 55 percent of the total volume spilled. Pipeline
5 corrosion ranks as the most frequent cause of spills, an estimated 39 percent of all
6 failures since 1985. The number of spills caused by corrosion has remained in the same
7 range since 1985, and there has been no downward trend in the number of spills
8 caused by corrosion since that time. Third-party impacts rank as the second highest
9 cause of pipeline spills, accounting for 30 percent of all failures.

10 The California State Fire Marshal (CSFM) publication, *Hazardous Liquid Pipeline Risk*
11 *Assessment* (CSFM 1993), analyzed leak information for the 7,800 miles of liquid
12 pipelines within California for the years 1981 through 1990. The CSFM report presented
13 a set of hazardous liquid pipeline incident rates for all pipelines and uses. A review of
14 the CSFM report shows that the following pipeline design and operation parameters can
15 have a significant effect on pipeline spill rates:

- 16 • Pipeline age;
- 17 • Pipeline diameter;
- 18 • Pipe specification;
- 19 • Pipe type;
- 20 • Normal operating temperature;
- 21 • Supervisory Control and Data Acquisition (SCADA) leak detection system;
- 22 • Cathodic protection system;
- 23 • Coating type; and
- 24 • Internal inspection.

25 The study found that external corrosion was the major cause of pipeline leaks, causing
26 approximately 59 percent of spills, followed by internal corrosion and third-party damage
27 at 20 percent. Operator error and weld failure were also mentioned as minor causes of
28 pipeline failure. Older pipelines and those that operate at higher temperatures had
29 significantly higher spill rates. Crude oil had the highest spill rate primarily due to the
30 transportation of crude oil at elevated temperatures, which increases the rate of external
31 corrosion. This is because faster corrosion rates occur at elevated temperatures when
32 metal comes in contact with soil moisture.

33 To prevent these potential problems, the design of the Line 96 pipeline addresses the
34 issues which most commonly affect the rate of accidental pipeline releases. Venoco
35 subscribes to the Underground Service Alert "one call" system that provides a single
36 toll-free number for contractors and individuals to call prior to digging near the pipeline.
37 Upon notification that a contractor or property owner is intending to dig near the
38 pipeline, the horizontal location of the pipeline would be marked. Marking will be
39 provided within 48 hours of the request. Additionally a warning tape with the pipeline

1 name is buried approximately 18 inches above the pipeline. The pipeline is new and
2 incorporates all modern safety standards including advanced pipeline coatings, cathodic
3 corrosion protection, emergency flow control and shut-off valves, a new SCADA
4 monitoring system with continuous monitoring provided from the EOF (see Appendix H,
5 HM-3 for detailed description of pipeline safety features). These measures directly
6 address many of the historic causes of pipeline failure raised in past studies, particularly
7 the CSFM study of California pipeline safety.

8 Further, internal inspection, required hydrostatic testing, and frequent pipeline corridor
9 visual inspection by a line rider further reduces the potential for undetected corrosion
10 and third-party damage to the pipeline. Operator training and redundant safety systems
11 decrease the frequency of this already minor source of pipeline leaks. Finally, the
12 pipeline would only transport oil produced at PRC 421 for its productive life (see Section
13 4.2.5 for analysis of cumulative pipeline safety issues).

14 There is a low probability for a release of oil from the production process at Pier 421-2
15 because safeguards designed into the system (i.e., loss of power would shut in the
16 valves) would prevent oil from reaching the surface under non-routine conditions.
17 However, because of the remote potential for blowouts or other failures to occur at Pier
18 421-2 or pipeline failure along the Line 96 pipeline, with subsequent release of oil into
19 the marine environment; no matter how low the probability, this impact would be
20 significant and unavoidable.

21 **Mitigation Measures**

22 MM HM-3 (Automated Block Valves and an Additional Check Valve on the Proposed
23 Pipeline) from the certified Line 96 Modification Project EIR (Santa Barbara County
24 2011) is incorporated by reference (see Appendix H for details).

25 **Rationale for Mitigation**

26 Spill volumes for Llagas Creek would be reduced to 60 barrels with an automatic valve
27 and check valve located upstream and downstream, respectively. Spill volumes around
28 Corral Canyon would be reduced to 52 barrels with an automatic valve and check valve
29 located upstream and downstream, respectively. The proposed mainline valve at the
30 EOF would also effectively reduce potential spill volumes into Bell Creek.

31 **Residual Impacts**

32 After mitigation, this impact would remain significant and unavoidable because there
33 would still be a risk of oil release to the environment.

Impact S-7: Increased Processing of Oil and Gas at the EOF

Project implementation would increase processing of oil and gas at the EOF, and therefore increase potential risks related to safety and potential release of hazardous materials (Significant and Unavoidable).

Impact Discussion

The Project includes transporting the oil/gas/water emulsion produced at Pier 421-2 to the EOF for processing. The EOF is already equipped with the oil-water separation, treatment, and discharge of produced water systems necessary to treat oil produced from Pier 421-2. Although existing EOF throughput levels would increase, no modifications of existing systems at the EOF would be necessary, beyond the those discussed in Section 2.3.4, including control system improvements that would be implemented as part of the Project, a new interconnection with Platform Holly, a programmable logic controller cabinet, variable speed drive package, transformer, and various pressure sensors and gauges. The throughput would increase under the Project by up to 150 BOPD but would remain well below the EOF's current permitted level of 13,000 BOPD.

Figure 4.2-14 shows the changes to baseline hazards and risks posed by the Project. The impacts of these changes as they relate to Pier 421-2 structures and other Project-related infrastructure are discussed below.

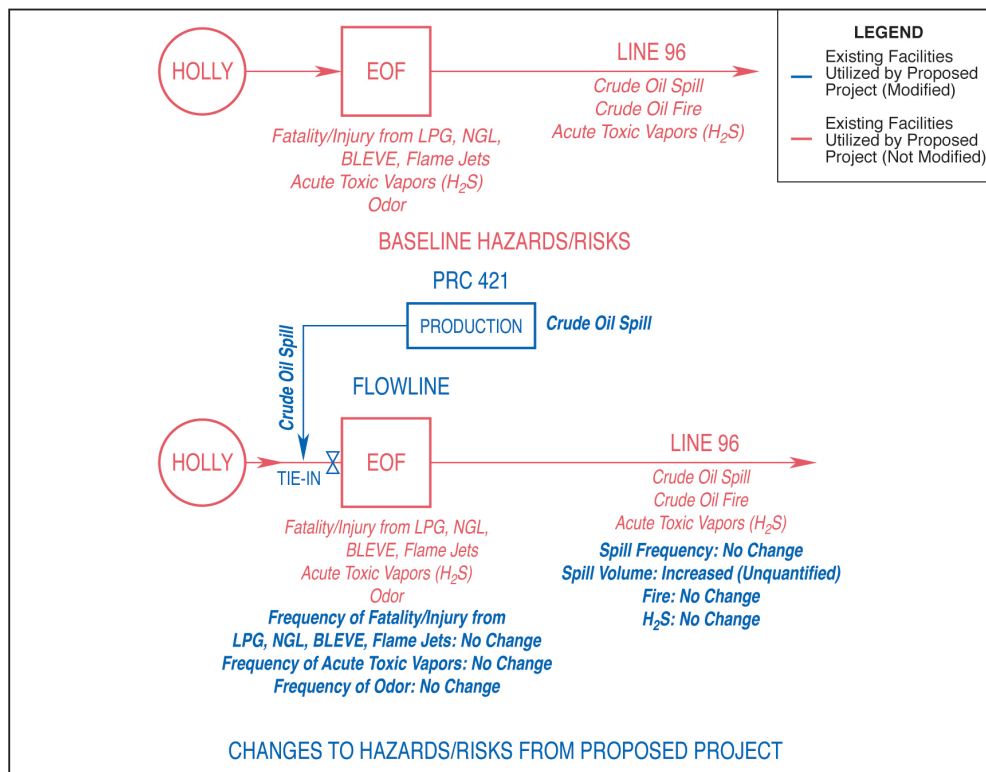


FIGURE 4.2-14.
BASELINE AND CHANGES TO HAZARDS/RISKS

1 The addition of new equipment on the EOF site, including the programmable logic
2 controller cabinet, variable speed drive facility, and transformer, would introduce
3 potential new safety risks at the EOF (e.g., the transformer may create a fire hazard at a
4 new location in the EOF). These risks would be reduced by updating the South Ellwood
5 Field EAP to address these changes, as required in MM S-5b.

6 As noted previously, a QRA was conducted for the EOF in 2000, resulting in a set of
7 MMs designed to bring EOF operations in compliance with Santa Barbara County
8 Environmental Thresholds for Public Safety (ADL 2000). The analysis evaluated the
9 facility's operations at permitted (maximum) levels.

10 Prior to mitigation, the study found the main risk to the population was the separation
11 and storage of liquefied petroleum gas (LPG) and natural gas liquids (NGLs). The QRA
12 further concluded that the toxic risk (i.e., from H₂S) from the facility would be
13 considered acceptable based on the County's Environmental Risk Threshold for Public
14 Safety (ADL 2000). Platform Holly was found to produce an acceptable level of risk, in
15 part because no large quantities of flammable gas liquids are stored at the facility. At
16 present capacity (below permitted capacity), the facility's risk profile is within the
17 County's and City's risk thresholds for public safety.

18 The largest vessels at the EOF that contain crude oil are the two crude oil storage
19 tanks, which have a capacity of 2,000 barrels each and the 1,500 barrel heater treaters.
20 Additional vessels with liquid inventory include the 3,000 barrel produced water tank,
21 and the 2,000 barrel reaction and oxidation tanks in the H₂S removal unit. A failure of
22 the tank/vessel or a rupture of piping or one of the smaller, connected vessels/systems
23 could cause a release of the contents to the containment/sump system, which could be
24 released to the ocean outfall if appropriate procedures and methods are not followed.
25 The QRA prepared for the EOF estimated the frequency of such a spill at less than one
26 occurrence per million years. The containment at the EOF exceeds the combined
27 capacity of crude oil storage.

28 PRC 421 production would enter three process streams at the EOF: crude oil
29 processing, gas sweetening, and produced-water disposal.

- 30 • Crude oil processing – Pier 421-2 oil/gas/water emulsion would be commingled
31 with crude oil from Platform Holly, and would be processed together at the EOF.
- 32 • Gas sweetening – Because of its low sulfur content, Pier 421-2 gas is not sour;
33 however, it would be commingled with production from Platform Holly, then the
34 combined PRC 421/Holly gas stream would be processed in the gas sweetening
35 system at the EOF.

- 1 • Produced-water disposal – Separated water from the commingled crude oil
2 would be injected into well WD-1 at the EOF, which is used for disposal of
3 Platform Holly’s produced water.

4 The addition of projected PRC 421 flow volumes would not cause EOF throughput to
5 approach the limits of its permitted capacity, which is lower than its design capacity. In
6 addition, oil produced from PRC 421 does not have constituents or concentrations of
7 constituents that would fall outside of EOF processing system design basis or capacity.
8 Therefore, PRC 421 production is suitable for handling and processing at the EOF.

9 The EOF includes a total storage capacity of 4,000 barrels, which is not enough storage
10 to accommodate a full day of production from PRC 421 and Platform Holly. Additionally,
11 no other oil storage facilities are available for this production. Therefore, oil produced
12 from PRC 421 would be blended with the Platform Holly oil and continuously
13 transported through Line 96 to the PAAPLP Coastal Pipeline located west of LFC,
14 except for use of the limited storage facilities currently available at the EOF. If, for any
15 reason, the PAAPLP Coastal Pipeline system downstream of the EOF or processing
16 equipment within the EOF were not operating, the Applicant would need to curtail
17 production from Platform Holly and PRC 421 within less than a day. Production from
18 PRC 421 could be shut down within 5 minutes. The maximum amount of oil produced in
19 5 minutes, based on the maximum instantaneous production rate of 500 BOPD, would
20 be 1.7 barrels. This amount of oil could be accommodated along with that from Platform
21 Holly in the existing storage facilities. Since current throughput at the EOF is 5,000
22 BOPD (less than 39 percent of its permitted capacity given current design), the increase
23 in existing flows of 150 BOPD reducing to 50 BOPD after 2 years due to addition of
24 PRC 421 production is unlikely to burden existing processing facilities.

25 Based on the descriptions above and defined throughput levels, the introduction of
26 oil/gas/water emulsion produced at Pier 421-2 would not have adverse effects on the
27 safe operation of the EOF processing systems. The EOF would continue to operate well
28 below its permitted capacity, and therefore maintain an acceptable risk profile in
29 accordance with the County’s and City’s environmental risk thresholds for public safety.
30 However, additional processing at the EOF would incrementally increase the risk of a
31 hazardous material release and subsequent release of oil into the marine environment;
32 no matter how low the probability, this impact would be significant and unavoidable.

33 **Mitigation Measures**

34 ~~Although this impact is significant and unavoidable, the~~ The EOF operates under an
35 approved EAP and OSCP for the South Ellwood Field; however, the EAP would be
36 updated, as specified in MM S-5b, to include information about the new flowline
37 connection and new equipment that would be present on the site as part of the

1 ~~proposed Project and there is no additional feasible mitigation available that would~~
2 ~~substantially reduce the risk of release from the EOF.~~

3 **Residual Impacts**

4 This impact would remain significant because there would still be a risk of oil release to
5 the environment, and no mitigation can completely remove that risk.

6 **Impact S-8: Increased Risk of Fire**

7 **Project implementation would include production and transport of oil and gas**
8 **from PRC 421 to the EOF, increase processing of oil and gas at the EOF, and**
9 **increase transport of oil and gas to market, therefore increasing potential risks**
10 **related to fire (Less than Significant with Mitigation).**

11 **Impact Discussion**

12 A spill of crude oil from the PRC 421 production equipment, pipelines, or EOF facilities
13 could produce public health concerns as a result of fires that may arise if the oil or the
14 oil vapors reach an ignition source and the oil burns. Flammable vapors that may
15 emanate from crude oil include propane, butane, pentane, light ends (ethane and
16 lighter), naphtha, and H₂S. As it emerges from the wellhead, crude oil is a
17 heterogeneous mixture of solids, liquids, and gases. This mixture in addition to
18 hydrocarbons includes sediments, water and water vapor, salts, and acid gases,
19 including H₂S and carbon dioxide. Most of the light ends (e.g., the propane, butanes)
20 are removed from the crude oil during processing at the EOF. However, several events
21 would have to occur before a hazardous consequence would occur. For example, a
22 sizeable oil leak would need to occur, followed by ignition and subsequent fire, and then
23 members of the public would need to be present within the fire zone to be affected, or
24 fire or burning oil would need to escape PRC 421 related facilities and damage adjacent
25 areas or structures.

26 A fire at the pier, along the 3-inch flowline or at the EOF, however unlikely, would be a
27 significant impact; the pier is located on the beach, often surrounded by water and is not
28 near public buildings, the public may be exposed to this hazard during use of the beach
29 adjacent to the pier. The flowline borders the beach, as well as coastal bluff scrub
30 habitats above and to the north; the EOF and a portion of the flowline border Bell
31 Canyon Creek to the west. The public may experience impacts at one of the
32 neighboring properties, including Bacara Resort and Spa, the Sandpiper Golf Course,
33 and the Bluffs residential development on the Ellwood Mesa. However, with the
34 exception of Sandpiper Golf Course, all of these uses are 2,000 to 4,000 feet away from
35 production, transport and processing facilities. Based on an older QRA prepared for the
36 EOF (SBCFD 2000), crude oil fires could produce serious injury impacts from thermal
37 exposure at a distance of 150 feet; in the case of PRC 421, this distance may be

1 greater than 150 feet due to the lighter oil produced at PRC 421 (35 American
2 Petroleum Institute [API] gravity) versus Platform Holly (22.4 API gravity). However, the
3 relative increase in volume of PRC production is less than 3 percent of ongoing
4 production from Platform Holly and such production would be commingled with that from
5 Platform Holly during processing, resulting in a small incremental increase in volatility
6 and associated fire hazard after processing. Further, while recreationalists using the
7 beach and golf course could be exposed to a low level of potential hazard from a fire at
8 PRC 421 or the EOF or a subsequent wildfire, there are no homes or other structures
9 immediately proximate PRC 421. Although the piers, access road, and EOF are only
10 accessible from Hollister Avenue, a dead-end road, limiting access for emergency
11 vehicles, substantial firefighting capabilities are present at the EOF along with regular
12 inspections and monitoring of all facilities. Therefore, incremental increases in
13 flammability associated with PRC 421 production would not result in substantial
14 impacts. When combined with the conditional probability of ignition, which would be low
15 given the few ignition sources in the area, and the conditional probability of persons
16 being near the PRC 421 piers or EOF at the time of the spill, risk of exposure to a crude
17 oil fire would be low, but not zero, because there would still be a risk of injury to Venoco
18 employees and the public in recreational areas in the immediate vicinity of PRC 421.

19 For the Line 96 pipeline route, residential areas and the Ellwood School are located
20 within the injury hazard zones, both thermal and toxic. As mentioned above, the
21 conditional probability of the released crude oil igniting is relatively small. Therefore,
22 risks of thermal impacts from a crude oil fire are low. However, there would still be a risk
23 of injury due to the location of residences and public areas near the pipeline route, and
24 the potential for injuries from toxic vapors resulting from a spill of crude oil.

25 Although the risk of fire resulting from Project operations is small, even given the
26 relatively lighter oil produced at PRC 421, due to the potential consequences of fire at
27 PRC 421, the EOF, and along the Line 96 pipeline route, this impact is significant. With
28 implementation of the measures below, the impact is less than significant with
29 mitigation.

30 **Mitigation Measures**

31 In addition to the MM below, MM S-4e would require a QRA be prepared for the PRC
32 421 facilities and any change in use for other facilities (i.e., the EOF, Line 96), and
33 recommendations in the approved QRA be implemented prior to Project operation.

34 **MM S-8. Fire Prevention and Suppression.** Venoco shall revise the existing Fire
35 Prevention and Preparedness Plan to incorporate the new equipment and
36 operations at PRC 421, and submit to the City of Goleta, Santa Barbara
37 County Fire Department, California Coastal Commission, California
38 Department of Transportation, and California State Lands Commission staffs
39 for review and approval. The plan shall be revised and provided to the

1 agencies for review prior to commencing operations, and the plan shall be
 2 formally updated and circulated within one month of receiving comments from
 3 the aforementioned agencies.

4 **Residual Impacts**

5 Implementation of the appropriate safety measures, including fire prevention and
 6 suppression capabilities, would reduce but not eliminate the risk of fire and related injury.

7 **Impact S-9: Repressurization Monitoring**

8 **Project implementation would include repressurization monitoring, which would**
 9 **be used to obtain necessary information to assess the risk of an accidental**
 10 **release of oil from improperly abandoned offshore oil wells (Beneficial).**

11 **Impact Discussion**

12 Currently, the PRC 421 wells are shut-in with no way to assess the current pressure of
 13 Vaqueros Reservoir. Because there is a risk of release of oil from improperly
 14 abandoned wells, there is no current means to assess such a risk due to reservoir
 15 pressurization, which could have a significant and unavoidable impact (see Vaqueros
 16 Reservoir Repressurization discussion above under Section 4.2.1). Once Well 421-2
 17 starts to produce as part of the Project, it will provide the opportunity for CSLC reservoir
 18 engineers to monitor the reservoir pressure and better understand the potential for
 19 leakage from the old abandoned wells; therefore, would be a beneficial impact.

Table 4.2-5. Summary of Project Safety Impacts and Mitigation Measures

Impact	Mitigation Measures
S-1: Release of Oil During Cleanup of 6-inch Pipeline	No additional mitigation is required beyond implementation of BMPs, as proposed.
S-2: Exposure of the Public and Environment to Safety Hazards Due to Collapse of the 421-2 Caisson	S-2a. Design Review / Wave Loading Evaluation.
	S-2b. Post Storm Inspection, Monitoring and Cleanup.
S-3: Exposure of the Public and Environment to Safety Hazards Due to Collapse of or Damage to the Existing Timber Bulkhead or Rip-Rap Seawall	S-3. Design Review by Civil/Structural Engineer.
S-4: Potential for Release of Oil or Hazardous Materials from Pier 421-2	S-4a. Containment. S-4b. Response Drills and Planning. S-4c. Casing Pressure Testing. S-4d. Regular Facility Inspections. S-4e. Quantitative Risk Assessment (QRA) and Implementation of QRA-Recommended Measures.
S-5: Potential for Release of Oil or Hazardous Materials From the Crude Oil Flowline	S-5a. Install Pipeline Warning Markers. S-5b. Develop Emergency Action Plan (<u>EAP</u>)/ <u>Update of South Ellwood Field EAP.</u> S-5c. Safety, Inspection, and Maintenance of Oil

Table 4.2-5. Summary of Project Safety Impacts and Mitigation Measures

Impact	Mitigation Measures
	and Gas Pipelines.
S-6: Increased Potential for Release of Oil or Hazardous Materials or Fire from Oil Transfer in Line 96	MM HM-3 from the Line 96 Modification Project EIR would apply.
S-7: Increased Processing of Oil and Gas at the EOF	<u>S-5b. Develop Emergency Action Plan (EAP)/ Update of South Ellwood Field EAP.</u> None applicable.
S-8: Increased Risk of Fire	S-8. Fire Prevention and Suppression.
S-9 Repressurization Monitoring	None required.

1 4.2.5 Cumulative Impacts Analysis

2 This section summarizes other proposed or ongoing projects in an effort to assess
3 whether the Project's incremental impacts are cumulatively considerable. The projects
4 are listed in Table 3-3 in Section 3, Cumulative Impacts Methodology. The Project may
5 have cumulatively considerable impacts related to oil spill risk; therefore, this discussion
6 focuses on the oil production projects described in Section 3 because of their potential
7 to increase the risks of oil spills affecting the same areas of coast as the Project.

8 Projects which could produce an increased risk of oil spill that could impact the same
9 coastal areas as the Project include the following:

- 10 • Carpinteria Field Redevelopment Project/Carone Petroleum Corporation, Signal
11 Hill Inc., and Pacific Operators Offshore LLC (POOL);
- 12 • Carpinteria Onshore Project/Venoco; ~~and~~
- 13 • South Ellwood Field Project/Venoco; and
- 14 • Development of 36 non-producing Federal Leases/Various Applicants.

15 All of these projects would exacerbate the potential oil spill risk of the Project, which has
16 been identified as significant and unavoidable.

17 Residential projects in the area would have no direct impact on the Project risks.
18 However, some of the projects are residential developments near the Project area.
19 These would increase the populations that could be exposed to a crude oil spill.
20 Potential exposure in the event of a spill could be along the Line 96 pipeline route and in
21 the nearshore coastal areas. Recreation would be expected to increase with the
22 increase in populations living nearby (CSLC 2009). As noted previously, the Project
23 does not contribute to acute safety risks because of the low H₂S content of the crude oil
24 produced at PRC 421.

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1 **4.3 HAZARDOUS MATERIALS**

2 This section addresses the handling, storage, and disposal of hazardous materials and
3 the potential for the Project to release hazardous materials (i.e., petroleum products,
4 solvents, pesticides, herbicides, polychlorinated biphenyls (PCBs), paints, metals,
5 asbestos, and otherwise regulated chemical materials) during resumption of production
6 at State Oil and Gas Lease PRC 421 (PRC 421), including the construction and
7 operation activities at Pier 421-2 and decommissioning and removal of Pier 421-1. This
8 analysis also briefly discusses area resources that could be affected by the operation of
9 secondary Project components (existing facilities not proposed for modification) such as
10 the operation of the Line 96 pipeline and the Ellwood Onshore Facility (EOF). For a full
11 discussion of potential impacts related to the Line 96 pipeline, see the Line 96
12 Modification Project EIR (Santa Barbara County 2011). Potential impacts resulting from
13 releases of oil-related materials, such as contaminated sediment or a crude oil spill, are
14 also analyzed in other sections of this Environmental Impact Report (EIR), including
15 Section 4.5, Hydrology, Water Resources, and Water Quality. Section 4.2, Safety,
16 evaluates the potential for upset conditions that could result in a release of oil and
17 hazardous materials. Potential impacts associated with a release of hazardous
18 materials by the Project are based on a change from existing conditions. Significance
19 criteria are used to assess the significance of the impacts, and whether mitigation
20 measures (MMs) can be applied to reduce the level of significance.

21 This section incorporates data from Santa Barbara County 01-ND-34 and City of Goleta
22 06-ND-001 along with follow up hazardous materials studies associated with those
23 negative declarations (NDs). This document incorporates by reference the conclusions
24 of the Line 96 Modification Project EIR regarding impacts related to hazardous materials
25 associated with operation of the Line 96 pipeline to the Plains All American Pipeline, LP
26 (PAAPLP) Coastal Pipeline west of Las Flores Canyon (LFC), and summarizes these
27 where appropriate.

28 **4.3.1 Environmental Setting**

29 The environmental setting presented in this section represents the baseline conditions
30 existing at the time the Notice of Preparation (NOP) was released (March 16, 2013).
31 The baseline conditions include the existing configuration of the Project site, existing
32 operations, and present environment. Risks associated with a potential release of
33 hazardous materials are then evaluated in relation to the baseline conditions.

34 **Study Area Location and Description**

35 The study area boundary for the Project is described in Section 1.4.1, Study Area
36 Boundary; the area for this hazardous materials analysis includes the immediate on-
37 shore and near-shore areas of the Ellwood coast that would be subject to direct impacts

1 from a release of hazardous materials. This area generally includes the existing PRC
2 421 facilities, access road, and tie-in at the existing EOF.

3 The study area includes, from southeast to northwest: Pier 421-2 (southeastern
4 boundary), Pier 421-1 (approximately 325 feet northwest of Pier 421-2), a portion of the
5 gravel access road (from Pier 421-2 extending northwestward, approximately 1,300 feet
6 along the beach), and the remaining portion of the access road (to EOF [northwestern
7 boundary] extending northwest, approximately 500 feet across the Sandpiper Golf
8 Course). Each steel-pile pier contains sand-filled concrete caissons that are
9 approximately 67 feet long and 42 feet wide. These portions of the study area are
10 depicted on Figure 4.3-1 (shown in blue).

11 **Baseline Conditions for Hazardous Materials Analysis**

12 The baseline conditions are defined in Section 1.4.2, Baseline and Future Conditions.
13 For the hazardous materials analysis, baseline conditions include the current
14 configuration of Piers 421-1 and 421-2, infrastructure, access road, and no current oil
15 production from PRC 421. Additionally, baseline conditions include any potential
16 existing hazardous materials contamination within the study area boundary in soil,
17 sediment, groundwater, or surface water.

18 *Documentation of Existing Contamination within the Study Area Boundary*

19 The potential for unknown historical releases of hazardous materials to the study area
20 can be evaluated by reviewing historical records covering the study area and nearby
21 properties. Such a review typically focuses on previous industrial or commercial uses of
22 properties where use, handling, or storage of hazardous materials could be assumed.
23 Given that oil and gas development has been prevalent in the area since the 1920s,
24 debris and contamination associated with such development can be found in the
25 Ellwood area. Further, the Project site has been used for oil and gas production since
26 1928 and contamination from previous production activities is likely to be present onsite.

27 Several environmental databases were reviewed during this analysis to evaluate the
28 potential presence of a known historical release in the study area (see Table 4.3-1).
29 Based on this review, the study area was listed on the following databases:

- 30 • **Federal Resource Conservation and Recovery Act (RCRA) Small Quantity**
31 **Generator (SQG) database.** RCRA SQGs are facilities that generate between
32 220 and 2,200 pounds (lbs) of hazardous waste per month, or in a one-month
33 timeframe. The study area was listed as Handler identification: CAD981576846,
34 and was last updated July 30, 1997. No additional information was noted on the
35 listing with respect to dates, quantities, or types of hazardous materials.



Table 4.3-1. Databases Reviewed for Hazardous Material Analysis

Federal Database	California Database
U.S. Environmental Protection Agency (EPA) RCRA hazardous waste generators	California Environmental Protection Agency (CalEPA) Cal-Sites Database (Cal-Sites)
RCRA Corrective Action Sites (CORRACTS) Treatment, Storage, and Disposal (TSD) facilities	California Department of Toxic Substances Control (DTSC) EnviroStor Database (ENVIROSTOR)
RCRA non-CORRACTS TSD facilities list	DTSC Hazardous Waste Tracking System (HWTS) Reports
Comprehensive Environmental Resource Conservation and Liability Information System (CERCLIS) listing	CalEPA Cortese Hazardous Waste and Substances Site List (Cortese)
CERCLIS No Further Remedial Action Plan (NFRAP)	State Water Resources Control Board (SWRCB) Underground Storage Tank Database (UST)
National Priority List (NPL)	SWRCB List of Historical UST Sites (HIST UST)
Delisted NPL	SWRCB GeoTracker Leaking UST List (LUST)
Emergency Response Notification System (ERNS) list	SWRCB Spills, Leaks, Investigations, and Cleanups List (SLIC)
	DTSC Deed Restriction Listing (DEED)
	DTSC Voluntary Cleanup Program Properties List (VCP)

- 1 • **Federal ERNS List through the National Response Center.** The National
2 Response Center provides all oil and chemical spill data reported to the Center
3 since 1990. The study area was listed as Incident Report #741971 dated
4 November 20, 2004, which indicates that a caller reported an unknown dark
5 black sheen on ocean water at Pier 421-1. The reported size of the sheen was
6 50 feet by 3 feet. No other information on how the apparent release occurred, or
7 how it was remediated, was reported.
- 8 • **DTSC Hazardous Waste Tracking System (HWTS).** The HWTS generates
9 reports on hazardous waste shipments for generators, transporters, and
10 treatment, storage, and disposal facilities (TSDFs). The study area was listed on
11 the HWTS as U.S. EPA identification: CAD981576846, under the name of
12 Venoco, Inc., North American Industry Classification System 211111 and
13 Standard Industrial Classification 1311. The status was shown to be active, and
14 the record was entered April 10, 1987 (the facility was owned by ARCO at this
15 time). The record entry in its database appears to be based solely on the study
16 area's U.S. EPA identification number, which reflects the study area's inclusion
17 on the Federal SQG database as described above.

18 *Database Entries for Adjacent Properties*

19 The EOF was also reported on several databases. The listings primarily consisted of
20 small oil spills or releases of natural gas. The largest spill reported was 10 barrels crude

1 oil to soil in 1995. The release apparently resulted from a valve crack at a storage tank.
2 Additionally, the EOF was listed on the SWRCB GeoTracker database as a facility with
3 underground storage tanks.

4 *Additional Releases at the Project Site*

5 March 1994 – A 6-inch pipeline leak occurred and resulted in a release to soil of
6 approximately 170 barrels (7,140 gallons) beneath the 12th green of the Sandpiper Golf
7 Course near the coastal bluffs. This release impacted surface and subsurface soils at
8 the golf course.

9 November 22, 2000 – An oil leak was induced during a routine fluid-level check at Pier
10 421-2, and an oil leak and sludge were noted in association with a storage tank in
11 secondary containment on Pier 421-1. The sludge was tested by a hazardous waste
12 bioassay technique, and was found to be toxic (note that determination of hazardous
13 waste includes four characteristics: toxic, flammable, corrosive, or reactive, and that if a
14 substance is found to be characteristic of one of the four types, then it is considered a
15 hazardous substance, and subject to regulation under the RCRA). The toxic sludge and
16 associated liquids were removed from the storage tank and disposed of properly. This
17 leak apparently did not impact soil, sediment, groundwater, or surface water.

18 November 27, 2000 – An oil leak occurred during fluid-level check on Pier 421-2, and
19 resulted in the release of approximately 15 gallons. The oil was contained in a drum in
20 secondary containment. This leak apparently did not impact soil, sediment,
21 groundwater, or surface water.

22 2001 – During emergency repairs to PRC 421 facilities, petroleum-hydrocarbon-
23 contaminated sediment was encountered in three of the five holes dug across the width
24 of Pier 421-2. The contaminated sediment was encountered at a depth of approximately
25 15 feet, and the contamination appeared to extend to approximately 20 feet below the
26 surface of the top of the sediment. Laboratory testing of the contaminated sediment
27 indicated the presence of several hundred to less than 2,000 parts per million (ppm)
28 diesel- and lube-oil-range petroleum hydrocarbons. Approximately 143 tons of the
29 contaminated sediment was excavated from the area near the holes completed for
30 installation of soldier pile structural sections. The excavated material was transported to
31 an asphalt recycling plant (Santa Barbara County 2001).

32 January 19, 2004 – A large section of the outer caisson wall of Pier 421-1 sheared off
33 and fell into the surf below. Large pieces of concrete debris and rebar fell to the base of
34 the caisson. Based on the long history of oil and gas production at both PRC 421 wells,
35 it was assumed that fill and sediment inside the caissons at both piers are likely
36 contaminated with petroleum-related constituents. Therefore, it was also noted that the
37 2004 caisson wall repair was conducted in part to prevent contaminated fill and
38 sediment materials from being released.

1 During wall repair activities, two leaks were found in the old caisson wall. These leaks
2 were reported by a member of the public, and may correspond to the Federal ERNS
3 listing noted earlier in this section. The leaks were noted as containing both a lighter oily
4 substance and a black tar-like substance, both of which were released to the ocean.
5 The leaks from the wall continued for a period of time during the repair project, and
6 were estimated to reach up to one quart per day. Absorbent pads and booms, and a
7 topical sealant were used in an attempt to minimize the leaks, but those efforts
8 appeared to be unsuccessful. Once the new caisson wall was constructed, concrete
9 was poured between the new and old walls, which could provide a more effective seal
10 for the leak areas on the old wall.

11 Following completion of the new caisson wall, samples of the leaking substance and a
12 “shale mud/sand” were tested. The shale mud/sand sample included concentrations of
13 total petroleum hydrocarbons (TPH) in the range of 100 to 200 milligrams per kilogram
14 (mg/kg). Risk to human health or the environment cannot be quantified based on the
15 analytical data obtained. However, concentrations in the 100 to 200 mg/kg range for
16 TPH are well below 1,000 mg/kg, which is a commonly used screening value for TPH in
17 soil and a generally accepted regulatory guideline.

18 The laboratory analysis of the leaking substance that was released from the old caisson
19 wall was found to have a heavier API gravity than would be expected from the oil
20 produced at PRC 421. PRC 421 wells are anticipated to have an API gravity of
21 approximately 35, while the leaking substance was found to be much heavier at 17.8.
22 The source of the leaking fluid remains unknown; however, it was noted in the MND that
23 the substance may not have originated from PRC 421 (City of Goleta 2006a).
24 Alternately, the substance may have been PRC 421 reservoir oil that had partially
25 volatilized or decomposed, resulting in a heavier API gravity.

26 April 1, 2005 – A dark substance was found to be leaking from the east side of the old
27 caisson wall at 421-1 during a California State Lands Commission (CSLC) staff
28 inspection after completion of the caisson wall repair. During subsequent inspections,
29 the leaking substance appeared, based on visual and olfactory evidence, to not be a
30 petroleum release; no oily or slick texture was visible, and an anaerobic sulfurous odor
31 was noted.

32 August 21, 2006 – Two slow leaks were reported on the east wall of the outer caisson
33 by a member of the public. The area around the leak was described as whitish in color
34 and smelled of sulfur. Santa Barbara County Energy Division staff sampled the fluid
35 during a site visit in response to the reported chemical leak. The fluid did not appear to
36 contain hydrocarbon material, and the source of the leaks remains unknown (City of
37 Goleta 2006a).

1 Natural Seeps – Prolific natural hydrocarbon seepage occurs offshore of Coal Oil Point
2 in the Santa Barbara Channel, just southeast of the Project site. The seeps emit both
3 liquid and gaseous hydrocarbon phases, with gas predominating. Such hydrocarbon
4 seepage affects ocean and beach sediment chemistry and provides a natural source of
5 petroleum pollution. On a regional scale, the Coal Oil Point seeps represent a significant
6 source of gaseous hydrocarbons and residual asphaltic hydrocarbons, or beach tar. The
7 natural seeps are discussed further in Section 4.1, Geological Resources.

8 *Study Area Receptors*

9 For this analysis, receptors are located in areas in the Project vicinity that have the
10 potential to be adversely affected by the release of hazardous materials as a result of
11 implementation of the Project or its alternatives (see Section 5.0 for the alternatives
12 analysis). If a release of hazardous materials were to occur, the most likely receptors
13 would be located within the study area or its immediate vicinity. Those receptors could
14 include occupants at the Sandpiper Golf Course, personnel at the EOF, beach
15 recreational users, construction personnel, and ecological receptors associated with the
16 upland and near-shore environments near the piers and the access road, including
17 those in sensitive areas, such as wetlands, and surface waters of nearby creeks or the
18 ocean. Additional information on receptors and the environments in Project vicinity is
19 provided in Section 4.2, Safety; Section 4.5, Hydrology, Water Resources, and Water
20 Quality; Section 4.6, Marine Biological Resources; and Section 4.7, Terrestrial
21 Biological Resources.

22 **4.3.2 Regulatory Setting**

23 Regulations applicable to the Project are intended to regulate hazardous materials and
24 hazardous wastes, as well as to manage sites contaminated by hazardous substances.
25 These regulations are also designed to limit the risk of upset during the use, transport,
26 handling, storage, and disposal of hazardous materials. The Project would be subject to
27 numerous Federal, State, and local laws, regulations, and policies. Federal and State
28 laws that may be relevant to the Project are identified in Table 4.0-1. Local laws,
29 regulations, and policies are discussed below.

30 **Local**

31 *Santa Barbara County Fire Department (SBCFD)*

32 As noted in Sections 4.1, Geological Resources, and 4.2, Safety, the SBCFD, which is
33 the Certified Unified Program Agency (CUPA) responsible for administering state
34 environmental programs within the county of Santa Barbara, is the overseeing agency
35 for implementing local regulations in the event of a hazardous waste or petroleum spill.
36 The SBCFD may also maintain additional records for the study area from the Site
37 Mitigation Unit, CUPA, and Current Release Information files.

1 *Santa Barbara County Air Pollution Control District (APCD) Rule 325 – Crude Oil*
2 *Production and Separation*

3 This local regulation applies to equipment used in the production, gathering, storage,
4 processing, and separation of crude oil and natural gas prior to custody transfer. This
5 rule includes provisions for storage tanks, emissions control for produced gas, and
6 requirements for recordkeeping, test methods, inspections, and compliance schedules.

7 **4.3.3 Significance Criteria**

8 The significance criteria for this hazardous materials analysis were developed by
9 considering study-area-specific potential impacts. A hazardous materials impact would
10 be significant if it:

- 11 • Creates a significant hazard to the public or the environment through the routine
12 transport, use, or disposal of hazardous materials; or
- 13 • Is located on a site included on a list of hazardous materials sites compiled
14 pursuant to Government Code section 65962.5, and as a result would create a
15 significant hazard to the public or the environment.

16 **4.3.4 Impact Analysis and Mitigation**

17 The Project was evaluated for the presence of hazardous substances that, if present in
18 large quantities in existing structures planned for construction/renovation, or known to
19 exist in study area media (soil, sediment, groundwater, or surface water), could result in
20 impacts to human health or the environment. A qualitative evaluation of potential Project
21 impacts was made based on the site-specific information obtained and described in
22 Section 4.3.1, Environmental Setting. Impacts and related MMs related to oil spills and
23 subsequent cleanup activities are addressed in Sections 4.4, Hydrology, Water
24 Resources and Water Quality, 4.5, Biological Resources, 4.1, Geological Resources,
25 4.2, Safety, and 4.12, Aesthetics/Visual Resources. Because impacts from oil spills are
26 specific to the resource areas listed above, these impacts are not included in this
27 section. Table 4.3-2, located at the end of Section 4.3.4, provides a summary of safety-
28 related impacts and recommended MMs to address these impacts.

29 **Impact HAZ-1: Exposure of Public or Environment to Hazardous Materials**

30 **The Project would create a potential hazard to the public or the environment**
31 **through the routine transport, use, or disposal of hazardous materials during**
32 **construction and/or project operation (Less than Significant with Mitigation).**

33 **Impact Discussion**

34 During the construction phase of the Project, existing petroleum-contaminated soil or
35 sediment could be encountered during soil disturbance activities, including trenching

1 along the pipeline corridor and caisson repair at Pier 421-2. Contaminated soil may also
2 be encountered during pier and caisson removal at Pier 421-1, which would be
3 performed separately following recommissioning of Pier 421-2; decommissioning and
4 removal is expected to occur approximately 1 year following recommissioning of Pier
5 421-2.

6 Disturbance of existing contaminated soil or sediment could result in a release of
7 hazardous materials, which could adversely affect human or ecological receptors.
8 Several spills have been documented at the site during its 70-year history of oil
9 production. In addition, during construction of recent improvements, soils contaminated
10 with hydrocarbons were discovered beneath Pier 421-1 and removed from the site.
11 Open excavations in contaminated areas can increase the potential for erosion,
12 sedimentation, turbidity, and generation of contaminated water by (1) collection of storm
13 water in the open area during storm events, or (2) groundwater influx in areas where the
14 excavation intersects shallow groundwater.

15 The Project would potentially result in the release of contaminated sediment from the
16 caisson at Pier 421-2 into the environment. The Project includes repairs to all three non-
17 seaward-facing walls of this caisson. These reinforcements would include construction
18 of walls similar to the one built on the seaward facing side of the Pier 421-2 caisson in
19 2011. This would include installation of steel piles in 25-foot-deep holes drilled around
20 the caisson and concrete panels between the steel piles. Concrete slurry will then be
21 poured between the new panels and the old caisson walls. Exposure of caisson
22 sediment through opening of the caisson structure at Pier 421-2 during construction is
23 not intended as part of the Project; however, construction activities could result in an
24 accidental release of contaminated sediment into the environment.

25 The only trenching included as part of the Project would be a shallow trench (30 inches
26 deep by 12 inches wide) for the installation of electric cables over a 1-day period.
27 Additionally, the Project has included a technique for upgrades to the existing 6-inch line
28 by in-situ enhancements including addition of a new internal liner of the pipeline. The
29 pipeline would be accessed at the location near the 1994 oil release. Further Project
30 details are described in Section 2.2, Proposed Project.

31 Decommissioning and removal of Pier 421-1 and associated infrastructure, which would
32 occur following recommissioning of Pier 421-2, also presents the risk of exposing
33 contaminated sediment to the marine environment. The caisson at Pier 421-1 currently
34 contains sediment that may contain hazardous materials, and removal of this structure
35 could result in mobilization of this material into the marine environment. Structures to be
36 removed as part of the decommissioning and removal of Pier 421-1 and underlying
37 sand would be tested for the presence of hazardous materials, and any contaminated
38 sand would be remediated; however, accidental release of contaminated sediment may
39 still occur. During the construction phase for the Project and subsequent

1 decommissioning and removal of Pier 421-1, other pollutants typically associated with
2 construction activities, such as sediment, concrete curing compounds, sealants, paints
3 (among others) could be released. The potential for and consequences of upset
4 conditions during operations are addressed in Section 4.2, Safety. This impact would be
5 less than significant with mitigation.

6 **Mitigation Measures**

7 Impacts from potential hazardous materials releases during Project construction and
8 operation and during decommissioning and removal of Pier 421-1 would be reduced
9 with implementation of MM WQ-1a from Section 4.5, Hydrology, Water Resources and
10 Water Quality, as well as:

11 **MM HAZ-1a. Proper Personnel Training.** Personnel working during the Project's
12 construction, operation, and Pier 421-1 decommissioning and removal phases
13 shall be adequately trained per the requirements included in Venoco's
14 Emergency Action Plan, Oil Spill Contingency Plan, Fire Prevention and
15 Preparedness Plan, Spill Prevention, Control and Countermeasures Plan and
16 other relevant plans. These plans include specific training requirements such
17 that personnel that have the potential to come into contact with contaminated
18 media and/or hazardous materials understand safe work practices, Best
19 Management Practices, and waste management practices, so that a release of
20 hazardous materials can be avoided, controlled, or minimized. Project
21 construction and field personnel shall also be trained to identify possible
22 indicators of a hazardous release, such as hydrocarbon or solvent odors,
23 stained soils, and oily sheens on standing water.

24 **MM HAZ-1b. Conduct a Phase I Environmental Site Assessment (ESA).** To gain
25 a better understanding of the study area and its potential to have additional,
26 previously unknown releases of hazardous materials or other environmental
27 concerns, Venoco shall perform a Phase I ESA on the study area prior to
28 issuance of land use permits, which shall incorporate information from Santa
29 Barbara County Fire Department Fire Protection Division (FPD) records and
30 files. The results of this study shall be provided to the City of Goleta, FPD, and
31 California State Lands Commission staffs. Conclusions of the Phase I ESA,
32 including any recommendation of a Phase II and subsequent investigation,
33 shall be followed. Any subsequent work plans for soil and groundwater
34 sampling shall be submitted to FPD for review and incorporated into the current
35 and ongoing assessment under their Site Mitigation Unit Site #371.

36 **MM HAZ-1c. Soil Sampling.** During construction activities at Pier 421-2 and during
37 Pier 421-1 decommissioning and removal, all soil materials removed shall be
38 presumed to be contaminated and handled accordingly. The soil materials
39 removed from the caisson will be sampled, profiled, and disposed of or
40 recycled according to regulatory requirements. During all other Project
41 construction activities, ~~Venoco~~ a City of Goleta Soils Inspector/Monitor shall
42 continually visually monitor the soils disturbed within the construction areas to

1 determine if there is any evidence of undiscovered contamination. The City of
2 Goleta shall hire the Soils Inspector/Monitor, paid for by Venoco, to inspect soil
3 disturbance activities within the City's jurisdiction during all phases of the
4 Project to ensure that any hazardous materials and/or contaminated soils
5 encountered are properly contained and removed. Soil samples may be taken,
6 subject to the direction of the Soils Inspector/Monitor. Any soil suspected of
7 contamination shall be contained on site in appropriate storage container,
8 sampled, profiled, and disposed of or recycled according to regulatory
9 requirements. All soils removed shall be handled in accordance with MM HAZ-
10 1d. All soil sampling results shall be provided to the California State Lands
11 Commission and City of Goleta staffs immediately upon receiving results.

12 **MM HAZ-1d. Removal Action Plan.** If sediment within the Project construction and
13 421-1 decommissioning areas and surrounding soils is determined to contain
14 total petroleum hydrocarbons or other contaminants above California Ocean
15 Plan thresholds and if such sediments may be exposed, prior to commencing
16 construction activities, Venoco shall prepare a Removal Action Plan for the
17 safe removal of contaminated materials from the structures and surrounding
18 area. The action plan shall be circulated to the City of Goleta, Santa Barbara
19 County Fire Department Fire Protection Division, California State Lands
20 Commission (CSLC) staffs for review and comment. Final approval of the plan
21 shall be under the purview of the California Department of Fish and Wildlife
22 Office of Spill Prevention and Response (OSPR) and/or CSLC staffs. Upon
23 approval, sediments shall be removed from construction areas and disposed of
24 in accordance with procedures described in the Removal Action Plan.
25 However, if OSPR and/or CSLC staffs determine that removal of some
26 contaminated sediments would impair the integrity of Pier 421-2 (includes the
27 well, caisson supporting the well, and the causeway leading to the caisson)
28 (either through complete removal of the soil filling the caisson or having to dig
29 underneath), Venoco shall prepare a Decommissioning Plan to remove those
30 remaining contaminated sediments at such time that Pier 421-2 is
31 decommissioned. All other contaminated sediments whose removal would not
32 threaten the integrity of Pier 421-2 would be removed upon approval of the
33 Plan as described above.

34 **MM HAZ-1e. Performance Security.** The permittee shall provide to the California
35 State Lands Commission (CSLC) and the City of Goleta, or maintain if already
36 provided, performance securities and agreements for work that would need to
37 be performed at the end of the Project's life. The security and agreement
38 provided to CSLC would cover decommissioning and abandonment of the Well
39 421-1 and Pier 421-2. The performance security total shall be the estimated
40 amount for the decommissioning/abandonment work. The performance
41 security shall be provided to the CSLC and agreements signed, prior to return
42 to production of the PRC 421 well. The security and agreement provided to the
43 City of Goleta would cover decommissioning and abandonment of the portions
44 of the Project located within the City's jurisdiction, including, but not limited to,
45 the piers, the sea wall supporting the access road, the access road, and the
46 onshore pipelines and cables and ancillary facilities. The performance security

1 total shall be the estimated amount for the decommissioning/abandonment
2 work, less any amount contributed toward overlapping infrastructure that is
3 covered in the securities and agreements with the CSLC. The performance
4 security shall be provided to the City of Goleta and agreements signed prior to
5 the issuance of the Land Use Permit.

6 **Rationale for Mitigation**

7 Based on past operations, the potential exists for contaminated media to exist within the
8 Project construction areas. Therefore, pre-Project planning, contingency planning, and
9 personnel training would be needed to control, prevent, or eliminate future releases of
10 hazardous materials during Project implementation. Proper personnel training will
11 ensure that Project personnel are prepared for emergency response in the event of a
12 release of hazardous materials, and will be trained in the identification, proper handling,
13 and disposal of such materials. The purpose of a Phase I ESA is to identify
14 environmental concerns that may be associated with a property. Identification of such
15 concerns helps to evaluate the nature, extent, and magnitude of potential contamination
16 at a site, and to identify what media (e.g., soil, sediment, groundwater, or surface water)
17 may have been contaminated. The conclusions of the Phase I may include
18 recommendation of subsequent investigation (Phase II), in which the extent and nature
19 of contamination will be identified. Sampling of sediment in the proposed construction
20 areas will determine whether contamination is present prior to ground disturbance
21 activities. If contamination is present, a Removal Action Plan will define requirements for
22 proper cleanup and disposal, thereby minimizing risk to the public and environment.
23 Additionally, avoiding construction activities during high tides and use of a silt curtain
24 would reduce the probability and severity of a release of hazardous materials into the
25 marine environment. Full implementation of these measures would reduce Impact HAZ-
26 1 to less than significant.

27 **Impact HAZ-2: Release of Contaminated Sediment from the Caisson on Pier 421-2** 28 **during Operation of the Project**

29 **Contaminated sediment contained within the caisson structures could infiltrate to**
30 **the surrounding environment (Less than Significant with Mitigation).**

31 **Impact Discussion**

32 The Project would extend the use of the aging caisson structure on Pier 421-2. Although
33 the seaward-facing wall has been reconstructed and the remaining walls would be
34 repaired as part of the Project, these walls are subject to weathering, corrosion, and
35 fatigue (see Impact GEO-4) and the potential exists for possibly contaminated sediment
36 contained within the caissons to infiltrate to the surrounding environment. Potential
37 mechanisms and pathways for release of contamination from the caisson are not fully
38 understood; however, potential pathways may include percolation from water infiltration
39 and leakage through the sides and bottom of the caisson wall. The potential for collapse

1 of the caisson structures is discussed in Section 4.2, Safety (see Impact S-2). This
2 impact would be less than significant with mitigation.

3 **Mitigation Measures**

4 MMs listed in Sections 4.1, Geological Resources, and 4.2, Safety, would reduce the
5 potential for contamination to leak or infiltrate from the caisson structure at Pier 421-2.
6 In particular, MM GEO-4a, Corrosion Protection Design Specification, MM GEO-4d,
7 Inspect Structures During and/or After Storm Events, and MM S-2a, Design Review/
8 Wave Loading Evaluation, shall be employed to ensure the integrity of the structure.
9 Results from the Phase I and any subsequent Phase II ESAs described in MM HAZ-1b
10 would provide information on the nature and extent of any pre-existing contamination
11 from past site operations.

12 **Rationale for Mitigation**

13 Contaminated sediment may be contained within the caisson structure on Pier 421-2,
14 which is aged and subject to erosion. Although exposure of caisson sediments at Pier
15 421-2 is not proposed, the potential exists for contamination to leak or infiltrate from the
16 caisson. MMs discussed above will increase the likelihood that any contaminants will be
17 detected and decrease the potential for a release of contaminated sediment. MM GEO-
18 4a, Corrosion Protection Design Specification, and MM S-2a, Design Review/Wave
19 Loading Evaluation, will ensure the structural integrity of the caisson on Pier 421-2
20 through design specification and repair. Inspections of the caisson structure, as
21 discussed in MM GEO-4d, Inspect Structures During and/or After Storm Events, will
22 lessen the potential for release of caisson media through cracks in the structure.
23 Information obtained from implementation of MM HAZ-1b would provide data for
24 evaluating the potential for pre-existing contamination to infiltrate to the surrounding
25 environment. Full implementation of these measures would reduce Impact HAZ-2 to
26 less than significant.

Table 4.3-2. Summary of Hazardous Materials Impacts and Mitigation Measures

Impact	Mitigation Measures
HAZ-1: Exposure of Public or Environment to Hazardous Materials	HAZ-1a. Proper Personnel Training. HAZ-1b. Conduct Phase I Environmental Site Assessment. HAZ-1c. Soil Sampling. HAZ-1d. Removal Action Plan. HAZ-1e. Performance Security. WQ-1a. Avoidance of High Tides and Silt Curtain.
HAZ-2: Release of Contaminated Sediment from the Caisson on Pier 421-2 during Operation of the Project	GEO-4a. Corrosion Protection Design Specification. GEO-4d. Inspect Structures During and/or After Storm Events. S-2a. Design Review/ Wave Loading Evaluation. HAZ-1b. Conduct Phase I Environmental Site Assessment.

1 **4.3.5 Cumulative Impacts Analysis**

2 Given that MMs are used to control, prevent, or eliminate the release of hazardous
3 materials at the study area, implementation of the Project is not anticipated to add to the
4 cumulative effects of implementation of other projects in the area. In addition, the
5 Project and other nearby projects where the use, handling, or disposal of hazardous
6 materials is anticipated are all subject to regulatory standards that must be achieved
7 during construction and operation. Similar to the Project, all future projects in the area
8 would be evaluated on a project-by-project basis and would incorporate measures to
9 reduce any potential impacts from releases of hazardous materials. Mitigation for future
10 projects would be expected to be consistent with applicable standards, regulations, and
11 permits to reduce any potential impacts from releases of hazardous materials.
12 Incorporation of these requirements in other projects would be expected to reduce
13 impacts to less than significant levels. Therefore, the Project is not anticipated to make
14 a contribution to cumulative impacts from the release of hazardous materials.
15 Cumulative impacts from a potential future oil spill are addressed in Section 4.5,
16 Hydrology, Water Resource, and Water Quality, and Section 4.2, Safety.

1 **4.4 AIR QUALITY AND GREENHOUSE GASES**

2 This section summarizes the local climate, current air quality conditions, and regulatory
3 setting related to air quality in the Project area. Air quality impacts associated with the
4 Project and cumulative impacts are also discussed. As necessary, mitigation measures
5 (MMs) are provided to reduce the significance of potential impacts. Information
6 contained in this section was derived from Venoco, Inc.'s (Venoco's) Lease 421
7 Recommissioning Plan Project Description (May 2013), emission inventories for Venoco
8 facilities affecting the ambient air quality in the region, including the Ellwood Onshore
9 Facility (EOF) and Platform Holly, from the California Air Resources Board (CARB), and
10 the Santa Barbara County Air Pollution Control District (APCD). Emission inventories for
11 these facilities have been compiled based on actual operating data and on the potential
12 to emit (emissions at permitted operational limits) for each facility.

13 This document incorporates by reference, and refines and summarizes where
14 appropriate, the conclusions of the Line 96 Modification Project Environmental Impact
15 Report (EIR) (Santa Barbara County 2011) regarding Project impacts to air quality
16 associated with operation of the Line 96 pipeline to the Plains All American Pipeline,
17 L.P. (PAAPLP) Coastal Pipeline west of Las Flores Canyon (LFC). This document also
18 incorporates data from Santa Barbara County 01-ND-34 and City of Goleta 06-MND-01.

19 **4.4.1 Environmental Setting**

20 The primary study area covers the Ellwood Coast and South Coast Air Basin. The
21 secondary, more global, study area is that affected by greenhouse gas (GHG) emissions.

22 **Regional Overview**

23 The climate of Santa Barbara County is classified as Mediterranean, characterized by
24 warm, dry summers and mild winters with moderate precipitation. Temperatures are
25 milder near the coastline than inland, with average daily summer highs of 70 degrees
26 Fahrenheit (°F) and average daily winter lows of 40°F. Inland areas experience a wider
27 range of temperatures, from an average summer high in the 80s and 90s to an average
28 winter low in the 30s. Most precipitation occurs during November through April, with an
29 annual rainfall range of 10 to 18 inches along the coast and slightly more in higher
30 elevations. Prevailing winds in the coastal region are from the west/northwest during the
31 day, with an average speed of 7 to 12 miles per hour. Evening winds blow from the
32 east, as the air over the Pacific Ocean cools and creates a low pressure zone.
33 Topography plays a significant role in affecting the direction and speed of winds. Year
34 round, light onshore winds hamper the dispersion of primary pollutants, and the
35 orientation of the inland mountain ranges interrupt air circulation patterns. Pollutants
36 become trapped, creating ideal conditions for the production of secondary pollutants in
37 the coastal zones.

1 Several types of inversions are common to the area, particularly during May to October.
2 During spring and summer, marine inversions occur when cool air from over the ocean
3 intrudes under warmer air that lies over the land. In summer, the high pressure systems
4 can cause the air mass to sink, creating a subsidence inversion. In winter, weak surface
5 inversions occur, caused by cooling of air in contact with the cold surface of the earth.

6 *Air Quality*

7 Air quality is defined by ambient air concentrations of specific pollutants which have been
8 determined to be of concern with respect to the health and welfare of the general public.
9 The pollutants of concern are: carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen
10 dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), sulfates, lead (Pb), H₂S,
11 vinyl chloride, and visibility reducing particles. Ambient air quality standards have been
12 established by the CARB for each of these pollutants and by the U.S. Environmental
13 Protection Agency (U.S. EPA) for CO, SO₂, NO₂, O₃, PM₁₀, PM_{2.5}, and Pb. The California
14 Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards
15 (NAAQS) are summarized in Table 4.4-1.

16 Air quality at a given location can be described by the concentration of various
17 pollutants in the atmosphere. Units of concentration are generally expressed in parts
18 per million (ppm) or micrograms per cubic meter (µg/m³). The significance of a pollutant
19 concentration is determined by comparing the concentration to an appropriate national
20 and/or State ambient air quality standard. These standards represent the allowable
21 atmospheric concentrations at which the public health and welfare are protected and
22 include a reasonable margin of safety to protect the more sensitive individuals in the
23 population.

24 **Criteria Pollutants and Air Monitoring.** Criteria air pollutants are defined as pollutants
25 for which the Federal and State governments have established ambient air quality
26 standards, or criteria, for outdoor concentrations to protect public health. The Federal
27 and State standards have been set at levels above which concentrations generally
28 could be harmful to human health and welfare. These standards are designed to protect
29 the most sensitive persons from illness or discomfort, with a margin of safety. Ambient
30 air quality for the Project area from 2010 to 2012 is summarized in Table 4.4-2.

31 Santa Barbara County is classified as being in attainment or unclassified for all criteria
32 pollutants with the exception of the California standards for PM₁₀ and the 8-hour
33 standard for ozone, as shown in Table 4.4-3. Monitoring is performed to demonstrate
34 attainment or nonattainment of national and State ambient air quality standards. Criteria
35 air pollutants of concern for Santa Barbara County are described below.

Table 4.4-1. Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standards ^{a, c}	National Standards ^b	
			Primary ^d	Secondary ^{c, e}
O ₃	1-hour ^b	0.09 ppm (180 µg/m ³)	NS	NS
	8-hour ^a	0.07 ppm (137 µg/m ³)	0.075 ppm (147 µg/m ³)	0.075 ppm (147 µg/m ³)
CO	8-hour	9.0 ppm (10 mg/m ³)	9.0 ppm (10 mg/m ³)	NS
	1-hour	20.0 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	NS
NO ₂	Annual Avg.	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	0.053 ppm (100 µg/m ³)
	1-hour	0.18 ppm	0.1 ppm (188 µg/m ³)	NS
Sulfur Dioxide, SO ₂	Annual Avg.	NS	NS	NS
	24-hour	0.04 ppm (105 µg/m ³)	NS	NS
	3-hour	NS	NS	0.5 ppm (1,300 µg/m ³)
	1-hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)	NS
PM ₁₀	Ann. Arith. Mean	20 µg/m ³	NS	NS
	24-hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
PM _{2.5}	Ann. Arith. Mean	12 µg/m ³	12 µg/m ³	12 µg/m ³
	24-hour	NS	35 µg/m ³	35 µg/m ³
Sulfates (SO ₄ ^b)	24-hour	25 µg/m ³	NS	NS
Pb ^f	30-day Avg.	1.5 µg/m ³	NS	NS
	Calendar Qtr.	NS	1.5 µg/m ³	1.5 µg/m ³
	3-month Avg.	NS	0.15 µg/m ³	0.15 µg/m ³
H ₂ S	1-hour	0.03 ppm (42 µg/m ³)	NS	NS
Vinyl Chloride ^f	24-hour	0.010 ppm (26 µg/m ³)	NS	NS
Visibility Reducing Particles	1 Observation	Insufficient amount to reduce the prevailing visibility ^g to less than 10 miles when the relative humidity is less than 70 percent (California only).		

Notes: ppm = parts per million by volume (micromoles of pollutant per mole of gas) µg/m³ = microgram/cubic meter; mm = millimeter; NS = No Standard; Avg. = Average; Ann. Arith. Mean = Annual Arithmetic Mean.

^a California standards for O₃, CO, SO₂ (1-hour), NO₂, PM_{2.5} and PM₁₀ are values that are not to be exceeded. SO₄⁻², Pb, H₂S, Vinyl Chloride, and visibility-reducing particles standards are not to be equaled or exceeded. Sulfates are pollutants that include SO₄⁻² ion in their molecule. CA 8-hr O₃ standard is effective as of May 17, 2006.

^b National Standards, other than O₃ and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year. The O₃ Standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one. National 1-hour O₃ standard was revoked on June 30, 2005.

^c Concentration expressed first in units in which it was promulgated. Equivalent units in parentheses are based upon reference temperature of 25°C and a reference pressure of 760 millimeters (mm) of mercury (1,013.2 millibar).

^d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the U.S. EPA.

^e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the U.S. EPA.

^f The CARB has identified Pb and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

^g Prevailing visibility is defined as the greatest visibility, which is attained or surpassed around at least half of the horizon circle, but not necessarily in continuous sectors.

Source: CARB 2011.

Table 4.4-2. Ambient Air Quality Summary for Project Area (2010 through 2012) and Attainment Status of Santa Barbara County (2012)

Pollutant		Year	Maximum Observed Concentration (# of Days Standard was Exceeded) ^a										
			Goleta - Fairview		Santa Barbara								
O ₃ , ppm	1-hour	2010	0.072 (0)		0.075 (0)								
	8-hour		0.065 (0)		0.062 (0)								
	1-hour	2011	0.091 (0)		0.089 (0)								
8-hour	0.076 (1 day)		0.077 (1 day)										
CO, ppm	1-hour	2012	0.065 (0)		0.071 (0)								
	8-hour		0.056 (0)		0.058 (0)								
	8-hour	2010	0.56 (0)		1.07 (0)								
NO ₂ , ppm	8-hour	2011	0.57 (0)		1.89 (0)								
	8-hour	2012	0.65 (0)		^b (0)								
	1-hour Annual Average	2010	0.044 (0) 0.006		0.090 (0) 0.009								
SO ₂	1-hour Annual Average	2011	0.052 (0) 0.006		0.049 (0) 0.010								
	1-hour Annual Average	2012	0.041 (0) ^b (0)		0.048 (0) ^b (0)								
	No data available (monitoring station does not monitor this pollutant)												
PM _{2.5} , µg/m ³	24-hour Ann. Arith. Mean	2010	23.6 (0) 8.2		17.4 (0) ^b								
	24-hour Ann. Arith. Mean	2011	18.4 (0) 8.4		^b ^b								
	24-hour Ann. Arith. Mean	2012	29.0 (0) 9.0		^b ^b								
PM ₁₀ , µg/m ³	24-hour Ann. Arith. Mean	2010	45.2 (0) ^b		57.6 (3 days) ^b								
	24-hour Ann. Arith. Mean	2011	70.0 (2 days) ^b		69.4 (3 days) 25.0								
	24-hour Ann. Arith. Mean	2012	48.0 (0) 18.8		59.2 (2 days) ^b								
Attainment Status													
1-hour O ₃ ^c		8-hour O ₃		CO		NO ₂		SO ₂		PM _{2.5}		PM ₁₀	
CA	Fed	CA	Fed	CA	Fed	CA	Fed	CA	Fed	CA	Fed	CA	Fed
A	N/A	N	U/A	A	U/A	A	U/A	A	U/A	U	U/A	N	U/A

Notes: The values are provided in the units promulgated by the U.S. EPA.

CA = California State Standards; A = Attainment of Standards; N = Nonattainment; U = Unclassified; U/A = Unclassified/Attainment, NA = not applicable. Ann. Arith. Mean = Annual Arithmetic Mean.

^a Number or percent of exceedances of the most restrictive standard (usually, the State Standard).

^b Insufficient data available to determine value.

^c National 1-hour O₃ standard was revoked on June 30, 2005, with all applicable designations.

Source: CARB 2013; Santa Barbara County APCD 2013.

1 **Ozone (O₃).** The most widespread air quality problem in the State, O₃, is a colorless gas
2 with a pungent, irritating odor. O₃ is not emitted directly into the atmosphere; it is formed
3 primarily when reactive organic compounds (ROCs) and nitrous oxide (NO_x) react in the
4 presence of sunlight. O₃ may pose its worst health threat to those who already suffer
5 from respiratory diseases; however, it also harms healthy people. The health effects of
6 O₃ can include reduced lung function, aggravated existing respiratory illness, and
7 irritated eye, nose, and throat tissues. Chronic exposure can cause permanent damage
8 to the alveoli of the lungs.

9 **Sulfur Dioxide (SO₂).** SO₂ is a colorless gas. At high concentrations, it has a pungent,
10 irritating odor. In the atmosphere, it reacts with oxidants or particles to form sulfates and
11 sulfuric acid particles in equilibrium, both of which are more hazardous than the original
12 SO₂. The main sources of SO₂ are fuel burning and metal ore processing. Sulfur is an
13 impurity in fossil fuels (especially coal) and in many ores. Santa Barbara County has
14 been in attainment with the California and national SO₂ standards for the last 10 years.

15 **Lead (Pb).** Pb in the atmosphere occurs as PM. The combustion of leaded gasoline is
16 the primary source of Pb emissions in the South Coast Air Basin. Other sources of Pb
17 include the manufacturing of batteries, paint, ink, ceramics, and ammunition and
18 secondary Pb smelters. With the phase-out of leaded gasoline, secondary Pb smelters,
19 battery recycling, and manufacturing facilities are becoming Pb emission sources of
20 greater concern. Prolonged exposure to atmospheric Pb poses a serious threat to
21 human health. Health effects associated with exposure to Pb include gastrointestinal
22 disturbances, anemia, kidney disease, and in severe cases, neuromuscular and
23 neurological dysfunction. Of particular concern are low-level Pb exposures during
24 infancy and childhood. Such exposures are associated with decrements in
25 neurobehavioral performance (including intelligence quotient performance, psychomotor
26 performance, and reaction time) and growth. The county is in attainment with the
27 NAAQS and the CAAQS for Pb.

28 **Nitrogen Dioxide (NO₂).** NO₂ is a by-product of fuel combustion that absorbs blue light,
29 resulting in a brownish-red cast to the atmosphere and reduced visibility, and that
30 contributes to the formation of PM₁₀. The principal form of nitrogen oxide (NO) produced
31 by combustion is nitric acid, but NO reacts quickly to form NO₂ and NO_x (a mixture of
32 NO and NO₂). NO₂ acts as an acute irritant, but is only potentially irritating at
33 atmospheric concentrations. There is some indication of a relationship between NO₂
34 and chronic pulmonary fibrosis, while some increase in bronchitis in children (2 to 3
35 years old) has been observed at concentrations below 0.3 ppm. Santa Barbara County
36 is in attainment of the California and national 1-hour and 8-hour NO₂ standards.

37 **Carbon Monoxide (CO).** Automobiles and other types of motor vehicles are the main
38 source of CO pollution in Santa Barbara County. CO gas is colorless and odorless,
39 which adds to its danger. CO concentrations typically peak nearest a source, such as

1 roadways, and decrease rapidly as distance from the source increases. In high
2 concentrations, CO can cause physiological and pathological changes, and ultimately
3 death, by incapacitating the red blood cells and interfering with their ability to carry
4 oxygen to body tissues. The symptoms of excessive exposure – headaches, fatigue,
5 slow reflexes, and dizziness – also can occur in healthy people. Santa Barbara County
6 is in attainment of the California and national one-hour and eight-hour CO standards.

7 **Fine Particulate Matter (PM₁₀ and PM_{2.5}).** PM₁₀ and PM_{2.5} consist of extremely small
8 suspended particles or droplets that are 10 and 2.5 micrometers or smaller,
9 respectively, in diameter that can lodge in the lungs and contribute to respiratory
10 problems. PM₁₀ and PM_{2.5} arise from such sources as road dust, diesel soot,
11 combustion products, abrasion of tires and brakes, demolition operations, and
12 windstorms. They also are formed in the atmosphere from NO₂ and SO₂ reactions with
13 ammonia. PM₁₀ and PM_{2.5} scatter light and significantly reduce visibility. PM₁₀ and PM_{2.5}
14 pose a serious health hazard, alone or in combination with other pollutants. More than
15 half of the smallest particles inhaled would be deposited in the lungs and can cause
16 permanent lung damage. Fine particulates also can have a damaging effect on health
17 by interfering with the body's mechanism for clearing the respiratory tract or by acting as
18 a carrier of an absorbed toxic substance. Santa Barbara County is in exceedance of the
19 California annual arithmetic mean and 24-hour PM₁₀ standards (see Table 4.4-3). Santa
20 Barbara County is Unclassified for the recently added State PM_{2.5} Standard.

21 **Hydrogen Sulfide (H₂S).** H₂S is an odorous, toxic, gaseous compound that can be
22 detected by humans at very low concentrations. Concentrations detectable by smell
23 (this can vary from 0.5 parts per billion [ppb] detected by 2 percent of the population to
24 40 ppb, qualified as annoying by 50 percent of the population) are significantly lower
25 than concentrations that could affect human health (2 ppm [2,000 ppb] can cause
26 headaches and increased airway resistance in asthmatics; inhalation of 600 ppm is
27 lethal). The gas is produced during the decay of organic material and is also found
28 naturally in petroleum and natural gas. The county is in attainment of the H₂S standard.

29 **Toxic Air Contaminants (TACs).** TACs are compounds that are known or suspected to
30 cause short-term (acute) and/or long-term (chronic non-carcinogenic or carcinogenic)
31 adverse health effects. Vulnerable subpopulations are those with preexisting respiratory
32 or cardiovascular disease, especially the elderly, while increased hospital admissions
33 and morbidity from respiratory disease have been associated with PM exposure in
34 adults and children. PM exposure is also associated with an increased risk of lung
35 cancer in epidemiological studies (CARB 2005). Sources of TACs within Santa Barbara
36 County include industrial processes, gasoline stations, paint/solvent operations, and
37 fossil fuel combustion. In 1998, CARB identified diesel particulate matter (DPM) as a
38 TAC based on its potential to cause cancer, premature deaths, and other health
39 problems. DPM is a by-product of the diesel fuel combustion process that is emitted in
40 exhaust from construction heavy equipment, trucks, marine vessels, and other sources.

1 Regional Emissions

2 Emissions within the County are estimated annually by the APCD. Table 4.4-3 lists the
3 estimated emissions by source category.

Table 4.4-3. Emission Inventory for Santa Barbara County

Emission Sources ^a		CO (MT/yr)	ROC (MT/yr)	NO _x (MT/yr)	SO ₂ (MT/yr)	PM ₁₀ (MT/yr)
Onshore	Stationary	1,551	3,244	2,843	552	554
	Area-Wide	9,433	3,051	333	8	10,584
	Mobile	82,532	5,039	11,047	305	572
	Natural	11,404	47,378	8,707	0	1,843
	Total Onshore	103,369	58,712	22,930	865	13,553
Offshore	Stationary	N/A	303	213	N/A	N/A
	Mobile	N/A	914	18,017	N/A	N/A
	Natural	N/A	2,004	0	N/A	N/A
	Total Offshore	N/A	3,221	18,230	-	-
All Sources		-	61,933	41,160	-	-

Notes: MT/yr = metric tons per year.

ROC and NO_x from 2010 Clean Air Plan and reflect the year 2007; CO, SO₂ and PM₁₀ are no longer included in the Clean Air Plan inventory and are from the 2002 Clean Air Plan Update Emissions Inventory representing 1999.

^a Petroleum activities are a part of Stationary Sources.

Source: Santa Barbara County APCD 2002, 2011a.

4 Odor Issues Associated with Oil and Gas Production Facilities and PRC 421

5 Oil production facilities typically produce odors that can be objectionable to the public,
6 and of particular concern is H₂S. Other Ellwood area oil facilities, including the Ellwood
7 Marine Terminal (EMT) and barges which are not part of the Project, have historically
8 produced odors that have generated complaints from the public. Approximately 50
9 complaints regarding odors from the EMT were received from 2005 to 2011, a
10 frequency of approximately eight complaints per year. The EOF has also generated
11 complaints and has been the subject of an abatement order from APCD. There were
12 two occurrences of odor complaints associated with EOF operations in 2007. One
13 complaint occurred on October 29, 2007, and the exact source of the release was not
14 confirmed, although a low-level H₂S alarm near the edge of the Venoco's property line
15 was triggered. The other complaint occurred on November 14, 2007, and was attributed
16 to gas released from a water settling tank (T-201) and an oil shipping tank (T-202). An
17 H₂S leak on February 11, 2010, also resulted in odor complaints, and was due to a tank
18 valve that was left open during maintenance on a compressor in the gas plant.
19 Automated systems shut down gas operations at Platform Holly and the EOF, until
20 APCD authorized restart later in the day. On May 31, 2010, the 16-inch main Lo-Cat
21 solution line came apart which resulted in the immediate shutdown of the Lo-Cat
22 process. The Lo-Cat process uses a non-hazardous chelated iron solution to convert

1 H₂S from the Platform Holly gas stream to elemental sulfur. The location of the leak was
2 the LoCat Unit, upstream of where the solution contacts the platform gas. As such, no
3 platform gas was released to the atmosphere. The leak caused some of the solution to
4 spray on to the fence, frontage road and some shrubbery. One fence line odor sensor
5 was activated at <1 ppm (City of Goleta 2011).

6 Some odor events could be attributed to natural gas seeps (a documented phenomenon
7 caused by the leaking of oil and gas from the sea-floor) near Platform Holly and offshore
8 of the Ellwood Coast. Off Coal Oil Point, portions of these seeps are captured by a large
9 subsea metal pyramid “tent” installed in the 1980s. However, natural seeps also occur
10 in other locations off of Coal Oil Point where they are not captured but escape into the
11 atmosphere, and create odors if H₂S is present in the gas.

12 As noted in Section 4.2, Safety, “sweet” crude oil, with low sulfur content (below 0.6
13 percent) and low H₂S content, is produced from PRC 421 (the H₂S content in PRC 421
14 gas is approximately 10 ppm, below levels at which H₂S is considered to be a potential
15 source of injury to humans [see Section 4.2, Safety, for a complete discussion]). Crude
16 produced from the South Ellwood Field (Platform Holly) contains much higher
17 concentrations of sulfur and H₂S (see Table 4.2-2). The crude oil that would be
18 produced by the Project and transported through Line 96 would not be a source of acute
19 toxic impacts to human receptors if released and is not expected to be a source of
20 odors that would be a nuisance to the public.

21 **Greenhouse Gases (GHGs) and Global Climate Change**

22 Global climate change is a change in the average weather of the earth which can be
23 measured by wind patterns, storms, precipitation, and temperature. Scientific
24 consensus has identified that the human-related emission of GHGs above natural levels
25 is a significant contributor to global climate change. GHGs are any gases that absorb
26 infrared radiation in the atmosphere, including water vapor, carbon dioxide (CO₂),
27 methane (CH₄), nitrous oxide (N₂O), fluorocarbons, and O₃. GHGs lead to the trapping
28 and buildup of heat in the atmosphere near the earth’s surface, known as the
29 Greenhouse Effect. The atmosphere and the oceans are reaching their capacity to
30 absorb CO₂ and other GHGs without significantly changing the earth’s climate. The
31 increase in GHGs in the earth’s climate is projected to substantially affect a wide range
32 of issues and resources, including sea level rise, flooding, water supply, agricultural and
33 forestry resources, and energy demand. California’s Climate Change Portal
34 (www.climatechange.ca.gov) states:

35 Climate change is expected to have significant, widespread impacts on California's
36 economy and environment. California's unique and valuable natural treasures -
37 hundreds of miles of coastline, high value forestry and agriculture, snow-melt fed
38 fresh water supply, vast snow and water fueled recreational opportunities, as well as
39 other natural wonders - are especially at risk.

1 In addition, the Intergovernmental Panel on Climate Change (IPCC), in the section of its
2 Fifth Assessment Report by Working Group II, "Climate Change 2014: Impacts,
3 Adaptation, and Vulnerability," (IPCC 2014; released March 31, 2014) specific to North
4 America (Chapter 26), stated in part:

5 **North American ecosystems are under increasing stress from rising**
6 **temperatures, CO₂ concentrations, and sea-levels, and are particularly**
7 **vulnerable to climate extremes (*very high confidence*).** Climate stresses occur
8 alongside other anthropogenic influences on ecosystems, including land-use
9 changes, non-native species, and pollution, and in many cases will exacerbate these
10 pressures (*very high confidence*). [26.4.1; 26.4.3]. Evidence since the Fourth
11 Assessment Report (IPCC 2007) highlights increased ecosystem vulnerability to
12 multiple and interacting climate stresses in forest ecosystems, through wildfire
13 activity, regional drought, high temperatures, and infestations (*medium confidence*)
14 [26.4.2.1; Box 26-2]; and in coastal zones due to increasing temperatures, ocean
15 acidification, coral reef bleaching, increased sediment load in run-off, sea level rise,
16 storms, and storm surges (*high confidence*) [26.4.3.1].

17 California has already been affected by climate change: sea level rise, increased
18 average temperatures, more extreme hot days and increased heat waves, fewer shifts
19 in the water cycle, and increased frequency and intensity of wildfires. Higher sea levels
20 can result in increased coastal erosion (which may have a secondary effect such as
21 uncovering hazards such as occurred in March 2014 along the Santa Barbara
22 coastline), more frequent flooding from storm surges, increased property damage, and
23 reduced waterfront public access options. Other projected climate change impacts in
24 California include: decreases in the water quality of surface water bodies, groundwater,
25 and coastal waters; decline in aquatic ecosystem health; lowered profitability for water-
26 intensive crops; changes in species and habitat distribution; and impacts to fisheries
27 (California Regional Assessment Group 2002). These effects are expected to increase
28 with rising GHG levels in the atmosphere.

29 Fossil fuel combustion represents the vast majority of the anthropogenic GHG
30 emissions, with CO₂ being the primary GHG. In 2010, total U.S. GHG emissions were
31 6,822 million metric tons⁷ (MMT) of carbon equivalents, of which 84 percent were CO₂
32 emissions; approximately 33 percent of these GHG emissions were associated with
33 electricity generation, and approximately 26 percent were associated with transportation
34 (EPA 2012). About half of the electricity in the U.S. is generated from coal, producing a
35 U.S. GHG emissions rate of about 1,363 pounds per megawatt hour (lbs/MWh); this
36 rate is lower for western states, primarily due to the increased use of hydroelectric and
37 natural gas. The California Independent Service Operator area (which includes some
38 generation outside of California) has a GHG emission rate of about 687 lbs/MWh due to
39 the contribution of hydroelectric, nuclear and renewable sources.

⁷ A metric ton, or tonne, is a unit of weight equivalent to 1,000 kilograms (2,205 pounds) versus an Imperial unit ton which is the equivalent of 2,000 pounds (907 kilograms).

1 The majority of California's GHG emissions (81%) are CO₂ produced from fossil fuel
2 combustion (CARB 2008). In 2012, California's gross GHG emissions totaled 458.68
3 MMT of CO₂ equivalents (MMT_{CO₂e}), with the transportation sector the largest category
4 (167.38 MMT_{CO₂e}, 36%) followed by electrical power generation (95.09 MMT_{CO₂e},
5 21%), industry (89.16 MMT_{CO₂e}, 19%), commercial/residential (42.28 MMT_{CO₂e}, 9%),
6 and agriculture (37.86 MMT_{CO₂e}, 8%) (CARB 2014; [www.arb.ca.gov/cc/inventory/data/
7 tables/ghg_inventory_scopingplan_00-12_2014-03-24.pdf](http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-12_2014-03-24.pdf)).⁸

8 According to the IPCC, the concentration of CO₂, the primary GHG, has increased from
9 approximately 280 parts per million (ppm) in pre-industrial times to well over 380 ppm.
10 The current rate of increase in CO₂ concentrations is about 1.9 ppm/year; present CO₂
11 concentrations are higher than any time in at least the last 650,000 years. To meet the
12 statewide GHG reduction target for 2020, requiring California to reduce its total
13 statewide GHG emissions to the level they were in 1990 (Health & Saf. Code, § 38550),
14 and the 2050 goal of 80 percent below 1990 levels (Executive Order S-3-05), not only
15 must projects contribute to slowing the increase in GHG emissions, but, ultimately,
16 projects should contribute to reducing the State's output of GHGs. To reach California's
17 GHG reduction targets, it is estimated that per capita emissions will need to be reduced
18 by slightly less than 5 percent per year during the 2020 to 2030 period, with continued
19 reductions required through midcentury.

20 In its 2008 "Report on Climate Change: Evaluating and Addressing Greenhouse Gas
21 Emissions from Projects Subject to the California Environmental Quality Act," the
22 California Air Pollution Control Officers Association (CAPCOA) stated:

23 [w]hile it may be true that many GHG sources are individually too small to make any
24 noticeable difference to climate change, it is also true that the countless small
25 sources around the globe combine to produce a very substantial portion of total
26 GHG emissions (CAPCOA 2008).

27 The global warming potential (GWP), or potential of a gas or aerosol to trap heat in the
28 atmosphere, of different GHGs varies since GHGs absorb different amounts of heat. A
29 common reference gas, CO₂, is used to relate the amount of heat absorbed to the
30 amount of the gas emissions, referred to as CO₂ equivalent (CO₂e). CO₂e is the amount
31 of GHG emitted multiplied by the GWP. The GWP of CO₂ is therefore defined as 1.
32 Methane has a GWP of 21; therefore, 1 pound of methane produce 21 pounds of CO₂e.
33 Table 4.4-4 shows a range of gases with their associated GWP, their estimated lifetime
34 in the atmosphere, and the range in GWP over 20, 100, and 500 years.

35 GHG emissions are generally classified as direct and indirect. Direct emissions are
36 associated with the production of GHG emissions in the immediate Project area, and
37 include combustion of natural gas, combustion of fuel in engines and construction

⁸ Not all GHG sources are included, so the components do not add up to the total.

Table 4.4-4. Global Warming Potential of Various Gases

Gas	Life in Atmosphere (years)	20-year GWP (avg)	100-year GWP (avg)	500-year GWP (avg)
Carbon dioxide	50-200	1	1	1
Methane	12	21	56	6.5
Nitrous oxide	120	310	280	170
HFC-23	264	11,700	9,100	9,800
HFC-125	32.6	2,800	4,600	920
HFC-134a	14.6	1,300	3,400	420
HFC-143a	48.3	3,800	5,000	1,400
HFC-152a	1.5	140	460	42
HFC-227ea	36.5	2,900	4,300	950
HFC-236fa	209	6,300	5,100	4,700
HFC-4310mee	17.1	1,300	3,000	400
CF ₄	50,000	6,500	4,400	10,000
C ₂ F ₆	10,000	9,200	6,200	14,000
C ₄ F ₁₀	2,600	7,000	4,800	10,100
C ₆ F ₁₄	3,200	7,400	5,000	10,700
SF ₆	3,200	23,900	16,300	34,900

Source: EPA 2007.

GWP = Global Warming Potential; avg = average; CF = chlorfluorocarbon; HFC = hydroflouorcarbon.

1 vehicles, and fugitive emissions from valves and connections of equipment used during
 2 Project implementation or throughout the Project life. Indirect emissions include
 3 emissions from vehicles (both gasoline and diesel).

4 **4.4.2 Regulatory Setting**

5 A summary of the Federal and State regulatory setting for air quality is provided in Table
 6 4.0-1, while the local regulatory setting is discussed below.

7 **Local**

8 *Santa Barbara County Air Pollution Control District (APCD)*

9 As directed by the Federal and State Clean Air Acts, local air districts are required to
 10 prepare plans with strategies for attaining and maintaining State and Federal O₃
 11 standards. To ultimately achieve the air quality standards, the rules and regulations limit
 12 emissions and permissible impacts from activities within the local air districts. Some
 13 rules also specify emission controls and control technologies for each type of emitting
 14 source. The regulations also include requirements for obtaining an Authority to
 15 Construct (ATC) permit and a Permit to Operate (PTO).

16 The Santa Barbara County APCD is the agency with jurisdiction over air quality
 17 attainment in the County. The Project would be permitted as a stationary source, and all
 18 aspects of the Project and alternatives occurring in the County must obtain an APCD
 19 permit, if applicable. Increases in emissions of any non-attainment pollutant or its pre-

1 cursor from a new or modified project that exceed thresholds identified in APCD Rule
2 802.E are required to be mitigated. Specific APCD permit requirements such as Best
3 Available Control Technology (BACT) would be addressed in the APCD permit process.

4 City of Goleta Climate Action Plan

5 The City of Goleta Climate Action Plan was developed as a response to the statewide
6 reduction goal outlined in Assembly Bill (AB) 32, also known as the Global Warming
7 Solutions Act of 2006 (Health & Saf. Code, § 38500 et seq.). The Scoping Plan for AB
8 32, developed and implemented by the CARB, identifies specific measures to achieve
9 these reductions and recommends that local governments establish GHG reduction
10 targets for both their municipal operations and the community that are consistent with
11 those of the State. The City's Climate Action Plan meets the requirements of AB 32 and
12 Executive Order S-3-05. In order to reduce above GHG emissions, the Climate Action
13 Plan includes reduction measures of GHG sources for building energy, water
14 consumption, on-road and off-road transportation, and solid waste.

15 **4.4.3 Significance Criteria**

16 **Construction Thresholds**

17 Emissions from construction activities are generally short-term and temporary. Neither
18 the City of Goleta nor the APCD have daily or quarterly quantifiable emission thresholds
19 established for short-term construction emissions. Pursuant to APCD Rule 202,
20 construction emissions of any criteria pollutant (except CO) that has the potential to
21 exceed 25 tons per year in a 12-month period would require that the owner of the
22 stationary source provide offsets, per Rule 804. In the absence of adopted thresholds,
23 25 tons per year is used as the significance threshold for construction emissions of
24 ROG and NO_x. PM₁₀ emissions should be estimated and standard MMs implemented,
25 as required in the Santa Barbara County APCD (2005) Air Quality Attainment Plan.

26 **Operational Thresholds**

27 PRC 421 has not been operational and has not produced emissions since 1994 when
28 the facility was temporarily shut in to complete emergency repairs and clean-up,
29 following the discovery a leak in the PRC 421 6-inch line. Therefore, for the purposes of
30 this analysis, impacts to air quality from operations are compared to the existing
31 physical environmental baseline which is zero emissions. The APCD guidelines only
32 contain a peak daily emission threshold for criteria pollutants. Operations at Pier 421-2
33 would not result in substantial increase in peak daily emissions. However, the Project
34 would result in greater annual emissions. Therefore, to address potential long-term air
35 quality impacts, Project emissions were compared to an annual emission threshold.
36 Impacts are considered to be to be significant if operation of the Project would:

- 1 • Emit from all Project sources, both stationary and mobile, more than the daily
2 trigger for offsets or Air Quality Impact Analysis set in the APCD New Source
3 Review Rule for pollutants (i.e., 240 lbs/day for ROC or NO_x; 80 lbs/day for PM₁₀.
4 (CO, is an attainment pollutant and doesn't have a daily operational threshold);
- 5 • Emit more than 25 tons per year of any one criteria pollutant;
- 6 • Emit more than 25 pounds per day of NO_x or ROC from motor vehicle trips only;
- 7 • Cause or contribute to a violation of any CAAQS or NAAQS (except ozone);
- 8 • Exceed APCD Board-adopted health risk public notification thresholds; or
- 9 • Not be consistent with the adopted Federal and State air quality plans for Santa
10 Barbara County.

11 Cumulative impacts would be deemed significant if the Project is found to have an
12 individually significant air quality impact.

13 **Greenhouse Gas Thresholds**

14 The SBCAPCD does not currently have a formally adopted GHG threshold; however,
15 CSLC staff recommend that Project-generated GHG impacts would be potentially
16 significant if any net Project-related increase in CO₂e, occurred annually (i.e., a zero
17 emissions threshold for GHG emissions above baseline). The zero emissions threshold
18 assures that the Project would not contribute to any net increase in GHG emissions
19 over the current facility baseline, and would not impede further progress in meeting the
20 AB 32 mandated reductions and the S-3-05 Executive Order goal of an 80 percent
21 reduction by 2050.

22 **4.4.4 Impact Analysis and Mitigation**

23 The analysis of air quality impacts follows guidance provided by the Santa Barbara
24 County APCD Scope and Content of Air Quality Sections in Environmental Documents
25 (2011) and the State CEQA Guidelines. Air quality impacts associated with
26 recommissioning Pier 421-2 and decommissioning and removal of Pier 421-1 are
27 expected as a result of Project construction and operations. Project construction
28 emissions would include particulate and combustion emissions associated with
29 trenching for the purpose of installing new power cables and repairing the existing 6-
30 inch line, and combustion of fossil fuels from travel on access roads, operation of the
31 drill rig during installation of the electric submersible pump (ESP), and operation of other
32 construction equipment during repairs to the caisson wall. Decommissioning and
33 removal of Pier 421-1 approximately 1 year after PRC 421 recommissioning would also
34 result in particulate and combustion emissions from operation of construction equipment
35 and earthwork related to demolition and removal of the pier and caisson.

1 Emissions from the Project, including decommissioning and removal of Pier 421-1, were
 2 estimated using emission factors and equipment estimates from Venoco Inc.'s
 3 Recommissioning Plan for Lease PRC 421 (May 2013). Operational emissions from
 4 primary Project components would consist primarily of fugitive emissions from valves,
 5 piping components, well heads, well cellars, and processing equipment at the EOF.
 6 Operational emissions from secondary Project components would consist primarily of
 7 fugitive emissions related to pipeline transport. Operational emissions from oil
 8 transportation were calculated using emissions factors from the Line 96 Modification
 9 Project EIR and those provided by Santa Barbara County APCD. Table 4.4-8, located at
 10 the end of Section 4.4.4, provides a summary of air quality-related impacts and
 11 recommended MMs to address these impacts.

12 **Impact AQ-1: Increase in Emissions from Construction**
 13 **Project construction could potentially result in increased emissions at the Project**
 14 **site (Less than Significant).**

15 **Impact Discussion**

16 Project construction would generate temporary air pollutant emission from a variety of
 17 activities, including trenching, heavy construction equipment use, construction worker
 18 trips, hauling of demolition material, delivery of building materials and equipment, and
 19 future removal of existing structures, including from decommissioning and removal of
 20 Pier 421-1. Table 4.4-5 shows the estimated emissions associated with Project
 21 construction and following decommissioning and removal of Pier 421-1. The equipment
 22 list was taken from Venoco's Lease 421 Recommissioning Plan (May 2013).

Table 4.4-5. Estimated Project Construction Emissions

	Emission Source	NO_x tons	ROC tons	CO tons	SO₂ tons	PM₁₀ tons
2014	On-site Construction Emissions	6.36	0.74	3.06	0.007	0.28
	Construction Traffic Emissions	<0.01	0.00	0.03	0.00	0.06
	<i>Total</i>	<i>6.36</i>	<i>0.74</i>	<i>3.06</i>	<i>0.007</i>	<i>0.34</i>
	Significance Thresholds (tons/year)	25	25	25	25	25
	Are Thresholds Exceeded?	No	No	No	No	No
2015	On-site Construction Emissions	0.064	0.01	0.05	0.00	0.0075
	Construction Traffic Emissions	0.002	0.00	0.005	0.00	0.105
	<i>Total</i>	<i>0.066</i>	<i>0.01</i>	<i>0.06</i>	<i>0.00</i>	<i>0.112</i>
	Significance Thresholds (tons/year)	25	25	25	25	25
	Are Thresholds Exceeded?	No	No	No	No	No

Note: Calculations include emissions from construction equipment and vehicles traveling to and from the site, including 10 trucks bringing supplies, 10 trucks hauling material to the recycling facility in Ventura, and 40 worker trips per day (this is a conservative estimate relative to the 12 workers that are estimated to be needed for Project construction). Additionally, emissions from 40 haul trips for decommissioning and removal activities in 2015 are included. Recommissioning activities in 2014 are assumed to occur over 90 days, and decommissioning activities in 2015 are assumed to occur over 30 days.

1 Construction would occur over an estimated 90 days, 8 hours per day, 5 days per week,
2 with decommissioning and removal of Pier 421-1 requiring 30 days and occurring 1 year
3 after PRC 421 recommissioning. Project emissions (including from Pier 421-1
4 decommissioning/removal) are included in the following analysis. Assumptions are
5 shown in the table and footnotes. As indicated in Table 4.4-5, Project construction
6 would generate emissions due to construction equipment use and traffic associated with
7 construction workers, equipment/supply deliveries, and demolition debris hauling. Over
8 the Project life, including emissions from both Project construction in 2014 and Pier 421-
9 1 decommissioning and removal in 2015, worst-case emissions from construction
10 activities are estimated at 6.426 tons for NO_x, 0.75 tons for ROC, 3.12 tons for CO,
11 0.007 tons for SO₂, and 0.452 tons for PM₁₀.

12 As stated above, neither the City of Goleta nor the APCD have established thresholds
13 of significance for construction emissions, but the APCD generally considers emissions
14 of any criteria pollutant that exceed 25 tons per year to be significant. The emissions
15 from Project construction would be well below this level and therefore, impacts to air
16 quality from construction emissions would less than significant. Nevertheless, mitigation
17 is required by APCD policy for all construction activities to minimize emissions of ozone
18 precursors, fugitive dust, and particulate emissions from diesel exhaust.

19 **Mitigation Measures**

20 The estimated emissions presented in the table are shown without mitigation applied.
21 The following MMs should be incorporated into the construction phase of the Project, to
22 reduce impacts as much as feasible.

23 **MM AQ-1a. Prohibit Unnecessary Truck Idling.** The construction contractor shall
24 limit unnecessary truck idling on site in excess of five minutes.

25 **MM AQ-1b. Use of Diesel Emission Reduction Measures.** The construction
26 contractor shall implement the following measures, as feasible.

- 27 • Diesel construction equipment meeting the California Air Resources Board
28 (CARB) Tier 1 emission standards for off-road heavy-duty diesel engines
29 shall be used. Equipment meeting CARB Tier 2 or higher emission
30 standards should be used to the maximum extent feasible.
- 31 • Diesel powered equipment should be replaced by electric equipment
32 whenever feasible.
- 33 • If feasible, diesel construction equipment shall be equipped with selective
34 catalytic reduction systems, diesel oxidation catalysts and diesel particulate
35 filters as certified and/or verified by the U.S. Environmental Protection
36 Agency (EPA) or California.
- 37 • Catalytic converters shall be installed on gasoline-powered equipment, if
38 feasible.
- 39 • All construction equipment shall be maintained in tune per the
40 manufacturer's specifications.

- 1 • The engine size of construction equipment shall be the minimum practical
- 2 size.
- 3 • The number of construction equipment operating simultaneously shall be
- 4 minimized through efficient management practices to ensure that the
- 5 smallest practical number is operating at any one time.
- 6 • Construction worker trips should be minimized by requiring carpooling and
- 7 by providing for lunch onsite.

8 **MM AQ-1c. Maintain Construction Equipment.** All construction equipment shall be
9 properly maintained according to manufacturers' specifications.

10 **MM AQ-1d. Compliance with State Portable Air Toxics Control Measure.** Any
11 portable diesel engines greater than 50 horsepower used in construction shall
12 comply with the State Portable Air Toxics Control Measure and be certified to
13 Tier 1, 2, or 3 non-road engine standards.

14 **MM AQ-1e. Establish On-Site Equipment Staging Area and Worker Parking**
15 **Lots.** The staging area and worker parking lots shall be restricted to either
16 paved surfaces or soil stabilized unpaved surfaces only.

17 **MM AQ-1f. Fugitive Dust Management.** Venoco shall implement the following
18 measures in accordance with requirements of the Santa Barbara Air Pollution
19 Control District.

- 20 • During construction, use water trucks or sprinkler systems to keep all areas
21 of vehicle movement damp enough to prevent dust from leaving the site. At
22 a minimum, this should include wetting down such areas in the late morning
23 and after work is completed for the day. Increased watering frequency
24 should be required whenever the wind speed exceeds 15 mph. Reclaimed
25 water should be used whenever possible. However, reclaimed water should
26 not be used in or around crops for human consumption.
- 27 • Minimize amount of disturbed area and reduce on site vehicle speeds to 15
28 miles per hour or less.
- 29 • If importation, exportation and stockpiling of fill material is involved, soil
30 stockpiled for more than two days shall be covered, kept moist, or treated
31 with soil binders to prevent dust generation. Trucks transporting fill material
32 to and from the site shall be tarped from the point of origin.
- 33 • Gravel pads shall be installed at all access points to prevent tracking of
34 mud onto public roads.
- 35 • After clearing, grading, earth moving or excavation is completed, treat the
36 disturbed area by watering, or revegetating, or by spreading soil binders
37 until the area is paved or otherwise developed so that dust generation will
38 not occur.
- 39 • The contractor shall designate a person or persons to monitor the dust
40 control program and to order increased watering, as necessary, to prevent
41 transport of dust offsite. Their duties shall include holiday and weekend
42 periods when work may not be in progress. The name and telephone
43 number of such persons shall be provided to the Air Pollution Control

1 District prior to land use clearance for map recordation and land use
2 clearance for finish grading of the structure.

3 **Rationale for Mitigation**

4 Construction emissions would be reduced by idling time restrictions, using emission
5 reduction technologies, maintaining equipment in proper working order, compliance with
6 State measures calling for non-road engine standards certifications, fugitive dust control
7 measures, and reducing activity on unpaved surfaces. Particulate filters can reduce NO_x
8 emissions by 1.6 to 18 percent, and PM emissions by 20 to 62.9 percent. Combined use
9 of diesel particulate filters/catalysts are available for certain models of engines and
10 certain model years that can reduce diesel particulate emissions by 25 percent for Level
11 1 particulate controls, by 50 percent for Level 2 particulate controls (which includes
12 alternative fuels), and by 85 percent for Level 3 particulate controls. Certain diesel
13 particulate catalysts can also reduce NO_x emissions by 25 percent. Use of alternative
14 diesel fuel would reduce NO_x and PM emissions by 14 and 63 percent, respectively,
15 compared to use of conventional diesel (CARB 2001). Full implementation of these
16 measures would ensure Impact AQ-1 remains less than significant.

17 **Impact AQ-2: Increase in Emissions from Operations**

18 **The Project would increase fugitive emissions from facilities at Pier 421-2, the**
19 **EOF, and the pipeline used to transport produced oil (Less than Significant).**

20 **Impact Discussion**

21 Project operational emissions would consist primarily of fugitive emissions from piping
22 components, well heads and well cellars at Pier 421-2, as well as valves and other
23 components located along the pipelines used to transport the oil (Table 4.4-6). NO_x is
24 not a pollutant associated with fugitive emissions from component leak paths and
25 therefore would not be emitted from these sources; however NO_x operational emissions
26 from the EOF are currently 10 tons/year and would increase by 0.38 tons/year with
27 increased EOF operations for processing PRC 421 oil (see Appendix D). This would still
28 be below the 25 ton/year threshold for NO_x.

29 Peak daily emissions are estimated to be well below daily thresholds of significance for
30 all criteria pollutants, and would be less than significant. These emissions would also
31 not reach the annual threshold of significance of 25 tons per year.

Table 4.4-6. Estimated Operational Emissions

	Pounds/Day					Tons/Year				
	NO _x	ROC	CO	SO _x	PM ₁₀	NO _x	ROC	CO	SO _x	PM ₁₀
Fugitive Emissions from Pier ¹	N/A	2.096	-	-	-	N/A 0.583	0.383	-	-	-
Line 96 Pipeline Increased Throughput ²	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Increased EOF Processing ³	N/A 3.794	18.925	20.827	1.795	0.645	N/A 0.692	3.454	3.801	0.328	0.118
<i>Total</i>	N/A 3.794	21.021	20.827	1.795	0.645	N/A 1.275	3.837	3.801	0.328	0.118
Significance Thresholds	55	55	NA	NA	80	25	25	25	25	25
Thresholds Exceeded?	No	No	NA	NA	No	No	No	NA	NA	No

¹ Refer to Appendix D for calculations of fugitive emissions.

² Because the Line 96 Modification Project EIR (Santa Barbara County 2011) proposes to keep the pipeline full at all times, the 3.6% increase in Project throughput would not be expected to increase fugitive pipeline emissions.

³ Based on increase of 150 barrels of oil per day (BOPD) from current operations at EOF as described in the Line 96 Modification Project Final EIR (Santa Barbara County 2011). Assumes increase in fugitive emissions would be linear with increased volume, which likely produces conservatively high estimates.

1 Mitigation Measures

2 None required.

3 Impact AQ-3: Odor Emissions from Operation

4 **The Project could potentially result in increased nuisance odor events (Less than**
5 **Significant).**

6 Impact Discussion

7 Releases of odorous compounds such as H₂S or petroleum gases could create
8 nuisance odors affecting adjacent areas used for recreation, and residential areas within
9 0.6 mile and a school within 0.8 mile of the Project site. The potential for increased
10 odors from the introduction of PRC 421 crude oil into the Line 96 pipeline would be
11 minimal because the PRC 421 oil would represent only 3.61 percent of the total oil
12 transported through the pipeline, most of which is from Platform Holly, which produces
13 approximately 4,000 barrels of oil per day (BOPD) (City of Goleta 2013).⁹ Odor
14 nuisance due to increased venting resulting from mixing oils of different vapor pressures
15 is expected to minimally add to existing odors from oil well operation. Potential oil spills
16 could create objectionable odors due to evaporation of odorous compounds from the
17 spilled oil surface. However, oil produced from the PRC 421 is sweet and low in sulfur

⁹ Estimate is based on an estimated instantaneous production from PRC 421 not exceeding 500 BOPD and an average 150 BOPD for the first 2 years, dropping to 50 BOPD after this initial period.

1 content, thus odors from the Project due to H₂S are anticipated to be minimal. Any
 2 increase in odorous compounds releases would be a significant impact as it would
 3 violate APCD Rule 303.

4 **Mitigation Measures**

5 None required.

6 **Impact AQ-4: Project Would Result in a Net Increase in GHG Emissions**

7 **Project oil and gas production and drilling and construction would increase GHG**
 8 **emissions. (Less than Significant with Mitigation)**

9 The Project would generate emissions of GHGs that are known to contribute to global
 10 climate change. The majority of Project GHG emissions would be CO₂, and Project
 11 construction would directly contribute approximately 78 metric tons of CO₂e to the
 12 atmosphere (Appendix D). Operational GHG emissions from the Project would be
 13 limited to fugitive emissions from valves and fittings, and indirect emissions related to
 14 electricity consumption for pumping of produced oil (Table 4.4-7).

15 The Project would also contribute to current supplies of oil and gas in California. Based
 16 on 421 production estimates of 150 BOPD in the first month, a linear rate of decline
 17 from 150 to 50 BOPD in the first 2 years, and leveling off at 50 BOPD over the next 18
 18 years, approximately 402,000 barrels would be produced over the Project lifetime.

Table 4.4-7. Estimated GHG Emissions from Project Operation

	Estimated GHG Emissions (metric tons CO₂e¹ per year)
Fugitive Emissions from Line 96 related to additional PRC 421 oil ²	2.1
Fugitive Emissions from Pier 421-2 ³	8.0
Indirect Emissions from Electricity Consumption for Oil Pumping ⁴	157.3
<i>Total</i>	<i>167.4</i>

¹ CO₂ equivalents, which provide a summary of all GHGs, taking into account their relative global warming potential. Refer to Appendix D for details.

² Because the Line 96 pipeline is typically filled with oil (and thus producing fugitive emissions through leak paths), additional PRC 421 production would have little effect on fugitive emissions from the pipelines. However, for a conservative analysis the Project's proportional share of fugitive emissions from the pipelines has been included.

³ Fugitive emissions for Pier 421-2 operation was calculated based on the number of valves and connections estimated by Venoco to be required, and factors for leakage of valve and connections from SBCAPCD permitting of the EOF.

⁴ GHG emissions from pipeline transportation were estimated based on the projected electricity consumption of 2.94 gigawatt-hours per year identified in the Line 96 Modification Project EIR (Santa Barbara County 2011), and correspond to pipeline transportation to the tie-in with the PAAPLP Coastal Pipeline. The number presented is the Project share of pipeline transport at the average monthly output expected during the highest production rates at the commencement of production (i.e., 150 BOPD for a maximum of 3.61 percent of total transport in the first year).

19 As discussed in Section 4.14, Energy and Mineral Resources, California's oil refineries
 20 processed approximately 618,999,000 barrels of crude oil into a variety of products in

1 2012. The total amount of oil produced over the production period of the Project
2 represents less than 0.01 percent (approximately 0.0003 percent at peak year
3 production) when compared to California supplies in 2012 (618,999,000 barrels). This is
4 a nominal amount of production compared to California's existing oil and gas supplies
5 and would incrementally contribute to the current supply of oil and gas.

6 Based on CO₂ emission factors from the U.S. EPA (2013), end uses of the estimated
7 total oil produced from the Project (402,000 barrels) could potentially produce a total of
8 approximately 190,545 tons (0.17 MMTCO_{2e}). See Appendix D for CO₂ emissions by oil
9 product per barrel. Lifetime emissions from the refined oil produced from PRC 421
10 represent less than 0.04 percent of the 451.6 MMTCO_{2e} GHG emissions produced in
11 California in 2010 (CARB 2013). This is a gross estimate of GHG emissions from the
12 eventual use of refined oil generated by the Project. Determining the exact products
13 yielded and emission comparisons from oil produced from PRC 421 is speculative and
14 subject to change depending on the refineries processing the oil, the CO₂ emissions
15 from varying fuel products, and the varying sources consuming such products. As
16 provided above, this Project would incrementally contribute to the current demand and
17 consumption for oil and gas; however, it is too speculative at this time to conclude the
18 Project would have any overall net changes in GHG emissions from the end use of such
19 products. The CSLC has no control over the ultimate end products that may be
20 produced from the oil from recommissioning PRC 421 and no authority to regulate GHG
21 emissions from the use of such products.

22 Presently there are no State or Federal thresholds for GHG emissions. Subsequent to
23 the adoption of AB 32, there was little regulatory guidance with regard to analyzing
24 GHG emission impacts in CEQA-compliant documents. The State Office of Planning
25 and Research promulgated new regulations on March 18, 2010, amending the State
26 CEQA Guidelines to address evaluation of GHG emissions in CEQA documents.
27 Although the new regulations do not require lead agencies to adopt significance
28 thresholds with respect to GHG emissions, they do require lead agencies to determine
29 the significance of such emissions-based data. Currently the Santa Barbara County
30 APCD is proposing updates to their Environmental Review Guidelines to include
31 guidance for evaluating the significance of the impacts of GHG emissions from new or
32 modified stationary sources; however, as of the publication of this EIR there are no
33 County thresholds for GHG emissions from projects. Until such time the Santa Barbara
34 County APCD establishes GHG thresholds, the threshold of "zero net increase" for
35 GHG emissions recommended by CSLC staff would require mitigation and would be
36 less than significant with implementation of MM AQ-4.

1 Mitigation Measures

2 The production of GHG emissions from Project construction would be reduced by the
3 implementation of MM AQ-1a through MM AQ-1e. GHG emissions from Project
4 operations would be mitigated by the following MM:

5 **MM AQ-4 Greenhouse Gas Monitoring and Reduction Strategies.** The Applicant
6 shall be required to quantify and report annually the greenhouse gas (GHG)
7 emissions associated with Project operations using methodologies prescribed
8 for the California Climate Action Registry General Reporting Protocol, the
9 California Air Resources Board (CARB) Compendium of Emission Factors and
10 Methods to Support Mandatory Reporting of Greenhouse Gas Emissions
11 (CCAR 2009, CARB 2007c) and the U.S. Environmental Protection Agency
12 (EPA) Mandatory Reporting of Greenhouse Gases annual reports. Copies shall
13 be provided to the California State Lands Commission (CSLC) and Santa
14 Barbara County Air Pollution Control District (APCD) staffs, including a
15 reporting of all mitigation measures applied. In addition, Venoco shall prepare
16 and submit a GHG emission reduction program to CSLC staff for review and
17 approval prior to ~~issuance of the Land Use Permit~~ commencement of
18 construction. Venoco shall ~~implement the approved GHG emission reduction~~
19 program detail specific measures to reduce net GHG emissions to zero on an
20 annual basis over the life of the Project. Annual updates shall specify any
21 changes in such measures required to meet targeted reductions. The following
22 measures, or their equivalent, shall be used individually or in combination to
23 achieve such reductions:

- 24 • On-site increased equipment efficiencies or operational modifications such
25 as using more efficient de-watering systems at the EOF or other measures
26 to reduce the need for crude heating;
- 27 • Implementation of off-site GHG reduction programs in Santa Barbara
28 County as approved by the APCD; and/or
- 29 • Purchase of “credits” ~~from a source or offsets through existing adopted plan~~
30 or mitigation program such as CARB’s Cap-and-Trade program or Climate
31 Action Reserve, the City of Goleta’s Climate Action Plan, or other
32 equivalent approved or certified program that is verified by the CSLC staff
33 or CARB.

34 Rationale for Mitigation

35 This measure implements the requirements of Section 15126.4, subdivision (a), of the
36 State CEQA Guidelines regarding GHG emissions. Consistent with these Guidelines,
37 this measure would allow for:

- 38 • Funding of measures in an existing adopted plan or mitigation program designed
39 to reduce GHG emissions. These Plans include CARB’s Cap-and-Trade program
40 or Climate Action Reserve, the City of Goleta’s Climate Action Plan or other
41 equivalent approved or certified program.

- 1 • Reductions in emissions resulting from the Project through implementation of
2 project features such as improvements in efficiency.
- 3 • Annual monitoring and reporting of GHG emissions and required reduction
4 measures.

5 MM AQ-4 requires the annual quantification of GHG emissions (already required by
6 State mandatory GHG reporting programs pursuant to Cal. Code Regs., tit. 17, § 95101
7 and AB 32 California cap-and-trade programs under AB 32 [Cal. Code Regs., tit. 17, §
8 95802]) to determine the level of reductions needed each year. This EIR estimates a
9 reasonable worst-case level of GHG emissions during the peak year of operations (with
10 peak gas and crude production levels as described in Section 2, Project Description).
11 Most years, GHG emissions would be less than that tabulated in this document.

12 The GHG emissions increases are estimated to be above the threshold applied in this
13 evaluation. If emissions levels exceed thresholds, implementation of reduction
14 measures is required to reduce these emissions to levels below the thresholds. As the
15 future operational characteristics of the processes cannot be exactly defined, GHG
16 emission reduction requirements would be determined each year. For example, the
17 crude oil/emulsion mix from the PRC 421 will vary over its productive life and will require
18 varying levels of heating during processing.

19 Although there is uncertainty with the absence of APCD regulatory requirements to
20 control GHG emissions and the exact levels of efficiency improvements that could be
21 implemented at the EOF, the emissions reductions that may be needed are not
22 substantial and could be achieved with onsite operational efficiency improvements. For
23 example, GHG reductions could be achieved by using high efficiency emulsion heaters
24 to replace the existing heater treaters. Reductions of more than 200 MT CO₂e could be
25 achieved depending on the heater design. In the absence of other onsite measures, the
26 Applicant could also obtain off-site offsets or aid off-site GHG reduction projects to
27 reduce GHG emissions to the zero threshold through reductions in emissions at other
28 facilities, or by purchasing “credits” from the California Climate Action Reserve or
29 California’s Cap-and-Trade Program.

30 The incorporation of State accredited programs, such as Climate Action Reserve and
31 Cap-and-Trade and local adopted GHG reduction programs listed under the City of
32 Goleta Climate Action Plan, provide several options for the Project GHG reduction
33 program to achieve targets. The Applicant may choose to incorporate the following
34 State-accredited programs or local GHG reduction strategies into the GHG reduction
35 program:

- 36 • The Cap-and-Trade program administrated by CARB is a statewide initiative to
37 achieve the requirements set by AB 32. It establishes market-based GHG
38 regulation, establishing a price on carbon emissions, and sets a firm annual cap

1 on these emissions. Subsequently the cap will decline three percent per year.
 2 Further details on the Cap-and-Trade program may be found at
 3 <http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>.

- 4 • The Climate Action Reserve establishes standards for carbon offset projects,
 5 oversees independent third-party verification bodies, issues carbon credits
 6 generated from projects and tracks the transaction of credits in a transparent,
 7 publicly-accessible system. Further information may be found at
 8 <http://www.climateactionreserve.org/>.
- 9 • The City of Goleta Climate Action Plan identifies various measures to effectively
 10 meet GHG reduction targets outlined in AB 32. These include a number of City-
 11 aided outreach programs that may be selected for the funding of off-site
 12 mitigation projects. The City of Goleta Climate Action Plan is available online at
 13 [Action-Plan.pdf](http://www.projectgoleta.com/wp-content/uploads/2014/06/COG-Final-Climate-</u>

 14 <u><a href=)

15 Therefore, impacts would be less than significant with mitigation.

Table 4.4-8. Summary of Air Quality Impacts and Mitigation Measures

Impact	Mitigation Measures
AQ-1: Increase in Emissions from Construction	AQ-1a. Prohibit Unnecessary Truck Idling. AQ-1b. Use of Diesel Emission Reduction Measures. AQ-1c. Maintain Construction Equipment. AQ-1d. Compliance with State Portable Air Toxics Control Measure. AQ-1e. Establish On-Site Equipment Staging Area and Worker Parking Lots. AQ-1f. Fugitive Dust Management
AQ-2: Increase in Emissions from Operation	None required.
AQ-3: Odor Emissions from Operation	None required.
AQ-4: Project Would Result in a Net Increase in GHG Emissions	AQ-4. Greenhouse Gas Monitoring and Reduction Strategies. <u>AQ-1a. Prohibit Unnecessary Truck Idling.</u> <u>AQ-1b. Use of Diesel Emission Reduction Measures.</u> <u>AQ-1c. Maintain Construction Equipment.</u> <u>AQ-1d. Compliance with State Portable Air Toxics Control Measure.</u> <u>AQ-1e. Establish On-Site Equipment Staging Area and Worker Parking Lots.</u>

16 **4.4.5 Cumulative Impacts Analysis**

17 Project impacts were assessed in conjunction with the projects identified in Table 3-3.

1 **Impact AQ-5: Project Would Contribute to Cumulative Air Quality Impacts**

2 **The Project would contribute to the cumulative increase in emissions in Santa**
3 **Barbara County, which is currently in non-attainment for the State Ambient Air**
4 **Quality Standards for ozone and PM₁₀ (Less than Significant).**

5 **Impact Discussion**

6 The Project would contribute to the cumulative increase in emissions in Santa Barbara
7 County, which is currently in non-attainment with California O₃ and PM₁₀ standards.
8 However, because Project operational emissions would be limited to fugitive emissions
9 from pipeline valves and joints, this contribution would not be significant. Two coastal oil
10 development projects proposed in Santa Barbara County (see Section 3, Cumulative
11 Impacts Methodology)—the Venoco Carpinteria Onshore project and Carpinteria Field
12 Redevelopment Project (located about 25 miles and 21 miles southeast of the Project
13 site, respectively)—are individually likely to have significant air quality impacts, along
14 with other residential, commercial, institutional, or recreational projects in the Project
15 area. For example, nearby residential projects could have significant air quality impacts
16 associated with new vehicle trips and any wood-burning (rather than gas-burning)
17 fireplaces. Because the Project would have a negligible contribution to these cumulative
18 impacts, this impact is less than significant. Project operations would also contribute to
19 the cumulative increase in GHG emissions, which would be less than significant with
20 implementation of MM AQ-4 requiring no net increase of GHG emissions. The end uses
21 of the estimated total oil produced from the Project would also cumulatively contribute to
22 GHG emissions. Lifetime emissions from the refined oil produced from PRC 421
23 represent less than 0.04 percent of the 451.6 MMTCO_{2e} GHG emissions produced in
24 California in 2010 (CARB 2013). Based on the demand of oil based products, this
25 contribution would come from other sources if not produced from PRC 421.

26 **Mitigation Measures**

27 None required.

1 **4.5 HYDROLOGY, WATER RESOURCES, AND WATER QUALITY**

2 This section addresses potential impacts on marine and freshwater hydrology, water
3 resources, and water quality resulting from recommissioning State Oil and Gas Lease
4 PRC 421 (PRC 421). The environmental setting focuses on the most relevant
5 characteristics of existing marine and onshore water resources in the Project vicinity.
6 Offshore currents, wave action and marine and freshwater quality are important in
7 understanding the effects of a possible accidental release of oil or other hazardous
8 materials on these resources. The impact analysis evaluates the potential effects of the
9 Project, including cumulative impacts, and identifies potential mitigation measures
10 (MMs). This section does not address water use as the Project would only have one-
11 time limited fresh water use for pipeline flushing. This section relies on information from
12 various sources including the National Oceanic and Atmospheric Administration
13 (NOAA), State Water Resources Control Board (SWRCB), Central Coast Regional
14 Water Quality Control Board (RWQCB), Santa Barbara County, and Scripps Institution
15 of Oceanography.

16 **4.5.1 Environmental Setting**

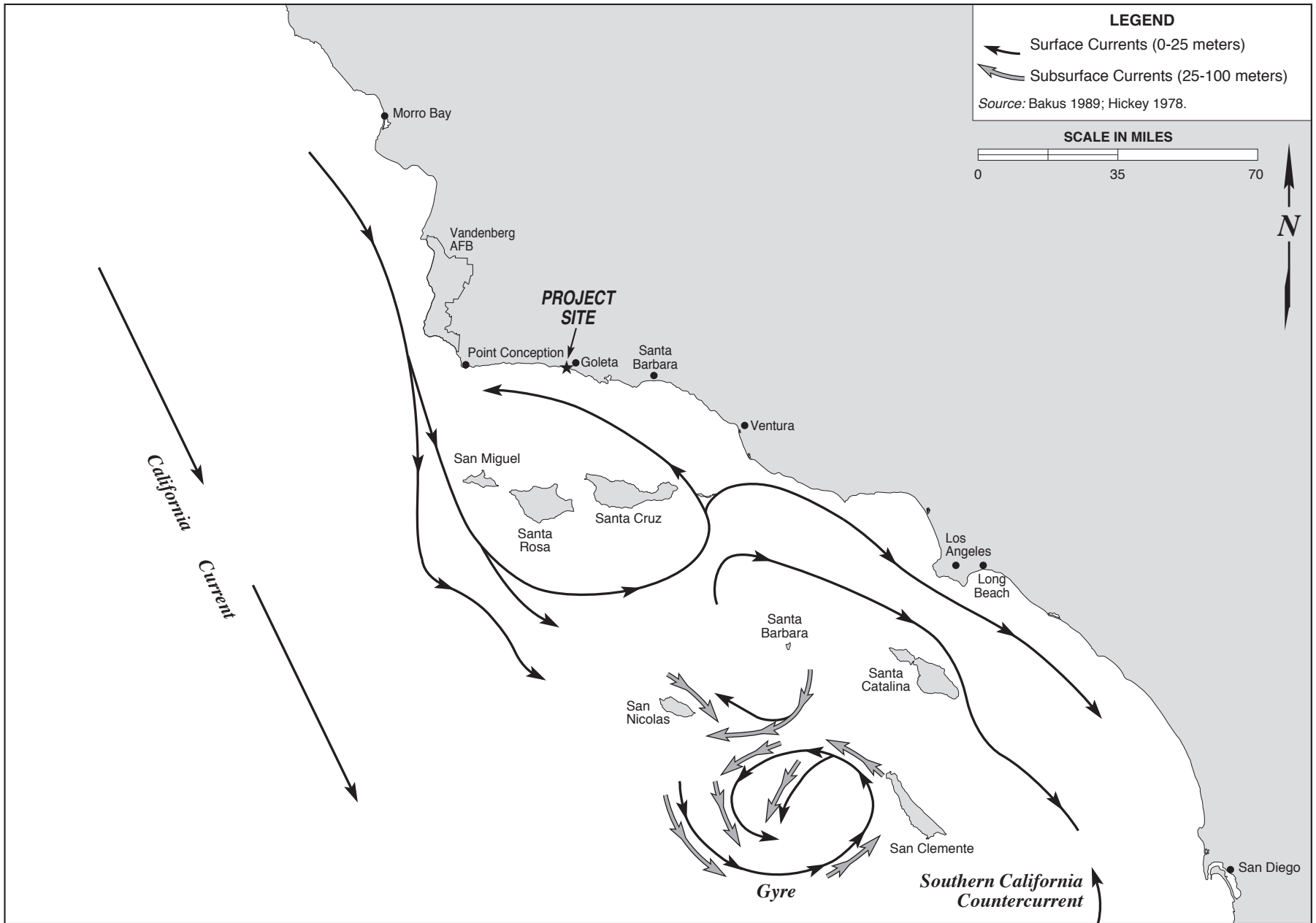
17 The primary study area for marine and freshwater hydrology, water resources, and
18 water quality includes the nearshore marine environment in the Project vicinity, Bell
19 Canyon and Tecolote Creeks to the northwest, and Devereux Creek to the southeast.
20 The secondary study area includes the waters of the Santa Barbara Channel, the
21 greater Southern California Bight, and the drainages that are located along the Line 96
22 pipeline to Las Flores Canyon (LFC).

23 **Marine Environment**

24 *Regional Oceanographic Processes*

25 The Project site is located along the landward edge of Santa Barbara Channel, near the
26 western edge of the City of Goleta, along an area known as the Ellwood Coast. Major
27 currents in the Project vicinity include the California Current, which dominates, and the
28 Southern California countercurrent that flows northward along the continental shelf
29 (Figure 4.5-1).

30 The California Current is an eastern-boundary current that flows south, carrying cool,
31 nutrient-rich water from the sub-arctic region of the Pacific (DiGiacamo et al. 1995).
32 Waters in the California Current are characterized by seasonably stable, low salinity (32
33 to 34 parts per thousand [ppt]), low temperature (55 to 68 °Fahrenheit [°F]), and high
34 nutrient concentrations.



1 The Southern California countercurrent carries warm, saline, and less oxygenated
2 waters from Baja California into the Channel. Typically, winds blow from the northwest,
3 parallel to the central California coast. The Southern California countercurrent is
4 strongest when these winds relax between the months of December and February.
5 When the winds gain strength between March and June, the Southern California
6 countercurrent relaxes and surface water near the coast is transported offshore and
7 down the coast and replaced by cooler, nutrient-rich seawater from underneath. This
8 process is referred to as upwelling.

9 *Surface and Subsurface Flows in the Santa Barbara Channel*

10 The mean flows of surface waters within the Channel are counter-clockwise and
11 monthly average flows reach 3 knots (nautical miles [nm] per hour) during most of the
12 year (Winnant et al. 1999). However, currents and surface transport are highly complex
13 within the Channel and are affected by periodic winds, coastal promontories, and
14 subsurface bathymetric features. Subsurface currents are important in determining the
15 fate of oil and other contaminants that may be released. Average monthly current
16 profiles in the Channel are often strongly sheared and rotate in a counter-clockwise
17 direction as depth increases. Average flow speed of subsurface flows increases with
18 depth throughout the majority of the year. The exception is during the late fall when the
19 surface flows intensify and become comparable to the speed of subsurface flows (CSLC
20 2009; NOAA 2005).

21 *Local Wave Action*

22 Waves generated on the surface of the ocean develop from a mixture of remotely
23 generated ocean swells and local winds. Due to the presence of the Channel Islands off
24 the coast, the Santa Barbara Channel is comparatively sheltered from swells generated
25 outside the Channel; consequently, wave heights within the Channel are typically low,
26 generally ranging from three to six feet throughout most of the year. Waves are typically
27 larger during winter storms that encroach on the California coastline from the west,
28 although the coastline is sheltered from North Pacific swells by Point Conception (CSLC
29 2009). However, large swells from winter and fall storms occasionally penetrate into the
30 Channel and create high surf conditions along the coast. For example, El Niño
31 conditions in 1983 generated very large surf, which combined with exceptionally high
32 tides to cause extensive damage along normally calm sections of the coastline within
33 the Channel. More recently, storms in the winter of 2005 to 2006 generated very high
34 surf along the Goleta coast, with wave heights exceeding 15 feet at exposed point
35 breaks (NOAA 2005).

36 Waves land on the mainland shore of the Channel at a slightly oblique angle, generally
37 from the west. This drives a long-shore current toward the east within the surf zone
38 (Hickey 1993). As a result, the net transport of particulates suspended in the water

1 column near shore is toward the east, in contrast to the typically westward transport that
 2 is observed farther offshore.

3 *Marine Water Quality*

4 Marine water quality is affected by a number of factors including oceanographic
 5 processes, contaminant discharge, erosion, and freshwater inflow. Petroleum
 6 development activities, commercial and recreational vessels, natural hydrocarbon
 7 seeps, river runoff, municipal wastewater outfalls, and minor industrial outfalls contribute
 8 to the increased presence of nutrients, trace metals, synthetic organic contaminants,
 9 and pathogens in ocean waters and sediments.

10 The presence and transport of nutrients, trace metals, and other contaminants in marine
 11 water affect and are affected by five seawater properties: temperature, salinity, turbidity,
 12 alkalinity, and dissolved oxygen. Vertical profiles of water quality properties measured in
 13 the Channel between 1999 and 2001 are displayed in Figure 4.5-2.

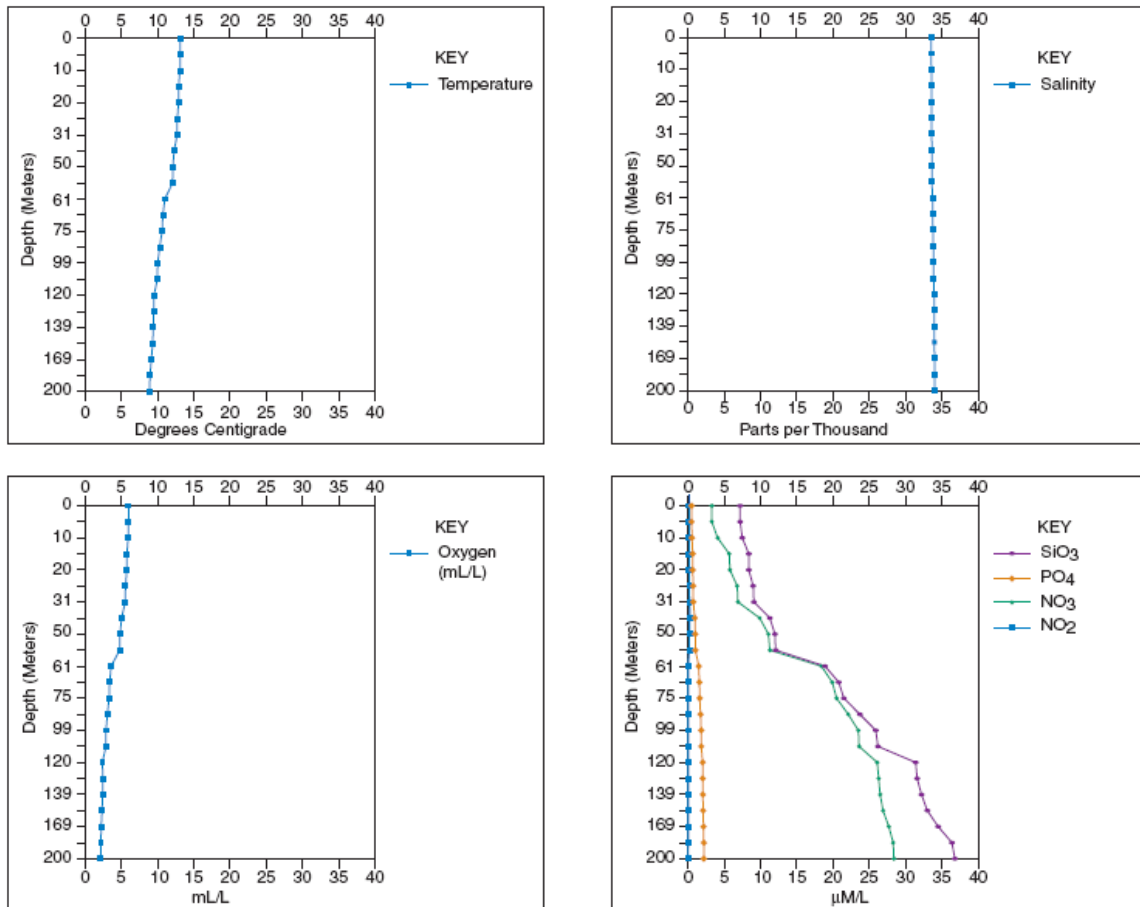


FIGURE 4.5-2. VERTICAL PROFILES OF WATER QUALITY PROPERTIES IN THE SANTA BARBARA CHANNEL

Source: Scripps Institution of Oceanography 2000.

1 The vertical density structure or stratification (determined by temperature and salinity at
2 increasing depths within the water column) determines the amount of vertical mixing
3 that occurs within the water column. Highly stratified waters inhibit vertical mixing of
4 water, nutrients, and contaminants. Therefore, a contaminant introduced by a point
5 source (e.g., a leak in a pipeline at a specific depth) would remain within the water
6 column and would not rapidly rise to the ocean surface or sink into the bottom
7 sediments. In the winter and spring, the Channel is characterized by cold, high nutrient
8 surface water, and a shallow thermocline (i.e., highly stratified). In the summer and fall
9 the Channel is characterized by warm, low nutrient surface water, and a deep
10 thermocline (i.e., highly mixed) (Santa Barbara Long-Term Ecological Research
11 Program 2003).

12 Within the mixed surface waters, dissolved oxygen levels are uniformly high and near
13 saturation. This layer is known as the euphotic zone due to the penetration of light in
14 this zone. Correspondingly, nitrate and phosphate are depleted in the surface mixed
15 layer due to uptake by primary production (phytoplankton blooms) in the euphotic zone.
16 Wind-driven upwelling, which periodically replenishes surface waters with nutrient-rich
17 water from below, is an important feature of the Channel and is largely responsible for
18 its productive fishery. The presence of nutrient-rich water (high levels of nitrates and
19 phosphates) near the sea surface significantly enhances primary productivity. Below the
20 surface, oxygen concentrations steadily decrease with depth due to losses from
21 respiration and decomposition (CSLC 2009). Turbidity in the euphotic zone is
22 determined by the concentration of suspended particulate matter (PM) near the sea
23 surface. Turbidity is increased in coastal waters as a result of storm runoff, sediment re-
24 suspension, discharge of wastewater, and phytoplankton blooms.

25 Trace Metals

26 Ambient trace metal concentrations in the water column typically occur at levels below
27 the detection limit of standard analytical methods. Therefore, to measure such
28 contaminants in seawater, resident California mussels (*Mytilus californianus*) are used
29 as indicator organisms to indirectly monitor water quality. Mussels accumulate
30 contaminants directly from the seawater and ingested food. Measuring the level of
31 concentrated contaminants in mussels in samples over specific periods of time provides
32 a measure of the concentration of contaminants in the water column over time.

33 The State Mussel Watch Program (run by the SWRCB) has been monitoring the
34 concentration of contaminants in mussels since 1971 and provides a long-term
35 indication of the ambient level of trace metals along the California coast. The objective
36 of this program is to examine trends in trace metals along the coast of California and
37 identify areas where spikes in certain metals occur (SWRCB 2004). Trace metal
38 concentrations at the nearest sampling location to the Project site, Santa Barbara

1 Harbor, were higher than the average concentration of trace metals at all sampling
2 locations in the Channel with the exception of silver, arsenic, nickel, and selenium.

3 Petroleum Hydrocarbons

4 Petroleum hydrocarbons are organic contaminants that enter the ocean both naturally
5 and as the result of human error (i.e., oil spills). The principal sources of petroleum
6 hydrocarbons in the Channel include:

- 7 • Urban runoff of road material, auto exhaust, lubricating oils, gasoline, diesel fuel,
8 and tire particles;
- 9 • Produced-water discharges;
- 10 • Atmospheric deposition from the combustion of fossil fuels;
- 11 • Vessel leaks, spills, and exhaust;
- 12 • Leaching of creosote from wooden pilings;
- 13 • Oil and grease contained in municipal sewage effluent; and
- 14 • Natural oil seeps.

15 Natural seeps found along the coasts of Santa Barbara and Ventura counties discharge
16 significant quantities of oil and tar to the near-shore waters of the Channel. Studies
17 conducted in the late 1970s found that between 16,000 and 240,000 barrels of oil enter
18 the Channel annually from natural seeps. Further, the Western States Petroleum
19 Association estimates 150 to 170 barrels of oil seep from the sea floor near Coal Oil
20 Point (approximately 5 miles southeast of the Project area) each day (Helix 2006).
21 Consequently, the intertidal zone at Goleta, particularly along the Ellwood Coast in the
22 Project vicinity, frequently experiences naturally occurring oil and tar from the Coal Oil
23 Point Seep.

24 Generally, oil entering the ocean naturally through seeps does not severely degrade
25 open ocean water quality. Oil spills cause the most degradation to water quality during
26 and for a few weeks after each spill. Most components of crude oil are not soluble in
27 seawater and float on the sea surface; therefore, impacts to the water column are
28 limited. In addition, aromatic hydrocarbons, such as benzene and toluene, which are
29 considered the most toxic to marine life, evaporate quickly after a spill. Other
30 weathering processes, such as spreading, dissolution, dispersion, emulsification,
31 photochemical oxidation, and microbial degradation, decrease the volume of the oil slick
32 and increase the viscosity (thickness) of the spilled oil. Consequently, mortality of
33 marine organisms resulting from the physical effects of smothering and coating is the
34 greatest concern. However, toxicological effects from exposure to aromatic
35 hydrocarbons can be significant if unweathered oil reaches the shoreline, particularly in

1 areas with rocky shorelines, enclosed embayments, estuaries, and wetlands. These
2 impacts are discussed further in Section 4.6, Marine Biological Resources.

3 **Aquatic Environment**

4 *Surface Water*

5 Primary Project components are situated in the surf zone, near shore areas and on low-
6 lying coastal areas immediately inland from the beach. The nearest drainages to the
7 Project area are Bell Canyon and Tecolote Creeks to the northwest and Devereux
8 Creek to the southeast. Bell Canyon and Tecolote Creeks drain primarily rural and
9 agricultural areas northwest of the urban areas of the City of Goleta and discharge into
10 lagoons at the west of the Project site. Devereux Creek drains a largely urbanized
11 watershed, which encompasses the western portions of the City of Goleta, and empties
12 into the Devereux Slough located approximately 1.8 miles southeast of the Project area.
13 Runoff from the inland portions of the Project site could potentially drain into Bell
14 Canyon Creek (Figure 4.5-3).

15 Four wetlands are located near the Project site: Bell Canyon Creek and three wetland
16 areas that are supported by seeps located along the toe of the bluff adjacent to the
17 Project access road. The largest (approximately 5,440 square feet) and most diverse of
18 the three seep-related wetlands is located east of the access road terminus and Well
19 421-2. The dominant species in all of these seep-related wetland areas is saltgrass
20 (*Distichlis spicata*), and the surface waters present in at least the larger seep-related
21 wetland are sufficient to support breeding populations of Pacific tree frogs (*Pseudacris*
22 *regilla*) and western toads (*Anaxyrus boreas*), and as habitat for avian species.

23 *Water Quality*

24 The SWRCB (2010) has listed Bell Canyon Creek as impaired for nitrates under their
25 303d listing program. Water quality sampling was performed during storm events in Bell
26 Canyon, Tecolote, and Devereux Creeks as part of the countywide “Project Clean
27 Water” program until 2002. The most recent Project Clean Water quality analysis report
28 that includes data for these creeks is for rain year 2001 to 2002. During this rain year,
29 both Bell Canyon and Devereux Creeks exceeded the maximum contaminant standards
30 for copper, mercury, and zinc. Tecolote Creek also exceeded the standard for copper
31 and zinc, but not mercury. In addition, Bell Canyon and Tecolote Creeks exceeded the
32 maximum diazinon standard and Devereux and Tecolote Creeks exceeded the
33 maximum standard for chlorpyrifos. Tecolote Creek also exceeded the maximum
34 standard for malathion. Oil and grease, and total petroleum hydrocarbon (TPH), were
35 not detected in any of the samples for either of these creeks (Santa Barbara County
36 2002).



FIGURE 4.5-3

1 Water quality data collected during two prior rain years (1999 to 2000 and 2000 to 2001)
2 were similar to 2001 to 2002 data. During the 2000-2001 rain year, both Bell Canyon
3 and Devereux Creeks exceeded the standard for copper, mercury and zinc, while
4 Tecolote Creek only exceeded the standard for copper and zinc. Similarly, all three
5 creeks exceeded the standard for diazinon. In addition, Bell Canyon and Tecolote
6 Creeks exceeded the standard for chloropyrifos. Tecolote Creek also exceeded the
7 standard for malathion. Oil and grease and TPH were not detected in any of the
8 samples for these creeks (Santa Barbara County 2001). Water quality sampling during
9 the 1999 to 2000 rain year detected oil and grease and TPH during one sampling event
10 of Bell Canyon Creek. In addition, all three creeks exceeded the standard for copper,
11 lead, and zinc. Bell Canyon Creek also exceeded the standards for arsenic, chromium,
12 diazinon and malathion (Santa Barbara County 2000).

13 *Groundwater*

14 The Project area is adjacent to the West Subbasin of the Goleta Groundwater Basin.
15 This underground reservoir is considered hydrologically separate from the North and
16 Central Subbasins of the Goleta Groundwater Basin. Available storage in the West
17 Basin is estimated to be 7,000 acre-feet (af). Based on the most recent analysis, the
18 West Subbasin is in a state of surplus. However, water in this subbasin is considered
19 poor quality and low yield, but is classified as beneficial use drinking water by the
20 RWQCB under the *Water Quality Control Plan for the Central Coastal Region* (Central
21 Coast Basin Plan) (Santa Barbara County 2005).

22 **4.5.2 Regulatory Setting**

23 Federal and State laws, regulations, and policies related to this issue area are
24 discussed in Table 4.0-1;e local laws, regulations, and policies are discussed below.

25 **Local**

26 *Santa Barbara County Fire Department (SBCFD)*

27 As noted in Sections 4.1, Geological Resources, and 4.2, Safety, the SBCFD is the
28 overseeing agency for implementing local regulations in the event of a hazardous waste
29 or petroleum spill.

30 *Project Clean Water*

31 The Santa Barbara County Water Agency, Project Clean Water was established to
32 reduce or eliminate discharges of pollution into creeks, rivers, ponds, or ocean waters,
33 through implementation of National Pollutant Discharge Elimination System (NPDES)
34 permit requirements and applicable regulations. This agency completes storm water
35 sampling at select locations throughout the county. The County Water Agency is

1 currently in the process of adopting provisions of the Storm Water Phase II Final Rule,
2 which requires the operator of a regulated small municipal separate storm sewer system
3 (MS4) to obtain NPDES permit coverage because discharges of storm water from such
4 systems are considered point sources.

5 *City of Goleta General Plan/Coastal Land Use Plan (GP/CLUP)*

6 The City of Goleta adopted its GP/CLUP in November 2006. Included as part of its plan
7 are the policies of the California Coastal Act. GP/CLUP policies relevant to the Project
8 are described below:

- 9 • Land Use Policy 10.4(b) – If resumption of production is considered for approval
10 for PRC 421, on-pier processing of the oil at a site within the tidal zone should
11 not be approved unless it is demonstrated that there is no feasible and less
12 environmentally damaging alternative to processing on the pier. The
13 development of new processing facilities over the ocean would result in an
14 increased level of risk of environmental damage.
- 15 • Policy CE 2 – Preserve, restore, and enhance the physical and biological
16 integrity of Goleta’s creeks and natural drainages and their associated riparian
17 and creekside habitats.
- 18 • Conservation Guiding Principle 5 – Protect water quality and the biological
19 diversity of Goleta Slough and Devereux Slough.
- 20 • Conservation Guiding Principle 9 – Manage water resources at the watershed
21 level cooperatively with other agencies to maintain high groundwater and surface
22 water quality and to protect marine aquatic habitats.
- 23 • Policy CE 6 – Preserve and protect the biological integrity of marine habitats and
24 resources within and adjacent to Goleta.
- 25 • Policy CE 10 – Manage groundwater and surface water resources to promote
26 water quality and quantity adequate to support natural ecosystem processes and
27 functions.

28 **4.5.3 Significance Criteria**

29 Impacts to water quality would be considered significant if:

- 30 • Contaminant concentrations within the Channel Islands National Marine
31 Sanctuary (CINMS) or within Santa Barbara Channel coastal wetlands
32 measurably increase relative to background concentrations;
- 33 • Water quality objectives contained in the Central Coast Basin Plan are violated;
- 34 • Water quality objectives contained in the *California Ocean Plan* are violated;
- 35 • Water quality criteria in the Proposed California Toxics Rule are violated;

- 1 • Project operations or discharges that change background levels of chemical and
2 physical constituents or elevate turbidity producing long-term changes in the
3 receiving environment of the site, area, or region, thereby impairing the beneficial
4 uses of the receiving water occur; or
- 5 • Contaminant levels in the water column are increased to levels with the potential
6 to cause harm to marine organisms even if the levels do not exceed formal
7 objectives in the Central Coast Basin Plan or *California Ocean Plan*.

8 **4.5.4 Impacts Analysis and Mitigation**

9 Erosion and sedimentation from short-term construction activities, including trenching
10 for installation of two electrical cables and repair of the 6-inch line beneath the existing
11 access road, could adversely affect surface water quality in Bell Canyon Creek.
12 However, impacts would be reduced through the employment of standard erosion and
13 sediment control Best Management Practices (BMPs) that would be outlined in the
14 Erosion and Sediment Control Plan, required by the City of Goleta Grading Ordinance,
15 including watering of disturbed soils, silt fences, and temporary sediment barriers. In
16 addition, Venoco would be required to develop a Storm Water Pollution Prevention Plan
17 (SWPPP) for construction activities and obtain a General Construction Permit from the
18 SWRCB, which would prevent contaminated runoff from the construction site, which
19 could contain trace metals or small amounts of petroleum hydrocarbons, from entering
20 Bell Canyon Creek. Further, as construction would last for approximately 45 days;
21 impacts to surface water quality would be short-term and less than significant.

22 However, the Project would incrementally increase the potential for an accidental
23 release of limited amounts of crude oil to the marine environment. Analyses of risk
24 presented in Section 4.2, Safety, indicate the limited possibility of a release of crude oil
25 into the marine environment, including a potential for undetected slow leaks. In addition,
26 resuming production and prolonging the life of the aging caisson on Pier 421-2 could
27 increase the potential for a release of contaminated sediment to affect water quality
28 (see Section 4.3, Hazardous Materials).

29 Table 4.5-1, located at the end of Section 4.5.4, provides a summary of water-related
30 impacts and recommended MMs to address these impacts.

1 **Impact WQ-1: Temporary Construction Impacts to Marine Water Quality**
2 **Short-term construction activities along the access road and seawall, and in the**
3 **surf zone could adversely affect marine water quality (Less than Significant with**
4 **Mitigation).**

5 **Impact Discussion**

6 With completion of the recent emergency repairs to the seaward-facing wall of the
7 caisson at Pier 421-2, construction activities on the beach and within the surf zone
8 would be limited, but may include use of vehicles and other construction equipment on
9 the beach for seawall repair, pipeline construction support, and Pier 421-2
10 improvements. Additionally, decommissioning activities at Pier 421-1—which would
11 include grading and excavation to remove the caisson, pier and piles—and
12 reinforcement of the seawall along the access road would disturb material in and
13 adjacent to the surf zone.

14 Potential environmental concern associated with excavation within the surf zone is that
15 potentially contaminated sediments would be exposed or contaminants would be
16 mobilized through pore water movement to the biologically active zone or overlying
17 water column. While disturbance of sediment can increase turbidity (suspended
18 sediments) in the water column, these effects would be temporary (for the duration of
19 any construction activities) and confined to the immediate Project vicinity. Further,
20 activity would occur within the active surf zone, a naturally turbid area within the ocean
21 environment. Proposed construction activities would disturb sand along the surf zone;
22 however, these sediments would be expected to settle rapidly and would not create
23 extensive turbidity plumes. Therefore, the potential increase in suspended sediments
24 during construction would result in a less than significant temporary impact.

25 In addition to potential turbidity, construction activities on the beach and within the surf
26 zone could release contaminated mud and sand from the caissons and underlying soil
27 to the ocean. Repair activities conducted on the Well 421-1 caissons detected two leaks
28 in the caisson wall which were sampled for contaminants. Results of chemical analyses
29 performed on mud and sand within the caisson revealed the presence of TPH at levels
30 of 100 to 200 parts per million (ppm). Tests for benzene, toluene, ethylbenzene,
31 xylenes, and short-chain hydrocarbons resulted in non-detectable results. In addition,
32 hydrocarbons were detected in the soil surrounding the piers at a depth of 15 feet below
33 ground. Further, analytical sampling conducted in October 2006 on water from the
34 caissons detected trace amounts of arsenic, mercury, and selenium; all amounts were
35 below water quality threshold levels. The potential release of hydrocarbon contaminated
36 sand from subsurface soil and rock soil into the surf zone is would be subject to feasible
37 mitigation as discussed below, and would be less than significant with mitigation.

1 **Mitigation Measures**

2 In addition to the implementation of MM HAZ-1a through HAZ-1d, the following MMs
3 would apply.

4 **MM WQ-1a. Avoidance of High Tides and Silt Curtain.** Venoco shall schedule in-
5 water construction efforts to avoid times of high tides (defined herein as tides
6 greater than +5 feet as predicted by the National Oceanic and Atmospheric
7 Administration). Prior to implementation of any in-water construction, affected
8 sediments shall be tested for the presence of hydrocarbons and trace metals.
9 Any potentially contaminated sediment which may be disturbed during caisson
10 repairs would be contained within the Project area for off-site disposal at an
11 appropriate waste facility, and disposed of according to State and Federal
12 regulation. Regardless of the presence of contaminated sediment, Venoco
13 shall install measures to reduce siltation of the nearshore marine environment
14 during in-water construction, potentially including but not limited to a silt curtain,
15 installation of sheet piling, and/ or soil removal techniques such as hydro-
16 displacement and weighted floating. Venoco shall prepare a plan to monitor the
17 performance of the adopted measure and identify thresholds for localized
18 turbidity to ensure that they are performing as expected and not impairing
19 water quality. If it is found that turbidity threshold values are being repeatedly
20 exceeded, construction activities shall be temporarily halted until a better
21 capture solution is implemented. Additionally, in order to protect spawning
22 endangered species, monitoring should occur to ensure that a turbidity plume
23 from construction in the marine environment does not reach the mouth of Bell
24 Creek or Tecolote Creek and that turbidity in the lagoon does not increase as a
25 result of construction activities. If a plume reaches the mouth of the lagoon,
26 construction should be halted until turbidity returns to normal levels.

27 **MM WQ-1b. Water Quality Certification.** Venoco shall complete and implement a
28 Spill Prevention, Control and Countermeasures (SPCC) Plan and implement
29 any additional MMs mandated by the State Water Resources Control Board
30 (SWRCB) through the Section 401 water quality certification process.

31 **Rationale for Mitigation**

32 Implementation of the MMs above would reduce potential water quality impacts to below
33 State thresholds. Removal of contaminated sediments from construction zones prior to
34 implementing the decommissioning and removal of Pier 421-1 and any additional
35 required in-water construction activities (if possible without impairing the integrity of Pier
36 421-2) would prevent the release of petroleum hydrocarbons resulting from Project
37 activities. Removal of contaminated sub-soil mobilized during drilling would prevent it
38 from reaching the surf zone. Erection of a silt curtain would reduce the dispersion of
39 contaminated sediments from the soils surrounding the piers into the water column and
40 prevent elevated turbidity levels within the active surf zone. Full implementation of these
41 measures would reduce Impact WQ-1 to less than significant.

1 **Impact WQ-2: Temporary Construction Impacts to Wetlands**

2 **Short-term construction activities along the access road and could adversely**
3 **affect water quality in adjacent wetlands (Less than Significant with Mitigation).**

4 **Impact Discussion**

5 Construction activities along the access road may temporarily affect three small
6 wetlands located between the access road and the Sandpiper Golf Course. Such
7 activities include excavation and installation of subsurface cables for power and system
8 control between the Ellwood Onshore Facility (EOF) and Pier 421-2, and extending and
9 upgrading the existing 6-inch line to accommodate one internal 3-inch flowline from Pier
10 421-2 to the tie-in at the EOF. These activities may result in a disturbance to wetland
11 habitats and associated plant and wildlife species due to trenching, deposition of spoils,
12 and operation of heavy equipment. Additionally, decommissioning and removal of Pier
13 421-1 would include construction activities that may impact wetlands along the access
14 road when heavy construction machinery is used to remove the well, pier, and caisson
15 at Pier 421-1. Since a wetland delineation has not yet been performed for the Project
16 area, additional wetlands may be present that could be impacted by Project activities.

17 All wetland areas would be protected with temporary construction fencing to prevent
18 entrance into these areas during construction activities; however, the potential for the
19 Project, including subsequent decommissioning and removal of Pier 421-1, to disturb
20 wetlands would remain. This impact would be less than significant with mitigation.

21 **Mitigation Measures**

22 In addition to the implementation of MM TBIO-1a, TBIO-1b, TBIO-1d, and TBIO-1e
23 described in Section 4.7 Terrestrial Biological Resources, the following MM would apply.

24 **MM WQ-2. Wetland Delineation, Avoidance and Minimization.** Venoco shall
25 engage a qualified biologist to conduct a Wetland Delineation and prepare a
26 Wetland Delineation Report, subject to approval and permitting by the City of
27 Goleta, California Department of Fish and Wildlife, Army Corps of Engineers,
28 and California Coastal Commission, to determine the precise location of all
29 wetlands within and in the vicinity of the Project, including the access road, the
30 flow line, the cables, sea wall bulkheads, and riprap sea-walls. The Report
31 shall be reviewed and approved prior to City issuance of the Land Use Permit.
32 Prior to commencement of construction, all wetland areas located within and
33 adjacent to the Project area will be flagged for fencing by a qualified wetland
34 scientist. If wetlands identified in the Wetland Delineation Report cannot be
35 avoided, the Applicant shall consult with appropriate agencies including the
36 City of Goleta, California Department of Fish and Wildlife, California Coastal
37 Commission, and the Regional Water Quality Control Board to design
38 measures to minimize impacts to the wetland and appropriate restoration
39 standards and methods, if necessary following construction.

1 **Rationale for Mitigation**

2 Implementation of MMs WQ-2, TBIO-1a, TBIO-1b, TBIO-1d, and TBIO-1e would reduce
3 short-term construction-related impacts to wetlands by protecting biologically sensitive
4 areas in the immediate Project area, providing for construction supervision, and
5 requiring restoration and enhancement of impacted habitats. After implementation of
6 these MMs, impacts to wetlands from short-term construction activities would be
7 mitigated to a less than significant level.

8 **Impact WQ-3: Oil Spill Impacts to Surface and Marine Water Quality**

9 **Accidental discharge of petroleum hydrocarbons into the surf zone from Pier 421-**
10 **2 and flowline would adversely affect surface or marine water quality (Significant**
11 **and Unavoidable).**

12 **Impact Discussion**

13 Upon Project implementation, oil would be produced at Well 421-2 (which is located in
14 the surf zone) and sent to the EOF via pipeline for processing. Transportation of oil that
15 has been processed at the EOF would be via the Line 96 onshore pipeline, connecting
16 to the Plains All American Pipeline, L.P. (PAAPLP) west of Las Flores Canyon (LFC).
17 The Project thus presents three possible sources of oil spill to marine or surface waters:
18 from Well 421-2, from the flowline to the EOF, and from Line 96.

19 An accidental release of oil during production at Pier 421-2 could occur from a well
20 casing blow out or from potential wave or seismic damage to the Project caisson,
21 seawall, or pipeline. The maximum amount of oil which could potentially be released
22 during a worst-case oil spill from Well 421-2 is 1.7 barrels (see Section 4.2, Safety).

23 The current PRC 421 flowline is located approximately 200 feet east of Bell Canyon
24 Creek. Proposed safety measures for the pipeline include repairing a deteriorated
25 section and pressure testing the existing 6-inch line, and inserting an internal liner and a
26 3-inch flowline within the existing pipeline. In the event of a leak in the 3-inch flowline,
27 the oil/gas/water emulsion would be contained within the 6-inch line. Upon detection of
28 liquid in the 6-inch line the well pump would be completely shut in. It is estimated that
29 shut in would be complete within 15 seconds of leak detection. A leak detection sensor
30 would also be provided within the 6-inch line and if a leak were detected shut in would
31 also automatically occur. The potential exists, however slight, for oil to be released from
32 the pipeline during the 15-second interval prior to shut in of the pump, in the time before
33 the leak is detected. The amount of oil potentially released to the environment during
34 this period of time is dependent on the size of the leak in the pipeline.

35 The transport of PRC 421 oil approximately 8.5 miles through the Line 96 pipeline would
36 also present a risk of oil release with impacts to in-stream water quality for multiple
37 creeks along the Gaviota Coast. Although pipelines are generally the safest method

1 available for the transportation of crude oil, spills could potentially occur through
2 accidental damage to the pipeline caused by natural (e.g., seismic activity, flooding) or
3 man-made causes (e.g., construction activity, valve failure). However, because the
4 pipeline would be new and would include all of the most recent safety features, the
5 likelihood of a potential spill is low (see Section 4.2, Safety). The Line 96 pipeline
6 incorporates mainline block valves that limit the volume of oil that could potentially be
7 spilled to 60 barrels from Llagas Creek and 52 barrels from Corral Canyon.

8 A spill from the Pier 421-2, from the flowline, or from Line 96 could release limited
9 amounts of petroleum hydrocarbons into the marine environment within Santa Barbara
10 Channel. Devereux Creek and its mouth (Devereux Slough) are located approximately 1
11 mile southeast of the Project site. Devereux Slough is part of the University of California
12 Reserve System and is a protected wetland which provides habitat and nesting area for
13 numerous shorebirds and migrating birds (see Section 4.6, Marine Biological Resources
14 and Section 4.7, Terrestrial Biological Resources). Even a limited crude oil spill between
15 0.5 to 1.7 barrels from PRC 421 could introduce petroleum hydrocarbon contaminants
16 above background concentrations into the slough (see Section 4.2, Safety) and impact
17 the aquatic environment. Therefore, a large crude oil spill into marine or surface water
18 resources near the Project site could exceed stated significance thresholds (California
19 Toxics Rule, Ocean Plan, and Basin Plan) and would be significant.

20 Spilled oil results in impacts to marine water quality as addressed in the *California*
21 *Ocean Plan* (Table 4.5-1). Surface slicks limit equilibrium exchange of gases at the
22 ocean-atmosphere interface. This reduces near-surface oxygen concentrations,
23 particularly with the increased biochemical oxygen demand of crude-oil emulsions. As
24 the seawater-oil emulsion mixes into the water column, turbidity would increase and
25 toxic hydrocarbons would be released into the water column and seafloor sediments.
26 Weathering can widely disperse tar balls, which may eventually be ingested by pelagic
27 and benthic biota, with adverse effects. Although a surface slick can disperse within a
28 few hours of a spill in harsh sea conditions, lingering effects could persist for much
29 longer periods. For example, it took approximately two years for mussel tissue burdens
30 of aromatic hydrocarbons to return to background levels after the Exxon Valdez Oil Spill
31 (Boehm et al. 1995). Although this spill was several orders of magnitude larger than any
32 spill possible under implementation of the Project, monitoring results indicate the
33 potential for long-term effects. The increased potential for accidental discharges of
34 petroleum hydrocarbons into marine waters is considered a significant impact because
35 the Project would increase the likelihood of an oil spill at the Project site and because
36 such a spill could result in tangible damage to marine water quality in excess of
37 concentrations identified in regulatory criteria.

38 Oil from a surface spill would disperse and weathering would, in turn, affect the long-
39 term persistence and toxicity of oil. Further, the soluble and more toxic components of
40 crude oil (e.g., benzenes and other lower molecular weight aromatic compounds), would

1 volatilize and dissipate naturally from the environment. Consequently, the toxicity of a
2 potential spill may be reduced somewhat by natural weathering processes during
3 dispersion. However, insoluble oil fractions could potentially settle in bottom sediments
4 or get trapped by aquatic vegetation and affect water quality for several years. This is
5 more likely to occur in Devereux Slough than Bell Canyon Creek as the current flows
6 from west to east and Bell Canyon Creek is located west of the Project. Further, oil
7 spills to Bell Canyon Creek would be near the mouth of the creek and spilled oil would
8 likely disperse quickly into the Pacific Ocean, particularly in winter months when
9 seasonal storms wash natural sand berms from the Bell Canyon Creek into the ocean
10 and water levels are higher; whereas spills within the Santa Barbara Channel and those
11 that flush out of Bell Canyon Creek are likely to flow towards Devereux Slough.

12 Venoco currently maintains two plans that deal with oil spills: an Emergency Action Plan
13 (EAP) and the South Ellwood Field Oil Spill Contingency Plan (OSCP). The EAP details
14 actions to occur following a spill, including directions on spill containment and logistical
15 details such as site access, staging areas, and boat launching locations (Venoco
16 2011a). The OSCP addresses inspection and maintenance, training and drills,
17 notification procedures, and provides general oil spill response and cleanup techniques
18 for various terrains, including for creeks and rivers (Venoco 2011b). OSCP appendices
19 contain maps and listings of potentially affected sensitive resources such as plant and
20 wildlife habitats, creeks and drainages, beaches, sloughs, marshes, etc., in the
21 surrounding area. Implementation of the above plans would reduce impacts associated
22 with larger oil spills. Nonetheless, impacts would be significant and unavoidable.

23 **Mitigation Measures**

24 In addition to the implementation of MMs described in Section 4.2, Safety, Section 4.6,
25 Marine Biological Resources, and Section 4.7, Terrestrial Biological Resources, the
26 following MMs would apply:

27 **MM WQ-3a. Pipeline Monitoring.** In addition to the installed safety measures on
28 the pipeline from Pier 421-2 to the EOF tie-in (e.g., low-pressure alarm system
29 and automatic shut-in), Venoco staff shall conduct daily visual monitoring of the
30 access road above the pipeline and soils adjacent to the access road. Staff
31 shall inspect for obvious indicators of a small leak such as petroleum smells
32 and any seepage of oil or visible sheen in soils adjacent to the roadway. If any
33 indicators are present, Venoco shall (1) notify City of Goleta and California
34 State Lands Commission (CSLC) staffs within 24 hours, (2) conduct further
35 investigations to determine the source of the indicator, and (3) repair the
36 pipeline as necessary upon City and CSLC staff approval.

37 **MM WQ-3b. Storm Water Pollution Prevention Plan (SWPPP).** A site-specific
38 SWPPP shall be prepared for construction activities and the existing Ellwood
39 area SWPPP shall be updated to include the Project and submitted to the
40 Regional Water Quality Control Board (RWQCB), Central Coast Region, and

1 City of Goleta to prevent adverse impacts to nearby waterways associated with
2 oil spills and contaminated storm water releases not covered under the
3 Emergency Action Plan (EAP), which only applies to “significant events.” This
4 plan shall include site-specific diagrams illustrating primary surface drainage
5 features (e.g., Bell Canyon Creek, Devereux Creek and Devereux Slough, and
6 proposed spill containment, delineation of drainage features) and a description
7 of Best Management Practices (BMPs), including spill containment equipment
8 and procedures tailored for the Project site.

9 The Project also incorporates by reference MMs contained in the certified Line 96
10 Modification Project EIR, including MM BIO-3, which required preparation of an OSCP
11 to address sensitive biological resources along the pipeline alignment, and MM HM-3,
12 which required block valves on the Line 96 pipeline to be capable of remote actuation.

13 **Rationale for Mitigation**

14 Implementation of these MMs would reduce the probability of an oil spill and the
15 resulting consequences to the surface or marine waters. The identified measures would
16 enhance planning and preparedness to respond to the oil spill and would reduce both
17 the potential oil spill size and the potential for oil spills. The measures would also
18 increase the effectiveness of an oil spill cleanup effort.

19 Regular monitoring of the soils adjacent to the access road above pipeline would reveal
20 potential pipeline damage from third-party incidents or natural disasters and would help
21 identify potential hairline fractures and leaks that may not be detected by installed leak
22 detection systems. Regular monitoring would also encourage regular maintenance of
23 the pipeline to prevent spills. Implementation of the SWPPP would minimize potential
24 impacts of small spills and contaminated storm water releases by providing site-specific
25 information and management practices regarding protection of nearby water resources.
26 Incorporation of measures from the Line 96 Modification Project EIR would reduce the
27 likelihood and volume of an accidental oil release from the Line 96 pipeline.

28 **Residual Impacts**

29 Marine water quality impacts associated with accidental oil spills are categorized as
30 significant because the proposed MMs would not be completely effective in reducing the
31 significant risk of a spill, nor would they adequately eliminate the significant effect of a
32 spill on marine resources. A large spill (see definition in Section 4.2, Safety) would
33 violate many water quality regulations and have a deleterious effect on the marine
34 environment and biota. It would generate visible surface sheens, significantly reduce the
35 penetration of natural light, reduce dissolved oxygen, degrade indigenous biota, and
36 result in hydrocarbon contamination within the water column and marine sediments. The
37 duration and area of the impact would be largely dictated by the size and location of the

1 spill, and the various physical conditions of the sea at the time of the spill. Impacts
2 would last from days to weeks and extend for tens of miles.

3 Mitigation of water quality impacts from a major marine oil spill is largely a function of
4 the efficacy of the spill response measures. The effectiveness of spill cleanup measures
5 is dependent on the response time, availability and type of equipment, size of the spill,
6 and the weather and sea state during the spill. Only some of these aspects are within
7 the control of the spill response team. In addition, many oil spill response measures,
8 such as dispersants, have impacts of their own.

9 With the natural flushing processes of Bell Canyon Creek and implementation of the
10 SPCC Plan, safety measures for the pipeline, and the above MMs, impacts to surface
11 water quality in Bell Canyon Creek would be less than significant. However,
12 implementation of the OSCP, EAP, and other MMs would not reduce impacts of a large
13 oil spill to a less than significant level, particularly in Devereux Slough where insoluble
14 oil fractions could potentially be trapped in sediments for years or in creeks and
15 drainages present along the Line 96 pipeline route between the EOF and LFC. These
16 impacts are considered significant.

17 Under the regulatory-based significance criteria described in Section 4.5.3, Significance
18 Criteria, even small oil spills could potentially be significant. Many regulations and
19 guidelines establish limits based on the presence of a visible sheen on the ocean
20 surface. This criterion is reflected in the static sheen test for free oil identified in the
21 NPDES General Permit, U.S. Coast Guard (USCG) regulations, and the aesthetic
22 criterion C.1 in the Ocean Plan Standards (see Table 4.5-1). Therefore, even with the
23 imposition of the MMs, this impact remains significant and unavoidable.

Table 4.5-1. Summary of Hydrology and Water Quality Impacts and Mitigation Measures

Impact	Mitigation Measures
WQ-1: Temporary Construction Impacts to Marine Water Quality	HAZ-1a. Proper Personnel Training. HAZ-1b. Conduct Phase I ESA. HAZ-1c. Soil Sampling. HAZ-1d. Removal Action Plan. WQ-1a. Avoid High Tides and Silt Curtain. WQ-1b. Water Quality Certification.
WQ-2: Temporary Construction Impacts to Wetlands	WQ-2. Wetland Delineation, Avoidance and Minimization TBIO-1a. Locate Power Cables and Pipeline Outside Wetland Areas. TBIO-1b. Project and Biological Monitors. TBIO-1d. Protect Stockpiles of Excavated Material. TBIO-1e. Maintain Equipment.
WQ-3: Oil Spill Impacts to Surface and Marine Water Quality	WQ-3a. Pipeline Monitoring. WQ-3b. Storm Water Pollution Prevention Plan. All MMs described in Sections 4.3-4.2, Safety, 4.6, Biological Resources, and 4.7 Terrestrial Biological Resources and MM BIO-3 and MMHM-3 from the Line 96 Modification Project EIR would apply.

1 **4.5.5 Cumulative Impacts Analysis**

2 **Impact WQ-4: Cumulative Impacts to Marine Water Quality**

3 **Potential oil spills occurring as a result of recommissioning of PRC 421 could**
4 **result in contributions to cumulative water quality impacts on the waters of the**
5 **Santa Barbara Channel (Significant and Unavoidable).**

6 Potential Project-related oil spills could contribute to cumulative water quality impacts
7 offshore the Project site. Projects which could produce an increased risk of oil spill that
8 could impact the same coastal areas as the Project are listed in Table 3-2 in Section 3,
9 Cumulative Impacts Methodology. The Carpinteria Offshore Field Redevelopment,
10 South Ellwood Field Project, and Carpinteria Onshore Projects would involve increased
11 offshore/near-shore drilling and associated crude oil transportation, which would also
12 increase the risks of oil spills and result in water quality impacts from the discharge of
13 produced water into the marine environment. Any development of the undeveloped
14 outer continental shelf (OCS) leases would result in additional exploratory drilling,
15 increases in vessel traffic and potential oil spills to the marine environment that would
16 have a cumulative effect alongside the Project. All of these projects would exacerbate
17 an already significant and unavoidable impact associated with the Project's risks of
18 spills to the marine environment.

19 **Mitigation Measures**

20 Each of these projects must meet regulatory requirements designed to reduce the
21 probability and consequences of accidental releases to the environment. However, even
22 the best-designed and implemented MMs, such as safe design of the facilities, oil spill
23 contingency plans, training and drills, and availability of oil spill cleanup means, cannot
24 eliminate all risk of an oil spill.

25 **Rationale for Mitigation**

26 Implementing regulatory requirements with industry BMPs can lower the risk and
27 consequences of an accidental oil spill.

28 **Residual Impacts**

29 The Project's contribution to cumulative impacts would remain significant and
30 unavoidable.

1 **4.6 MARINE BIOLOGICAL RESOURCES**

2 This section describes the marine resources in the immediate Project area and Santa
3 Barbara Channel and the potential Project-related impacts, including unanticipated
4 accidents such as an oil spill, could have on those resources. The Environmental
5 Setting section is based primarily on existing literature, but has been augmented with
6 the authors' personal experience in the Project area. The impact section identifies
7 potential impacts to marine resources from decommissioning and removal of Pier 421-1
8 and caisson repairs on Pier 421-2, and identifies mitigation for potentially significant
9 impacts. Operational impacts would be limited to accidents including an oil spill.
10 Mitigation Measures (MMs) are identified to reduce the potential effects of these
11 accidents.

12 This document incorporates by reference the conclusions of the Ellwood Marine
13 Terminal (EMT) Lease Renewal Environmental Impact Report (EIR) (California State
14 Lands Commission [CSLC] 2009) and Line 96 Modification Project EIR (Santa Barbara
15 County 2011) regarding marine biological resources and summarizes these conclusions
16 where appropriate. This document also incorporates data from Santa Barbara County
17 01-ND-34 and City of Goleta 06-MND-01.

18 **4.6.1 Environmental Setting**

19 The primary study area includes the Ellwood Coast region and marine habitats that
20 extend approximately 1 mile seaward from the PRC 421 piers. The secondary study
21 area includes the Gaviota Coast along the Line 96 pipeline and the Santa Barbara
22 Channel.

23 **Study Area**

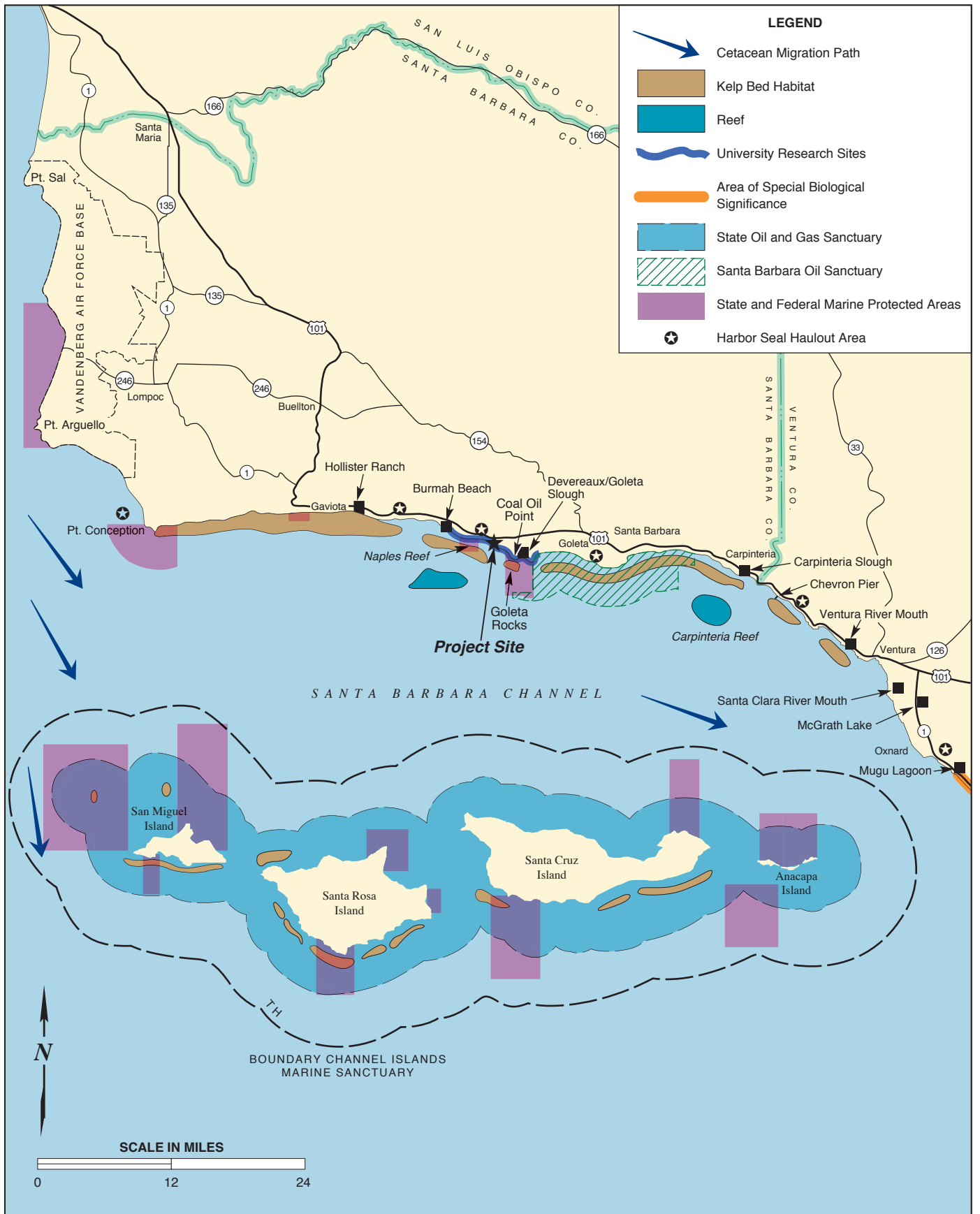
24 PRC 421 is located on the Ellwood coast in the Santa Barbara Channel, which occupies
25 the northwest corner of the Southern California Bight. The sea floor in the Santa
26 Barbara Channel consists of a complex topography of ridges, islands, and basins. The
27 complicated physiography of the region has created a diverse collection of marine
28 environments. The bathymetric features greatly influence such factors as current flow
29 and sediment transport and these processes in turn have profound effects on the
30 biological communities (Chambers Group 1987, Dailey et al. 1993). In Southern
31 California, upwelling occurs along both mainland and island shores as northwest winds
32 displace coastline surface water that is then replaced by nutrient rich deeper water.
33 Upwelling is most intense in April, May, and June and is one of the factors that accounts
34 for the high productivity and diversity of marine life in the study area.

35 The Santa Barbara Channel is bordered on its seaward margin by the northern Channel
36 Islands consisting of Anacapa, Santa Cruz, Santa Rosa, and San Miguel. These islands
37 support unique and important marine communities and also shelter the mainland coast

1 from the direct force of the incoming south swell. Point Conception shelters the Channel
2 from northwest swells. The Channel thus provides a relatively protected and benign
3 environment for marine organisms. The Channel lies along important migration routes
4 for marine mammals, fishes and seabirds and also contains a rich, diverse assemblage
5 of resident marine life. These abundant marine resources support a number of
6 important commercial fisheries, aquaculture, and kelp harvesting. Marine habitats within
7 the Channel include mud, sand, and rocky bottoms, as well as scattered offshore reefs
8 and extensive kelp forests along the coastal and island margins. Sandy and rocky
9 beaches as well as mud-bottom marshes and estuaries line the coast.

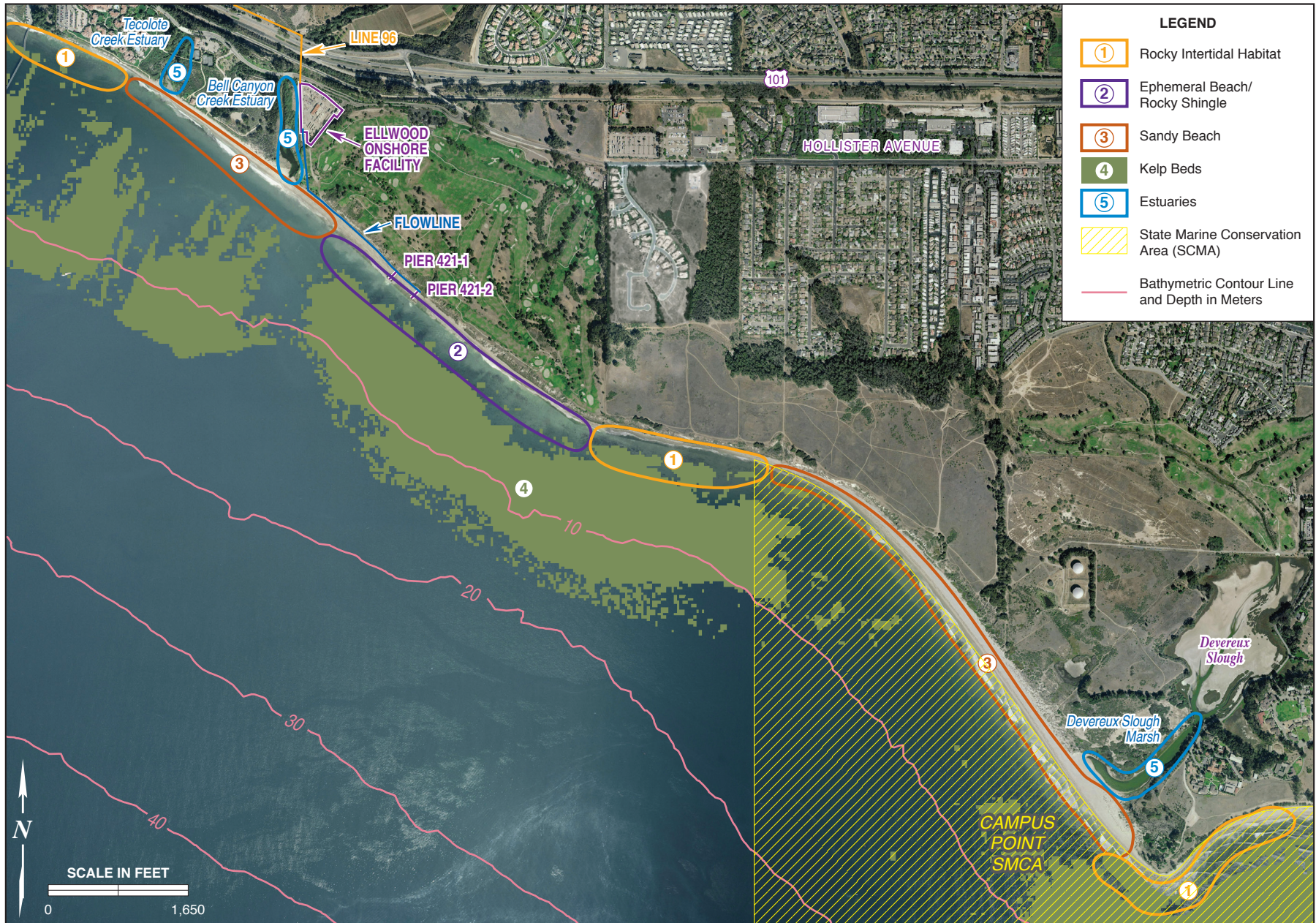
10 The Ellwood Coast region extends for approximately 2 miles west from Coal Oil Point to
11 the Bacara Resort. This section of coast is characterized by a broad sweep of south-
12 facing sandy beach, broken in several places by rocky intertidal habitat and the mouths
13 of one major and two minor estuaries. Within this reach, rocky intertidal habitat is
14 concentrated at Coal Oil Point and within the bay approximately 1 mile west of Coal Oil
15 Point, opposite the western areas of the Ellwood Open Space and the east end of
16 Sandpiper Golf Course (Figure 4.6-1). Sandy beaches tend to aggregate in areas
17 surrounding the estuary mouths and can be ephemeral and replaced by shale or
18 sandstone shingle in areas away from sand sources during the winter months. The
19 mouth of the area's major estuary, the Devereux Slough, lies approximately 0.25 mile
20 west of Coal Oil Point. Seasonal freshwater discharge and sand deposition from this
21 slough provide substantial input to the marine environment, including supporting a wide
22 sandy beach backed by an extensive dune system west of the slough mouth. Toward
23 the western border of the Ellwood Coast, the estuaries of two perennial coastal streams,
24 Bell and Tecolote Canyon creeks, contribute both sand and seasonal freshwater input
25 into this coastal ecosystem.

26 The offshore regions of the Ellwood Coast are characterized by a gently sloping
27 seafloor that averages 36 feet in depth approximately 1 mile from the shoreline. These
28 offshore areas include a mix of low rocky reef and sand bottom substrate. Both the
29 eastern reaches of this area west of Coal Oil Point and the western areas off of Bell and
30 Tecolote Canyon creeks appear to be dominated by sandy substrate, becoming
31 increasingly rocky toward the central area of the Ellwood Coast, including areas
32 offshore from the Project site (Figure 4.6-2; Chambers Group 1987; Santa Barbara
33 County 1991). Kelp beds are scattered throughout both sandy and rocky substrate
34 areas offshore of the Ellwood Coast, but tend to be concentrated and most persistent in
35 areas of rocky substrate. The immediate Project vicinity supports the Ellwood Coast's
36 largest kelp bed. This kelp bed encompasses over 50 acres and begins approximately
37 500 feet offshore of the existing caissons and extends for over 1 mile east southeast
38 along the Ellwood Coast before terminating in areas apparently dominated by sandy
39 bottom substrate east of the Sandpiper Golf Course (Figure 4.6-2).



Sensitive Biological and Marine Resource Areas in the Region of the Proposed Project

FIGURE 4.6-1



Marine Habitats in the Vicinity of the Proposed Project

FIGURE 4.6-2

1 The importance of marine resources in the Ellwood area has been recognized through
2 the establishment of the Naples and Campus Point State Marine Conservation Areas
3 (SMCAs). Campus Point SMCA was established in 2012 to protect marine resources
4 along and off the coast of UCSB, Isla Vista, and the Coal Oil Point Reserve. Campus
5 Point SMCA is designed to protect habitat and species diversity and a wide diversity of
6 habitat types including eelgrass, surfgrass, kelp, rocky reefs, shallow subtidal, rocky
7 intertidal, oil seeps, sand, and the estuarine inputs of Devereux Slough. This SMCA
8 covers 10.51 square miles, including Campus Point. The Naples SMCA covers 2.58
9 square miles, and protects Naples Reef, located approximately 0.75 mile offshore.
10 These SMCAs are “no take” areas that protect natural habitats and marine life, with both
11 commercial and recreational fishing or removal of wildlife prohibited; take of marine
12 resources pursuant to operation and maintenance of artificial structures per any
13 required federal, state and local permits, or as otherwise authorized by the CDFW is
14 permitted.

15 **Marine Biological Resources**

16 *Plankton*

17 The term plankton refers to organisms that drift with the current. Plankton includes
18 phytoplankton (drifting primary producers, such as diatoms and dinoflagellates) and
19 zooplankton (slightly mobile animals, such as small crustaceans, swimming mollusks,
20 jellyfish, and the drifting eggs and larvae of fishes and benthic invertebrates). Planktonic
21 communities are characterized by patchiness or unevenness in distribution,
22 composition, and abundance.

23 The most comprehensive data for zooplankton in California waters come from the
24 California Cooperative Oceanic Fisheries Investigations (CalCOFI) program initiated in
25 1949. This program has shown that zooplankton tend to be extremely variable in space
26 and time. Zooplankton abundance at any given location may vary by as much as an
27 order of magnitude from season to season and year to year. The occurrence of
28 particular zooplankton species or populations along the California coast is largely
29 governed by currents. Long-term averages of the zooplankton standing stock in the
30 study area show peak zooplankton abundances in the spring and summer months, and
31 lowest abundances during the winter (Kramer and Smith 1972; Dawson and Pieper
32 1993). Copepods, thalaceans, euphausiids, and chaetognaths usually account for most
33 of the biomass in CalCOFI samples. The most abundant fish larvae are northern
34 anchovy (*Engraulis mordax*), Pacific hake (*Merluccius productus*), and rockfish
35 (*Sebastes* spp).

36 Phytoplankton assemblages are affected by nutrients, light, water temperature, currents
37 and upwelling, and grazing (Hardy 1993). Species assemblages of phytoplankton in the
38 study area differ spatially and temporally (Hardy 1993). Near the thermocline, for

1 example, an area of elevated chlorophyll concentration often occurs with a vertical
2 species assemblage that is different from that of the surface layer. Onshore-offshore
3 phytoplankton assemblages differ, but temporal changes between stratified and
4 upwelling conditions tend to be more significant than onshore-offshore changes.

5 A subsurface chlorophyll maximum layer generally is present in the study area; in
6 general, phytoplankton abundance and primary production are higher near-shore than
7 offshore (Hardy 1993). The biomass of phytoplankton in Southern California has been
8 found to decrease with increasing distance from shore within the first 6 miles offshore.
9 The depth of maximum phytoplankton abundance usually differs between individual
10 species. Large dinoflagellates are often numerous near the surface, while diatoms are
11 more abundant below a water depth of about 65 feet. Primary production generally
12 shows a subsurface maximum in the study area.

13 Zooplankton populations in the study area can be divided into near-shore and offshore
14 populations (Dawson and Pieper 1993). The near-shore region includes those waters
15 shoreward of the continental shelf/slope break or approximately at the 650 feet depth
16 contour. Transects along the shelf in the study area have shown that the near-shore
17 zooplankton biomass decreases at stations farther from the coast (Dawson and Pieper
18 1993). However, different taxa had different distributions and some taxa were more
19 abundant farther from shore than inshore.

20 Zooplankton of the offshore region include many of the same species found near-shore,
21 but also include more oceanic and deeper water species (Dawson and Pieper 1993).
22 Offshore from the edge of the shelf, zooplankton biomass is variable with depth, but
23 generally higher in the region of chlorophyll, with a maximum at 73 to 83 feet.
24 Zooplankton biomass off Southern California declined during the El Niño years of the
25 1990s but appears to have recovered (Goericke et al. 2005).

26 Fish eggs and larvae (ichthyoplankton) are an important component of the planktonic
27 community. Because of the importance of commercial and recreational fisheries,
28 ichthyoplankton are the most studied component of plankton in the study area. Northern
29 anchovy is by far the most abundant species of ichthyoplankton in the study area (Cross
30 and Allen 1993). Other abundant ichthyoplankton taxa in the study area include
31 rockfish, California smoothtongue (*Leuroglossus stilbicus*), Pacific hake, Mexican
32 lampfish (*Triphotorus mexicanus*), and various species of croaker (scianidae). Within
33 the study area, the larvae of jack mackerel, Pacific hake, and mesopelagic fishes (fishes
34 of mid-water depths) are most abundant 6 to 60 miles from the coast (Cross and Allen
35 1993). California halibut (*Paralichthys californicus*), turbot (*Peluronichthys* spp.), sea
36 basses (*Paralabrax* spp.), and blennies (*Hypsoblennius* spp) have larvae that are most
37 abundant within 6 miles of the coast. The larvae of clinids (*Gibbonsia* spp.), queenfish
38 (*Seriphus politus*), California clingfish (*Gobiesox rhessodon*), gobies, silversides, and
39 diamond turbot (*Hypsopsetta guttulata*) are most abundant within 1.2 miles of the coast.

1 Northern anchovy, rockfish, and sanddab (*Citharichthys* spp.) larvae are common both
2 onshore and offshore.

3 *Intertidal Habitat*

4 The mainland shoreline of the Santa
5 Barbara Channel is primarily sandy.
6 Approximately 74 percent of the Santa
7 Barbara County coastline consists of sandy
8 beach and approximately 93 percent of the
9 Ventura County coastline is sand (Dugan et
10 al. 2000). Boulder fields are often present
11 under sandy beaches along the Santa
12 Barbara coast and are alternately exposed
13 and covered by shifting sand. Only about 23
14 percent of the shores of the Channel Islands
15 consist of sand beach.



Extensive rocky intertidal habitats exist within the Project vicinity.

16 The beach adjacent to Piers 421-1 and 421-2 is ephemeral and primarily sandy during
17 the summer months but exhibiting patchy sand with large areas of exposed shale
18 shingle shelf during the winter months. Intertidal boulder fields also are present in the
19 Ellwood area and significant tidepool habitat occurs within the bend of “Ellwood Cove”
20 approximately 0.5 mile east of the Project site and off Coal Oil Point further to the
21 southeast. Rocky intertidal habitat, primarily boulders and cobble, also occurs west of
22 the Project area up-coast from the Bacara Resort. Rocky intertidal habitat is designated
23 as environmentally sensitive habitat (ESH) by the City of Goleta General Plan/Coastal
24 Land Use Plan (GP/CLUP), the Santa Barbara Local Coastal Plan (LCP), and the
25 University of California Santa Barbara (UCSB) Long Range Development Plan.

26 Sandy beaches in California are inhabited by an abundant invertebrate community that
27 is an important food source for vertebrate predators including shorebirds, seabirds,
28 marine mammals, and fishes (Dugan et al. 2000). More than 60 different species of
29 intertidal invertebrates were identified in a survey of 15 beaches in Santa Barbara and
30 Ventura counties (Dugan et al. 2003). Intertidal invertebrates of sandy beaches show a
31 characteristic zonation related to tidal exposure. The composition of the invertebrate
32 community at a given beach as well as the zonation tends to be extremely dynamic due
33 to the highly mobile nature of the sandy substrate and the resources on which these
34 animals depend (Dugan and Hubbard 2006). Most exposed sandy beaches have two to
35 three zones inhabited by distinct groups of mobile animals. These zones generally
36 correspond to the relatively dry substrate of the upper intertidal zone at and above the
37 drift line, the damp sand of the mid-intertidal zone, and the wet sand of the lower
38 intertidal zone. Sandy beaches on the mainland coasts of Ventura and Santa Barbara
39 counties are generally richer in species than beaches of the Channel Islands.

1 The lower intertidal zone (swash zone) in Southern California sandy beaches is
2 dominated by the filter feeding mole crab, *Emerita analoga*, which moves up and down
3 the beach with the tides. The polychaete "bloodworm," *Euzonus*, also is common in the
4 mid to lower intertidal. In the upper intertidal, drift kelp is an important source of food for
5 many invertebrates. Common organisms associated with macrophyte wrack include
6 beach hoppers (*Megalorchestia* spp.), kelp flies (*Coleopa vanduzeei*), isopods
7 (*Alloniscus perconvexus* and *Tylos punctata*) and various species of beetles.

8 The sandy intertidal areas at Ellwood Beach were sampled in 1986 (Chambers Group
9 1987) and the dominant organisms collected were the sand crabs, *Emerita analoga* and
10 *Blepharipoda occidentalis*, and the polychaete worm *Nephtys californiensis* in the lower
11 intertidal; the isopod *Exciorolana linguifrons* and the bloodworm *Euzonus muronata* in the
12 mid-intertidal; and the beach hoppers *Megalorchestia californiana* and *M. corniculata* in
13 the upper intertidal.

14 Engle (2001) sampled the sandy intertidal organisms at Ellwood just up the coast (west)
15 from the PRC 421 piers in 2001. The upper beach was characterized by large numbers
16 of isopods (*Tylos punctatus*), beach hoppers, and kelp flies. The mid-intertidal was
17 dominated by the isopod *Exciorolana chiltoni* and beach hoppers. Infauna sampled in the
18 lower intertidal included mole crabs (*Emerita analoga*), polychaete worms (*Lumbrinereis*
19 *zonata* and *Nephtys californiensis*), Pismo clams (*Tivela stultorum*), and bean clams
20 (*Donax gouldi*).

21 Rocky intertidal organisms, like those in the sandy intertidal, tend to be distributed in
22 bands or zones related to tidal height. The occurrence of particular species is based on
23 physical and biological factors such as the ability to withstand exposure to air and to
24 survive "sanding-in" as well as competition for limiting resources, especially space
25 (Chambers Group 1987, Thompson et al. 1993).

26 The boulder field at Ellwood has been extensively studied by researchers from the
27 UCSB (Dixon 1978; Fawcett 1978; Sousa 1977; Thompson et al. 1993). This type of
28 habitat is subject to repeated natural disturbance, both through agitation and
29 overturning of the cobbles by wave action and by periodic sand inundation. The
30 structure and composition of the marine community attached to the boulders depend on
31 the severity of past disturbance and on how long the boulders have been exposed for
32 recolonization by larvae and or regrowth of colonies surviving the last disaster. Early
33 successional stages of the boulder community tend to be characterized by the green
34 algae (*Ulva* spp.) and the barnacles (*Chthamalus* spp.). Perennial red algae of several
35 species typify the next successional stage. If two years or more went by without major
36 disturbance the tops of the boulders became dominated by the red alga *Gigartina*
37 *caliculata*. The important feature of this system is that for both invertebrate and algal
38 assemblages, diversity was highest at intermediate frequencies of disturbance.

1 The Ellwood boulder field community underwent a profound change in composition and
2 dynamics after the large storms of 1983 (Thompson et al. 1993). Wave energy was so
3 high that virtually all of the boulders were violently tumbled and all species of algae and
4 invertebrates were driven to low abundances. Early recolonization by *Ulva* and the tube-
5 building polychaete *Phragmatopoma californica* occurred but later successional stages
6 were slow to re-appear.

7 Intertidal habitat at Coal Oil Point to the east of PRC 421 consists of flat sandstone
8 shingle with scattered boulders and a high sand influence, especially in the upper zones
9 (Ambrose et al. 1992). Tidepools are extensive along the beach and the area is
10 characterized by tar from oil seeps (Tway 1991). The boulder habitat is dominated by
11 the green algae *Ulva* and *Enteromorpha*. Larger rocks are dominated by the acorn
12 barnacle *Chthamalus* and the anemone *Anthopleura elegantissima*. Clusters of mussels
13 *Mytilus californianus* also occur. Several species of red algae also are present. The
14 rocky intertidal at Coal Oil Point has been designated an Environmentally Sensitive
15 Habitat Area (ESHA) in the Santa Barbara County LCP for its remarkable rich intertidal
16 invertebrate fauna (Santa Barbara County 1982).

17 *Subtidal Habitat*

18 The vast majority of the subtidal benthic habitat on the study area consists of soft
19 bottom. The soft bottom benthic invertebrates of the Southern California mainland shelf
20 have been studied extensively. Twelve of the 15 most abundant infaunal taxa in this
21 region are annelid worms; 11 were various taxa of polychaetes and the twelfth was
22 oligochaetes (Ranasinghe et al. 2003). The most abundant taxon on the mainland shelf
23 was the spionid polychaete worm (*Spiophanes duplex*), followed by the brittle star
24 (*Amphiodia urtica*), phoronid worms, and another spionid polychaete (*Prionospio*
25 *pinnata*). Infaunal assemblages in very shallow water, less than 33 feet deep, are very
26 much influenced by wave surge and tend to be dominated by fast-moving crustaceans
27 and opportunistic polychaetes (Thompson et al. 1993).

28 Epifaunal communities (invertebrates that live primarily on the surface of the sediments)
29 include a total of 313 species of epifaunal invertebrates (Allen et al. 2002). Three widely
30 occurring species were white sea urchin (*Lytechinus pictus*), California sand star
31 (*Astropecten verrelli*), and ridgeback shrimp (*Sicyonia ingentis*). The shallow inner shelf,
32 of less than 70 feet depth, has the lowest invertebrate abundance, biomass, and
33 diversity. Invertebrate abundance, biomass, and diversity increased from the inner to
34 the middle shelf, and from the middle shelf to the outer shelf. Characteristic species of
35 the inner shelf included blackspotted bay shrimp (*Crangon nigromaculata*), tuberculate
36 pear crab (*Pyromaia tuberculata*), spiny sand star (*Astropecten armatus*), and yellowleg
37 shrimp (*Farfantepenaeus californiensis*). California sand star, ridgeback rock shrimp,
38 and white sea urchin characterized the middle shelf. Species typical of the outer shelf
39 (deeper than 330 feet [100m]) included orange bigeye octopus (*Octopus californicus*),

1 northern heart urchin (*Brisaster latifrons*), mustache bay shrimp (*Neocrangon zaca*),
2 flagnose bay shrimp (*Neocrangon resima*), and hinged shrimp (*Pantomus affinis*).

3 In the shallow sandy subtidal habitat at Ellwood, the tube worm *Diopatra ornata* is the
4 dominant epifaunal invertebrate (Chambers Group 1987). Sand dollar beds (*Dendraster*
5 *excentricus*) occur in 20 to 30 foot water depths. Other characteristic species on the
6 sand bottom between 20 and 50 foot water depths at Ellwood include the Kellett's whelk
7 (*Kelletia kelletii*), the tube dwelling anemone (*Pachycerianthus imbricata*), the elbow
8 crab (*Heterocrypta occidentalis*), the hermit crabs (*Paguristes* spp.), and the cone snail
9 (*Conus californicus*).

10 An introduced species of eelgrass (*Zostera asiatica*) occurs in about 18 to 40 foot water
11 depth on soft bottom along the southern Santa Barbara mainland coast. Eelgrass is a
12 flowering plant that enhances biological value where it grows. Eelgrass beds provide
13 important habitat for invertebrates as a source of food and attachment, and for marine
14 fishes that seek the shelter of the beds for protection and also forage on invertebrates
15 that colonize the eelgrass blades and sediments in and around eelgrass vegetation.
16 Small amounts of eelgrass were observed off Ellwood during underwater surveys in
17 1986 (Chambers Group 1987).

18 Subtidal hard bottom habitat is limited off the mainland shelf of the study area, although
19 subtidal rocky habitat is much more common off the Channel Islands. Rocky subtidal
20 habitat has particular biological value because it provides attachment sites for algae
21 including giant kelp (*Macrocystis pyrifera*) and sessile invertebrates and it provides
22 shelter and food for fishes and mobile invertebrates such as spiny lobster (*Panulirus*
23 *interruptus*).

24 The coastline in the Project region has typically been characterized by large beds of
25 giant kelp, which comprise a distinct and complicated type of marine community. Kelp
26 offers food, attachment sites and microhabitats for invertebrates and provides food and
27 shelter for fishes. Kelp beds off the Santa Barbara County mainland coast between
28 Jalama and Carpinteria are designated an ESHA area in the Santa Barbara County
29 LCP (Santa Barbara County 1982).

30 Two kinds of beds of giant kelp historically have occurred off the Santa Barbara coast
31 east of Point Conception: kelp growing on rocks and kelp growing on sand. In most
32 locations off California, kelp holdfasts require solid substrate for secure attachment,
33 especially in wave-exposed conditions. The kelp beds along the Santa Barbara coast
34 southeast of Point Conception lie in well protected areas and the sand-based kelp had
35 unusual holdfasts that were able to penetrate into the soft bottom and persist (North
36 1994).

37 In 1982 and 1983, most of the extensive kelp beds near Santa Barbara were destroyed
38 by large waves and poor growing conditions associated with an El Niño event (MBC

1 Applied Environmental Sciences 1992). The rock-based kelp recovered but the sand
2 based kelp never did. By the late 1980s and early 1990s, after a long period of drought
3 years, sand based kelp began to show signs of recovery. Starting in 1993, several years
4 (e.g., 1993, 1995, and 1998) of heavy rainfall and rough seas occurred in Southern
5 California. In addition, 1998 was another El Niño year. The high temperatures and low
6 nutrients associated with the El Niño conditions are stressful for giant kelp. Most of the
7 sand-based kelp that had started to return to the southern Santa Barbara shoreline
8 disappeared between 1993 and 1998. In the years since the 1998 El Niño, sand-based
9 kelp has returned sporadically to the mainland coast of the Santa Barbara Channel.
10 However, the only persistent kelp beds have been those associated with hard substrate.
11 Effects of the most recent El Niño (2009-2010) were not yet available.

12 Some rocky subtidal habitat supporting giant kelp occurs in the eastern portion of the
13 Ellwood area offshore from Pier 421-2 (Chambers Group 1987). The rocky subtidal
14 habitat off Ellwood consists of low rocky reef in 25 to 35 foot water depth. Dominant
15 invertebrates in this habitat include pholad clams, the tunicate *Styela montereyensis*,
16 the urchins *Strongylocentrotus franciscanus*, *S. purpuratus*, and *Lytechinus anamesus*
17 as well as the hydroid *Aglaopenia struthionides*. Giant kelp is common on these low
18 reefs. Other kelp species in this habitat include *Egregia menziesii* and *Cystoseira*
19 *osmundacea*.

20 Significant subtidal rocky habitat supporting a large kelp forest occurs offshore of the
21 Isla Vista area between Coal Oil Point and Goleta Point east of PRC 421. Common
22 invertebrates in this area include Kellet's whelk, wavy top shell (*Astraea undosa*), sea
23 urchins (*S. strongylocentrotus* and *S. purpuratus*), tunicates (*Styela montereyensis*), sea
24 stars (*Pisaster giganteus* and *P. brevispinus*) and giant keyhole limpets (*Megathura*
25 *crenulata*) (N. Davis, personal observations). In addition to giant kelp, the brown alga
26 *Pterygophora californica* is common in the Isla Vista kelp bed.

27 Naples Reef, located approximately 2 miles to the northwest of PRC 421, is a significant
28 rocky reef and kelp area that is designated as an ESHA in the Santa Barbara County
29 LCP (Santa Barbara County 1982). Naples Reef supports a great diversity of
30 invertebrates and algae. The reef is about 1 acre in size and averages 26 to 40 foot
31 depth (Chambers Group 1987). Naples Reef is an important fishing and SCUBA diving
32 area and has been used as a research site by UCSB marine biologists for decades.

33 *Fishes*

34 Common water column fishes in the upper water column and near-shore waters of the
35 study area include northern anchovy and Pacific mackerel (*Scomber japonicus*) and
36 predatory schooling fishes, such as Pacific bonito (*Sarda chilensis*) and yellowtail
37 (*Seriola lalandi*); and by large solitary predators, like blue sharks (*Prionice glauca*) and
38 swordfish (*Xiphias gladius*) (Cross and Allen 1993). Northern anchovy is the most

1 abundant epipelagic fish in the study area (Aspen 2005). The largest schools occur
2 within 25 miles of the coast over deepwater, particularly escarpments and submarine
3 canyons. During daylight hours in summer and fall, large compact anchovy schools may
4 be found at depths of 360 to 600 feet. These schools rise to the surface at night and
5 disperse. In spring, many small schools are found at the surface during the day, and the
6 fish scatter over a wide area at night. Most fishes of the epipelagic zone are widely
7 distributed in the study area.

8 Common water column species of near-shore soft bottoms include jacksmelt
9 (*Atherinopsis californiensis*), topsmelt (*Atherinops affinis*), California grunion
10 (*Leuresthes tenuis*), queenfish, walleye surfperch (*Hyperprosopon argenteum*), white
11 seaperch (*Phanerodon furcatus*), northern anchovy, and white croaker (*Genyonemus*
12 *lineatus*), a bottom feeder that lives in the water column (Cross and Allen 1993;
13 Chambers Group 1994). A number of other water column species including Pacific
14 bonito, jackmackerel (*Trachurus symmetricus*), and brown smoothhound (*Mustelus*
15 *henlei*) also sometimes occur in near-shore waters. Most of the water column species
16 found in California near-shore waters are widely distributed from bays and estuaries out
17 to ocean depths of 100 feet or more (Love 1996).

18 Demersal fishes of the study area soft bottom habitats in the study area a total of at
19 least 143 species of fish, with white croaker, Pacific sanddab (*Citharichthys sordidus*),
20 California lizardfish (*Synodus lucioceps*), and queenfish among the most abundant
21 (Allen et al. 2002). The lowest values of fish abundance, biomass, and species richness
22 are generally found on the inner shelf at depths shallower than 100 feet, with the middle
23 shelf of depths of 100 to 400 feet having higher numbers of species (Allen et al. 2002).

24 Characteristic species of the inner shelf include California halibut, barred sand bass
25 (*Paralabrax nebulifer*), speckled sanddab (*Citharichthys stigmaeus*), and white croaker
26 (Allen et al. 2002). Species typical of the middle shelf include yellowchin sculpin
27 (*Icelinus quadriseriatus*), hornyhead turbot (*Pleuronichthys verticalis*), bigmouth sole
28 (*Hippoglossina stomata*), longfin sanddab (*Citharichthys xanthostigma*), California
29 lizardfish, longspine combfish (*Zaniolepis latipinnis*), pink seaperch (*Zalemibus*
30 *rosaceus*), plainfin midshipman (*Porichthys notatus*), and California tonguefish
31 (*Symphurus atricaudus*). Finally, abundant species of the outer shelf, at water depths of
32 430 feet or greater, included Dover sole (*Microstomus pacificus*), Pacific sanddab,
33 slender sole (*Lyopsetta exilis*), and shortspine combfish (*Zaniolepis frenata*).

34 The most abundant fish observed in soft bottom habitat during underwater surveys off
35 Ellwood was the speckled sanddab (Chambers Group 1987). Other fish species
36 observed in the sandy subtidal off Ellwood included thornback ray (*Platyrrhinoides*
37 *triseriata*), California halibut, California lizardfish, pipefish (*Syngnathus* sp.), diamond
38 turbot, and round stingray (*Urolophus halleri*).

1 Many fish species are associated with rocky habitat. Fishes congregate around rocky
2 features. Fish abundance on reefs is related to the presence or absence of kelp
3 (*Macrocystis pyrifera*) and substrate relief, although bottom relief greater than 3 feet has
4 been found to have little effect on fish species diversity and abundance (Cross and
5 Allen 1993).

6 Common fish species of shallow reefs in the study area include garibaldi (*Hypsypops*
7 *rubivunda*), blacksmith (*Chromis punctipinnis*), bass (*Paralabrax* spp), halfmoon
8 (*Medialuna californiensis*), sheephead (*Semicossyphus pulcher*), opaleye (*Girella*
9 *nigricans*), painted greenling (*Oxylebius pictus*), rock wrasse (*Halichoeres semicinctus*),
10 seniorita (*Oxyjulis californica*), and various species of surf perches (Family
11 Embiotocidae) and rockfish (Cross and Allen 1993). Deep reefs are dominated by
12 rockfish.

13 Depletion of rocky substrate fishes by over fishing has recently become of considerable
14 concern. Species considered over fished include widow rockfish (*Sebastes entomelas*),
15 canary rockfish (*Sebastes pinniger*), yelloweye rockfish (*Sebastes ruberrimus*),
16 darkblotched rockfish (*Sebastes crameri*), bocaccio (*Sebastes paucispinus*), Pacific
17 ocean perch (*Sebastes alutus*), lingcod (*Ophiodon elongates*), and cowcod (*Sebastes*
18 *levis*). To protect these species, Cowcod Conservation Areas have been established.

19 The most frequently observed fish species in rocky areas during underwater surveys off
20 Ellwood was the kelp bass (*Paralabrax clathratus*) (Chambers Group 1987). Other
21 common fish species associated with shallow water hard substrate at Ellwood included
22 blacksmith, sheephead, seniorita, pile perch (*Rhacochilus vacca*), black perch
23 (*Embiotica jacksoni*), sand bass, lingcod, cabezon (*Scorpaenichthys marmoratus*),
24 sarcastic fringehead (*Neoclinus blanchardii*), and several species of rockfish (*Sebastes*
25 *atrovirens*, *S. caurinus*, *S. chrysomelas*, and *S. rastrelliger*).

26 Fish species killed during detonations to remove an abandoned pier from PRC 421 in
27 October 2005 were identified and counted (Howarth 2006). The most abundant fish
28 species affected by explosives on PRC 421 were topsmelt and Pacific sardine
29 (*Sardinops sagax caeruleus*). Other species collected included jack mackerel, black
30 surfperch, rainbow surfperch (*Hypsurus caryi*), shiner surfperch (*Cymatogaster*
31 *aggregate*), white surfperch, kelp surfperch (*Brachyistius frenatus*), striped surfperch
32 (*Embiotica lateralis*), rubberlip surfperch (*Rhacochilus toxotes*), halfmoon, sheephead,
33 giant kelpfish (*Heterostichus rostratus*), pink surfperch, and several rockfishes
34 (*Sebastes chrysomelas*, *S. rastrelliger*, *S. atrovirens*, *S. serranoides*, and *S.*
35 *paucispinis*).

36 Sandy intertidal habitat in Southern California is used for spawning by a near-shore fish,
37 the California grunion, which lays its eggs in the high intertidal zone between March and
38 August. During the grunion spawning season, eggs and developing embryos are buried

1 in the sand to incubate between the highest tides of each month, at the full and new
2 moon. Beaches in the Project area are used by grunion (City of Goleta 2006).

3 *Seabirds*

4 The continental shelf in the study area is biologically productive and supports a wide
5 variety of seabirds, many in high densities (Mills et al. 2005). Their distribution and
6 abundance is subject to temporal fluctuations, both seasonally and from year to year, as
7 prey population densities fluctuate. Seabirds are wide-ranging and many of the seabirds
8 that occur in the Project area migrate seasonally through the area. Other species are
9 resident to the area. Many species roost and nest on the Channel Islands. Seabirds
10 forage widely. Those roosting and nesting on the Channel Islands forage in offshore
11 waters and around the islands, but many species including brown pelicans (*Pelecanus*
12 *occidentali californicus*) and cormorants (*Phalacrocorax* spp.) often fly from the islands
13 each day to forage in near-shore waters. Seabirds, sea ducks (scoters), loons (*Gavia*
14 spp.), and western grebes (*Aechmorphism occidentalis*) constitute most of the avifauna
15 that use the study area (Baird 1993). Seabird densities tend to be greatest near the
16 northern Channel Islands (i.e., San Miguel, Santa Rosa, Santa Cruz, and Anacapa) in
17 winter and north of Point Conception in spring. Seabird densities are higher along island
18 and mainland coastlines as compared to the open ocean (Mills et al. 2005).

19 Seabirds tend to congregate at the shelf/slope break, where water depth increases
20 rapidly from about 330 to 6,500 feet. The shelf break/slope fronts and convergences are
21 important habitats for seabirds due to physical processes that promote productivity and
22 concentrate prey (Mills et al. 2005). The diversity of seabirds in the study area is lowest
23 from May to August and highest from fall to early spring (Baird 1993).

24 The Channel is noted for its rich marine avifauna (Chambers Group 1992). A variety of
25 marine birds including pelicans, gulls, terns, sea ducks, cormorants, grebes and true
26 sea birds occur in the near-shore waters off the Santa Barbara coast and would be
27 expected in the Ellwood area. Large numbers of seabirds pass through the area during
28 this migration on their way to northern breeding grounds. Lehman recorded spring
29 seabird migration at Goleta Point, approximately 3 miles east of PRC 421 (Lehman
30 1994). The most abundant species observed were Arctic loon (*Gavia arctica*), surf
31 scoter (*Melanitta perspicillata*), brant (*Branta bernicia*), Brandt's cormorant
32 (*Phalacrocorax pencillatus*), Bonaparte's gull (*Larus philadelphia*) and Forster's tern
33 (*Sterna forsteri*).

34 The Channel Islands, especially the northern islands, are extremely important breeding
35 areas for seabirds. These islands support 12 breeding species, including the State's
36 entire population of brown pelicans, Xantus's murrelets (*Synthliboramphus hypoleucus*
37 *scrippsi*), and black storm-petrels (*Oceanodroma melania*) (Mills et al. 2005). The
38 greatest number of species and individual breeding seabirds occur on San Miguel

1 Island (Mills et al. 2005). The California brown pelican breeds on Anacapa and Santa
2 Barbara Islands.

3 In the fall of 2005, the offshore portion of Pier 421-1, which had become separated from
4 the mainland pier and remained under ARCO's ownership, was removed. This pier,
5 which became known as "Bird Island," supported large numbers of roosting brown
6 pelicans and cormorants (*Phalacrocorax* spp.) and also supported nesting by Brandt's
7 cormorants. In addition to brown pelicans and cormorants, other marine birds that were
8 observed to use the old pier included snowy egret (*Egretta thula*), little blue heron (*E.*
9 *caerulea*), Heermann's gull (*Larus heermanni*), California gull (*L. californicus*), and
10 western gull (*L. occidentalis*) (Compton 2006). The pier was located about 850 feet
11 offshore in 32 feet of water and consisted of a wooden deck with steel supports.

12 To compensate for the loss of bird habitat from removal of the pier, a new structure was
13 installed. Each of the new structures consists of a large column supporting three
14 triangularly shaped platforms projecting out from the column at different directions and
15 at slightly different heights (Compton 2006). Below these three platforms is a circular
16 ledge extending all the way around the column. The structures are arranged in a line
17 extending southwest to northeast in the same general area as the abandoned pier. The
18 Audubon Society was contracted to survey the structures after completion, and have
19 observed nesting Brandt's cormorant, brown pelican, double-crested cormorant (*P.*
20 *auritus*), snowy egret, Heermann's gull, and western gull (Santa Barbara Audubon
21 Society 2011). Between 2005 and 2010, Brandt's cormorant was by far the most
22 abundant species on the structures, and use by other bird species was noted to be less
23 than for the old pier (Santa Barbara Audubon Society 2011).

24 The waters off Ellwood were monitored for marine mammals during the removal of the
25 old pier on PRC 421. The monitors also recorded observations on seabirds. Seabirds
26 observed in Project area waters included California brown pelican, Brandt's cormorant,
27 double-crested cormorant, Arctic loon, brant, western gull, Heermann's gull, California
28 gull, horned grebe (*Podiceps auritus*) and great egret (*Casmerodius albus*).

29 *Marine Mammals*

30 The marine mammal fauna of the study area includes at least 34 species that have been
31 identified from sightings or strandings (Bonnell and Daily 1993). All marine mammals are
32 protected under the Marine Mammal Protection Act of 1972 (MMPA). Marine mammals
33 that may occur in the Project area include mysticetes (baleen whales), odontocetes
34 (toothed whales), pinnipeds (seals and sea lions), and the southern sea otter (*Enhydra*
35 *lutris nereis*). Six species of cetacean are listed as Federal endangered. Two species of
36 pinniped and the southern sea otter are listed as Federal threatened. Listed marine
37 mammals are discussed in detail in the Sensitive Marine Species section below.

1 California gray whales (*Eschrichtius robustus*) pass through California during their
2 annual migrations between their summer feeding grounds in Alaska and their breeding
3 and calving grounds in Baja California. They are the most common baleen whale in the
4 Channel. Southbound gray whales usually occur in the study area between December
5 and mid-February (Bonnell and Daily 1993). The northbound migration occurs between
6 mid-February and May. Gray Whales Count observed southbound gray whales from
7 November to April and northbound gray whales from January to mid-May (Gray Whales
8 Count 2007). The migration pathway through the study area is broad and somewhat
9 diffuse (Bonnell and Daily 1993). Some whales travel close to the mainland while others
10 follow a more offshore route along the Channel Islands.

11 The Channel Islands support pinniped rookeries for four species – California sea lions
12 (*Zalophus californianus*), northern fur seals (*Callorhinus ursinus*), northern elephant
13 seals (*Mirounga angustirostris*), and harbor seals (*Phoca vitulina richardsi*) (Aspen
14 2005). Two of the Channel Islands, San Miguel and San Nicolas, are the largest
15 pinniped rookeries on the west coast south of Alaska. California sea lions are the most
16 abundant pinniped in the Santa Barbara Channel.

17 Marine mammals in the Project area were monitored during the demolition of the
18 abandoned pier on PRC 421 in October and November 2005. The most frequently
19 sighted species were harbor seals and California sea lions. Bottlenose dolphins
20 (*Tursiops truncatus*) also were observed frequently. Between 55 and 75 common
21 dolphin (*Delphinus* sp.) were seen about 3 nautical miles (nm) from the pier.

22 In August 2006, from their observation location at Coal Oil Point, Gray Whales Count
23 observed 34 southbound gray whales (including one calf), 989 bottlenose dolphins
24 (including 217 calves), 12 sea otters, 40 humpback whales, 28 unidentified large
25 whales, and one northern elephant seal. Over the course of 2007, Gray Whales Count
26 observed 567 northbound gray whales (including 52 calves), 28 southbound gray
27 whales, 901 bottlenose dolphins (including 24 calves), 1,060 common dolphin species,
28 three Pacific white-sided dolphins, 66 sea otters, eight unidentified large whales, six
29 humpback whales, and one northern elephant seal (Gray Whales Count 2007).

30 Harbor seals haul out about 0.4 mile east of Naples Point at a site known locally as
31 “Burmah Beach,” about 2 miles up the coast from the PRC 421 wells. This secluded
32 hauling ground and rookery has been used both day and night by as many as 200
33 harbor seals (Santa Barbara County 2008). The Naples harbor seal rookery is
34 designated an ESHA in the Santa Barbara County LCP (Santa Barbara County 1982).

35 *Sensitive Marine Species*

36 Table 4.6-1 lists sensitive marine species that may occur in the Ellwood area.

Table 4.6-1. Listed Marine Species that May Occur in the Ellwood Area

Common Name	Scientific Name	Status	Habitat	Notes/Occurrence	Frequency
Invertebrates					
White Abalone	<i>Haliotis sorenseni</i>	FE	Open, low relief rock or boulder habitat surrounded by sand at 80 to 200 feet depths (Hobday and Tegner 2000)	Point Conception to Baja CA; in water as shallow as 25 feet in the Santa Barbara Channel (Aspen 2005)	Moderate
Fishes					
Southern Steelhead	<i>Oncorhynchus mykiss</i>	FE (south of Point Conception); CSC	Anadromous; returns to natal streams and rivers to spawn;	Spawns in coastal streams in Santa Barbara County	High
Reptiles					
Loggerhead Sea Turtle	<i>Caretta caretta</i>	FT	Open ocean, coastal waters, and beaches	Nest primarily near Japan and Australia (Aspen 2005); occasionally observed off southern CA usually during the summer months	Low
Pacific Ridley Sea Turtle	<i>Lepidochelys olivacea</i>	FT	Open ocean, coastal waters, and beaches tropical and warm temperate waters	Nesting beaches are along the coasts of Mexico and Costa Rica (Aspen 2005); infrequent visitors to waters north of Mexico, although stranded turtles have been found as far north as Washington	Low
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	FE	Open ocean, coastal waters, and beaches	Most common sea turtle in U.S. waters north of Mexico; frequently off CA during the summer and fall over the continental slope (Aspen 2005); eastern pacific migratory corridor occurs along the west coast of the U.S. and Mexico	Low
Birds					
California Least Tern	<i>Sterna antillarum browni</i>	FE; SE (nesting colony)	Near-shore waters; breeding populations in CA restricted to coastal locations; forage close to their breeding colonies in bays, harbors, and near-shore ocean waters	Least terns successfully produced chicks at Coal Oil Point in 2006 for the first time in 40 years.	High
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	FT; SE	Forages in near-shore waters	Late summer, fall, winter visitor to southern CA, including Channel Islands	Moderate

Table 4.6-1. Listed Marine Species that May Occur in the Ellwood Area (continued)

Common Name	Scientific Name	Status	Habitat	Notes/Occurrence	Frequency
Xantus' Murrelet	<i>Synthliboramphus hypoleucus</i>	ST	Forages in near-shore waters	Breeds on Santa Barbara, Anacapa, and San Clemente Islands	Moderate
Mammals					
Guadalupe Fur Seal	<i>Arctocephalus townsendi</i>	FT	Rocky shorelines and caves	Breeds primarily on Isla de Guadalupe off Baja CA, Mexico coast (Carretta et al. 2004); second rookery was discovered at Isla Benito del Este, Baja CA; individual animals appear regularly at the Channel Islands (Aspen 2005)	Low
Steller Sea Lion	<i>Eumetopias jubatus</i>	FT	Rocky and sandy beaches; temperate waters	Southernmost breeding ground is Año Nuevo Island in central CA (Aspen 2005); uncommon in southern CA (Bonnell and Dailey 1993)	Low
Southern Sea Otter	<i>Enhydra lutris nereis</i>	FT	Shallow near-shore waters with rocky or sandy bottoms that support large populations of their benthic invertebrate prey (Aspen 2005)	Population occurs primarily from north of Año Nuevo Island in to Point Conception (U.S. Geological Survey [USGS] 2004); small numbers observed regularly east of Point Conception	High
Blue Whale	<i>Balaenoptera musculus</i>	FE	Cold and temperate waters offshore	Aggregate in Santa Barbara Channel along the shelf break at about the 650 feet isobath (Aspen 2005); most frequent west of San Miguel Island and along the north sides of San Miguel and Santa Rosa, and the western half of Santa Cruz Island; offshore Channel Islands (Larkman and Veit 1998)	Low
Sei Whale	<i>Balaenoptera borealis</i>	FE	Temperate and subtropical waters	Wintering grounds to feeding grounds that extend from west of the Channel Islands as far north as Alaska in summer (Aspen 2005); rare in CA waters	Low
Fin Whale	<i>Balaenoptera physalus</i>	FE	Cold and temperate waters offshore	Summer distribution is generally offshore and south of the northern Channel Island chain, particularly over the Santa Rosa-San Nicolas Ridge	Low

Table 4.6-1. Listed Marine Species that May Occur in the Ellwood Area (continued)

Common Name	Scientific Name	Status	Habitat	Notes/Occurrence	Frequency
Humpback Whale	<i>Megaptera novaeangliae</i>	FE	Migrate along submarine ridges and occasionally enter the coastal waters of the San Pedro and Santa Barbara Channels (Lagomarsino and Price 2001)	Summer through fall along the shelf break off the Channel Islands (Aspen 2005)	Low
North Pacific Right Whale	<i>Eubalaena japonica</i>	FE	Temperate waters along the shelf and slope	Since 1955, only five sightings of right whales have been recorded in waters off southern CA (Aspen 2005)	Low
Sperm Whale	<i>Physeter macrocephalus</i>	FE	Offshore waters year-round in water depths greater than 3330 feet	Peak abundance from April to mid-June and again from late August through November as they pass by during migration (Aspen 2005)	Low

FE = Federal Endangered; ST = State Threatened; FT = Federal Threatened; SE = State Endangered; FP = CDFW Fully Protected.

1 **White Abalone (*Haliotis sorenseni*) – Federal Endangered:** In May 2001, white
2 abalone became the first marine invertebrate to be listed as a Federal endangered
3 species. White abalone is a mollusk that occurs on rocky habitat from Point Conception
4 to Baja California at 80 to 200 feet depths (Hobday and Tegner 2000). White abalone
5 has been recorded in water as shallow as 25 feet in the Santa Barbara Channel (Aspen
6 2005). White abalone are typically found in open low relief rock or boulder habitat
7 surrounded by sand (Hobday and Tegner 2000). There has been a greater than 99
8 percent decline in both the abundance and density of white abalone in California since
9 the 1970s (Hobday and Tegner 2000). The abalone fishery contributed to the decline of
10 white abalone by over harvesting and reduced the density to the point where
11 recruitment success has been unlikely. White abalone have a moderate potential to
12 occur in rocky habitat in the Ellwood area.

13 **Southern Steelhead (*Oncorhynchus mykiss*) – Federal Endangered:** Steelhead are
14 the ocean-going form of rainbow trout. They spawn in coastal streams, but spend their
15 adult lives in the ocean. The southern Evolutionarily Significant Unit of steelhead
16 extends from the Santa Maria River in San Luis Obispo County to the U.S.-Mexican
17 Border. Steelhead occur at times in many of the coastal streams in Santa Barbara
18 County. Steelhead enter their home streams from November to April to spawn (Aspen
19 2005). Juveniles usually migrate to sea in spring.

20 **Green Sea Turtle (*Chelonia mydas*) – Federal Threatened:** Green sea turtles nest
21 primarily in Mexico and on the Galapagos Islands (Aspen 2005). Off the Pacific coast,
22 sightings have been recorded as far north as British Columbia, although most
23 observations of this species are from northern Baja California and Southern California

1 (Aspen 2005). Green sea turtles once were common in San Diego Bay, but now appear
2 to be limited to a single channel in the southern part of the bay where they are year-
3 round residents (Aspen 2005). Green sea turtles are seen from time to time off the
4 Southern California coast, usually during the summer months.

5 **Loggerhead Sea Turtle (*Caretta caretta*) – Federal Threatened:** Loggerhead sea
6 turtles occur worldwide, but nest primarily near Japan and Australia (Aspen 2005).
7 Loggerhead sea turtles are occasionally observed off Southern California during the
8 summer months. In 2005, the National Marine Fisheries Service (NMFS) issued a final
9 rule to protect loggerhead sea turtles that follow warmer El Niño currents and risk
10 becoming entangled in drift gillnet fishing operations. The regulation prohibits drift gillnet
11 fishing in U.S. waters off Southern California for the months of June, July, and August
12 during an El Niño year that raises sea surface temperatures off Southern California.

13 **Pacific Ridley Sea Turtle (*Lepidochelys olivacea*) – Federal Threatened:** This
14 species also sometimes is called the Olive Ridley sea turtle. Ridley sea turtles occur
15 worldwide in tropical and warm temperate waters. In the eastern north Pacific, this
16 species' major nesting beaches are along the coasts of Mexico and Costa Rica (Aspen
17 2005). These sea turtles are infrequent visitors to waters north of Mexico, although
18 stranded Ridley sea turtles have been found as far north as Washington. A Ridley sea
19 turtle was stranded at Ellwood Beach in 2004 (J. Cordaro, NMFS, pers. com. 2006).

20 **Leatherback Sea Turtle (*Dermochelys coriacea*) – Federal Endangered:**
21 Leatherback sea turtles in the eastern Pacific are probably part of the western Mexico,
22 Central America, and northern Peru breeding population (Aspen 2005). Leatherbacks
23 are the most common sea turtle in U.S. waters north of Mexico. Leatherback sea turtles
24 are sighted relatively frequently off California, particularly during the summer and fall.
25 Most observations of leatherback sea turtles off California have been over the
26 continental slope (Aspen 2005). It has been suggested that an eastern Pacific migratory
27 corridor for leatherback sea turtles occurs along the west coast of the U.S. and Mexico.

28 **California Least Tern (*Sterna antillarum browni*) – Federal Endangered; State**
29 **Endangered:** The California least tern ranges from the San Francisco Bay area
30 southward into South America. They are present in California during their breeding
31 season of mid-April to mid-September. Recently, least terns have started nesting at the
32 Coal Oil Point Reserve, just east of Ellwood, and in 2006 produced the first chicks there
33 in 40 years. Least terns forage close to their breeding colonies in bays, harbors, and
34 near-shore ocean waters. Least terns forage in the ocean from just beyond the surf line
35 to up to 1 to 2 miles out to sea (Collins et al. 1979). The majority of least tern foraging in
36 the ocean is within 1 mile of shore in water less than 60 feet deep (Atwood and Minsky
37 1983). Least terns would be expected to forage in Project area waters during their
38 breeding season.

1 **Xantus' Murrelet (*Synthliboramphus hypoleucus*) – State Threatened:** Xantus'
2 murrelets range from Baja California to Oregon and Washington. Xantus' murrelets are
3 common spring and summer residents to the Channel Islands and near-shore islands
4 and offshore mainland waters (Lehman 1994). They nest colonially in only 12 to 15
5 locations, including Santa Barbara, Anacapa, San Miguel, Santa Catalina, San
6 Clemente, and Santa Cruz Islands. Santa Barbara Island contains the largest breeding
7 concentration of this species in the world (Burkett et al. 2003). An effort to remove black
8 rats from Anacapa Island has re-established nesting by Xantus' murrelets there. This
9 species forages throughout the study area from these nest sites, particularly in the area
10 between Santa Barbara and Santa Catalina Islands and the mainland, but densities are
11 low (Mills et al. 2005).

12 **Marbled Murrelet (*Brachyramphus marmoratus*) – Federal Threatened; State**
13 **Endangered:** Marbled murrelets are very rare late summer, fall, and winter visitors to
14 near-shore waters in Southern California, including several of the Channel Islands
15 (Lehman 1994). They breed in old-growth coniferous forests along the north coast of
16 California northward through coastal British Columbia and Alaska. The U.S. Fish and
17 Wildlife Service (USFWS) designated critical habitat for this species, and a recovery
18 plan is in effect. The breeding range in California is north of Monterey County. Like
19 Xantus' murrelet, this species forages in near-shore waters around the islands, as well
20 as more widely in the study area, which could bring them to Ellwood, but the species is
21 expected to occur here in very low numbers.

22 **Guadalupe Fur Seal (*Arctocephalus townsendi*) – Federal Threatened:** Guadalupe
23 fur seals breed primarily on Isla de Guadalupe off the coast of Baja California, Mexico
24 (Carretta et al. 2004). In 1997, a second rookery was discovered at Isla Benito del Este,
25 Baja California. Individual animals appear regularly at the Channel Islands, and a single
26 pup was born on San Miguel Island in 1997 (Aspen 2005).

27 **Steller Sea Lion (*Eumetopias jubatus*) – Federal Threatened:** Steller sea lions occur
28 from the Bering Strait in Alaska to Southern California. Their southernmost breeding
29 ground is Año Nuevo Island in Central California (Aspen 2005). Steller sea lions are
30 uncommon in the study area (Bonnell and Dailey 1993). A few adult or subadult males
31 are sometimes seen during the summer around the west end of San Miguel Island, but
32 no breeding has occurred in Southern California since 1980. Steller sea lions would be
33 very unlikely to occur in the Project area off Ellwood.

34 **Southern Sea Otter (*Enhydra lutris nereis*) – Federal Threatened:** The southern sea
35 otter ranges from north of Año Nuevo Island in to Point Conception (USGS 2004).
36 Although the sea otter population is concentrated in central California, otters are
37 frequently sighted south of Point Conception. In January 1999, more than 150 otters
38 were counted south of Point Conception (Aspen 2005). In the spring 2004 sea otter
39 survey, 8 sea otters were observed southeast of Point Conception and in spring 2006,

1 93 sea otters were counted east of the Point (USGS 2004, 2006). Sea otters are
2 relatively rare in the vicinity of Ellwood but they would be expected to occur in the
3 Project area. A sea otter was sighted off More Mesa (Howarth 2006) and in September
4 of 2006, one was seen in Goleta Bay (N. Davis, personal observation 2006). Sea otters
5 usually inhabit shallow near-shore waters with rocky or sandy bottoms that support
6 large populations of their benthic invertebrate prey (Aspen 2005). In California, otters
7 generally live in waters less than 60 feet deep and less than 1.2 miles offshore.

8 **Blue Whale (*Balaenoptera musculus*) – Federal Endangered:** In the eastern north
9 Pacific, blue whales are found from the Gulf of Alaska south to at least Costa Rica
10 (Aspen 2005). In Southern California, blue whales tend to aggregate in the Santa
11 Barbara Channel along the shelf break at about the 650 feet isobath (Aspen 2005). Blue
12 whale occurrence in Southern California is strongly seasonal. Blue whales tend to be
13 present in California waters in June through October with peak numbers in August
14 through October (Larkman and Veit 1998). They are almost never seen in winter. Blue
15 whale sightings are most frequent west of San Miguel Island and along the north sides
16 of San Miguel, Santa Rosa, and the western half of Santa Cruz Island. All blue whales
17 observed in the study area during CalCOFI cruises between 1987 and 1995 were
18 offshore of the Channel Islands (Larkman and Veit 1998). The largest aggregations
19 were seen off San Miguel Island and southwest of the south end of San Clemente
20 Island. The stock estimate was 1,480 whales in 2004 (Carretta et al. 2004).

21 **Sei Whale (*Balaenoptera borealis*) – Federal Endangered:** Sei whales migrate
22 northward from wintering grounds in temperate and subtropical waters to feeding
23 grounds that extend from west of the Channel Islands as far north as Alaska in the
24 summer (Aspen 2005). Sei whales are rare in California waters. The population off
25 California is believed to be very low (i.e., tens to several hundred).

26 **Fin Whale (*Balaenoptera physalus*) – Federal Endangered:** Fin whales occur year-
27 round off central and Southern California with peak numbers in summer and fall (Aspen
28 2005). In the study area, summer distribution is generally offshore and south of the
29 northern Channel Island chain, particularly over the Santa Rosa-San Nicolas Ridge.
30 Estimates place the fin whale population between California and Washington at about
31 3,279 animals (Carretta et al. 2004). Fin whales may occasionally occur within the
32 Project area, but they would be expected to be rare.

33 **Humpback Whale (*Megaptera novaeangliae*) – Federal Endangered:** Humpback
34 whales occur in California in summer through fall. In the study area, humpback whales
35 tend to concentrate along the shelf break off the Channel Islands (Aspen 2005).
36 Humpbacks often migrate along submarine ridges and occasionally enter the coastal
37 waters of the San Pedro and Santa Barbara channels (Lagomarsino and Price 2001).
38 The total humpback whale population in the North Pacific is now believed to number

1 more than 6,000 animals with the 2004 estimate for the California/Mexico stock at 681
2 (Carretta et al. 2004).

3 **North Pacific Right Whale (*Eubalaena japonica*) – Federal Endangered:** Since 1955,
4 only five sightings of right whales have been recorded in waters off Southern California
5 (Aspen 2005). All of these sightings were recorded between February and May.

6 **Sperm Whale (*Physeter macrocephalus*) – Federal Endangered:** Sperm whales are
7 the largest of the toothed whales. Off California, sperm whales are present in offshore
8 waters year-round, with peak abundance from April to mid-June and again from late
9 August through November as they pass by during migration (Aspen 2005). Sperm
10 whales are a pelagic species and usually are found in water depths greater than 3,300
11 feet. A 2004 abundance estimate for the sperm whale population along the west coast
12 of the U.S. between Washington and California was 1,233 whales (Carretta et al. 2004).

13 In addition to the aforementioned Federal and State threatened and endangered marine
14 species, several species of special concern to the State are known to frequent the
15 Project area. These include, but are not limited to, great egret (*Ardea alba*), great blue
16 heron (*Ardea herodias*), and long-billed curlew (*Numenius americanus*).

17 **Commercial and Recreational Fishing**

18 *Fisheries in the Santa Barbara Channel*

19 A wide variety of finfish and shellfish species are harvested in the Santa Barbara
20 Channel. Commercial and recreational fish harvests are tracked by the California
21 Department of Fish and Wildlife (CDFW) and monthly catch data are reported within
22 rectangular blocks, covering 100 square miles (mile²) each. A total of 179 different fish
23 taxa were harvested commercially in the 27 fish blocks within the Santa Barbara
24 Channel from 1999 to 2005 (CDFW 2006). From 1999 to 2005, the 199,000-ton harvest
25 was valued at \$92.1 million.

26 A few major taxonomic groups represented the bulk of the commercial catch in the
27 Santa Barbara Channel. In particular, market squid (*Loligo opalescens*) represented
28 almost 70 percent of the biomass and 44 percent of the dollar value of the catch.
29 Urchins (*Strongylocentrotus franciscanus*), California spiny lobster (*Panulirus*
30 *interruptus*), California halibut, crab (*Cancer* spp.), prawns (*Sicyonia ingentis* and
31 *Pandalus platyceros*), sardines (*Sardinops sagax*), and anchovies (*Engraulis mordax*)
32 made up most of the remaining biomass. Together with the market squid, these groups
33 made up nearly 92 percent of the catch value and 98 percent of the catch biomass
34 within the Channel between 1999 and 2005.

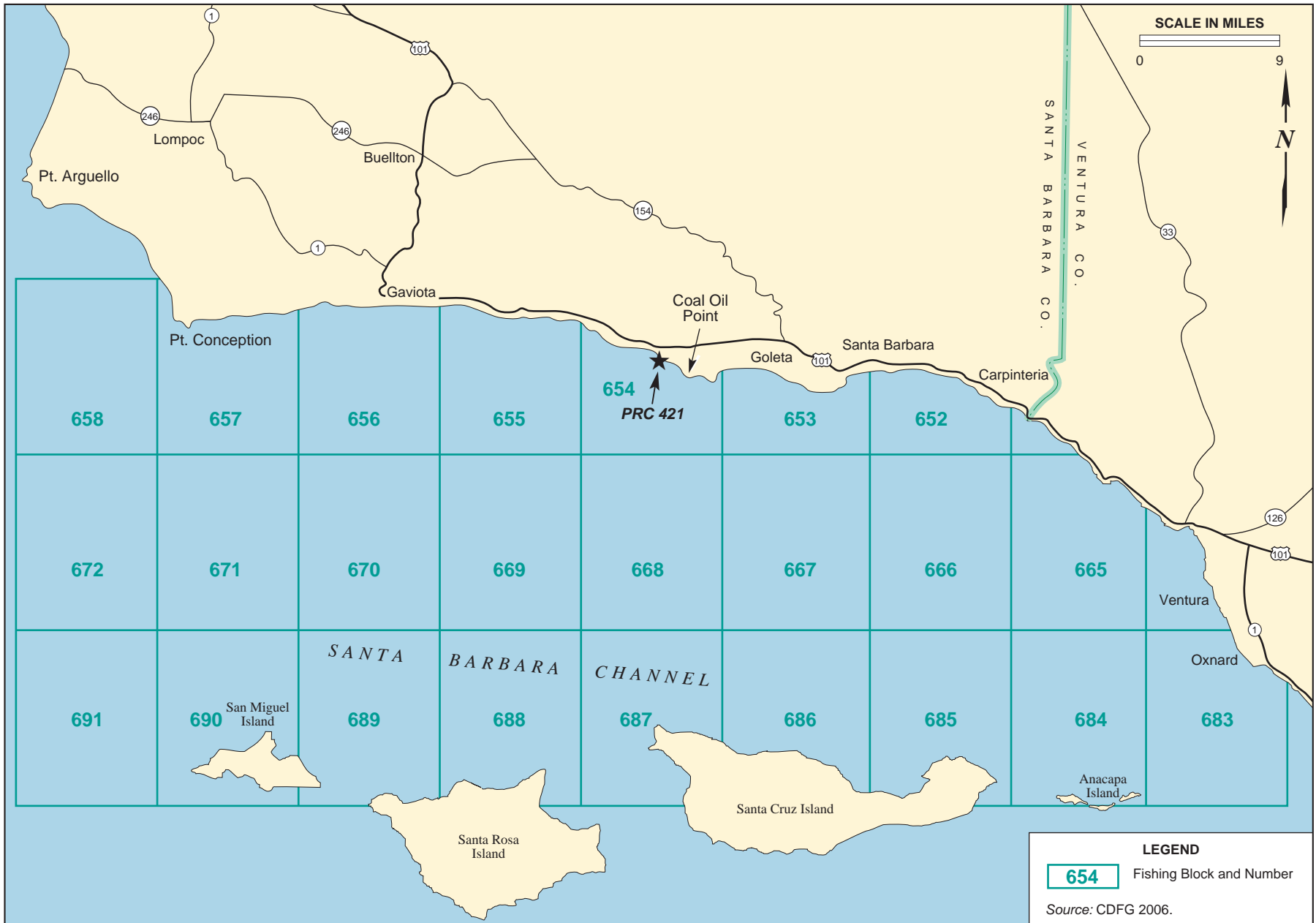


FIGURE 4.6-3

1 The commercial fishery within the Santa Barbara Channel may fluctuate dramatically
 2 during El Niño events, and landings differ substantially among ports. In addition, the
 3 catch is not uniformly distributed across the Channel. Instead, it is heavily weighted
 4 toward the Channel Island area (catch blocks 684 through 690 in Figure 4.6-3), which
 5 encompass only 12.8 percent of the Santa Barbara Channel area, yet accounted for 50
 6 percent of the value and 44 percent of the total biomass of the commercial fisheries
 7 within the Channel between 1999 and 2005. Comparatively, the Project area (catch
 8 block 654) accounted for 2 percent of the total value and 0.31 percent of the total
 9 biomass caught within the Santa Barbara Channel between 1999 and 2005. The total
 10 value for catch landed from block 654 was \$1.8M, which consisted primarily of lobster,
 11 prawns, urchin, halibut, and sea cucumber.

12 *Recreational Fishing*

13 Recreational fishing in the Santa Barbara Channel is conducted from private or charter
 14 vessels, piers, or from the shoreline (e.g., beaches, jetties, breakwaters). Other than
 15 fishing logs maintained by the commercial passenger fishing vessel (CPFV) fleet,
 16 reliable recreational fish-landing data are not available. Fish landed (numbers of fish) by
 17 the CPFV fleet that fished in the Santa Barbara Channel area from 1997 through 2003
 18 are provided in Table 4.6-2. The numbers are conservative estimates of CPFV catch
 19 because not all CPFV operators participate in the logbook program (CSLC 2009).

Table 4.6-2. Ranking of Fish Recreationally Harvested in the Santa Barbara Channel from 1997 to 2003

Common Name	Scientific Name	SB Channel Total ¹	Island Fraction ²	Mainland/Open Fraction
Rockfish	<i>Sebastes</i> sp.	724,782	64.3%	35.7%
Kelp Bass	<i>Paralabrax clathratus</i>	251,840	40.9%	59.1%
Barred Sand Bass	<i>Paralabrix nebulifer</i>	249,997	8.5%	91.5%
Ocean Whitefish	<i>Caulolatilus princeps</i>	168,015	84.6%	15.4%
Barracuda	<i>Sphyræna</i> sp.	119,611	48.6%	51.4%
Rock Scallop	<i>Crassedoma giganteum</i>	67,804	98.3%	1.3%
Scorpionfish	<i>Scorpaena guttata</i>	53,964	70.4%	29.6%
Sheephead	<i>Semicossyphus pulcher</i>	30,157	87.2%	12.8%
Halfmoon	<i>Sebastes chrysomelas</i>	29,798	87.0%	13.0%
Mackerel	<i>Trachurus symmetricus</i> and <i>Scomber japonicus</i>	26,157	8.3%	91.7%
Yellowtail	<i>Seriola lanandi</i>	24,397	86.1%	13.9%
Lobster	<i>Panulirus interruptus</i>	23,124	99.6%	0.4%
Other Fish		88,911	69.7%	30.3%
Taxa Total		1,858,557	56.8%	43.2%

¹ Total fish count over five years based on CPFV logs.

² Fraction of the Santa Barbara Channel fish caught in the seven blocks (684 through 690) that encompass the Channel Islands and cover 12.8 percent of the Channel area.

Source: CSLC 2009.

1 Over half (56.8 percent) of the total CPFV catch in the Santa Barbara Channel occurred
2 near the Channel Islands. The CPFV catch fraction around the islands significantly
3 exceeded the fractional area for all but two major taxa (barred sand bass and
4 mackerel).

5 Abalone (*Haliotis* sp.) were once common in the rocky coastal habitat of the Santa
6 Barbara Channel, but currently all five major species of abalone in central and Southern
7 California are depleted, a result of cumulative impacts from commercial harvest,
8 increased market demand, sport fishery expansion, depredation by sea otters, pollution
9 of mainland habitat, disease, loss of kelp populations associated with El Niño events,
10 substantial poaching losses, and inadequate wild stock management. The California
11 Fish and Game Commission closed the commercial and recreational abalone fishery in
12 southern and central California under emergency action in May 1997. By legislative
13 action in January 1998, the closure was extended indefinitely (CSLC 2009). The
14 Cultured Abalone, a local abalone mariculture company, operates near Dos Pueblos
15 Canyon.

16 *Kelp Beds and Mariculture*

17 In addition to providing habitat as described above, kelp is harvested commercially
18 within the Santa Barbara Channel for various uses. Algin is extracted from a large
19 proportion of the harvest and used as a thickening, stabilizing, suspending, and gelling
20 agent in a wide variety of food, paper, pharmaceutical, cosmetic, and dental products.
21 Mariculture companies are also increasingly using giant kelp as food for their abalone
22 stock. Kelp beds along the coast can produce as much as 1,000 tons of kelp per year,
23 much of which is harvested for use by abalone farming operations.

24 **4.6.2 Regulatory Setting**

25 Federal and State laws that may be relevant to the Project are identified in Table 4.0-1.
26 Local laws, regulations, and policies are discussed below.

27 **Local**

28 *Santa Barbara County*

29 The coastal reaches adjacent to PRC 421 fall under the local jurisdictions of the City of
30 Goleta and Santa Barbara County. Santa Barbara County's LCP (Santa Barbara County
31 1982) identifies ESHAs in the Project vicinity, which include the rocky intertidal habitat
32 at Coal Oil Point and between Point Conception and Ellwood, harbor seal hauling
33 grounds east of Naples, Naples Reef and kelp beds from Jalama to Carpinteria.

1 *City of Goleta General Plan/Coastal Land Use Plan (GP/CLUP)*

2 City of Goleta GP/CLUP policies that are relevant to the Project in regard to marine
3 biological resources are:

- 4 • Policy CE 1 – To identify, preserve, and protect the city’s natural heritage by
5 preventing disturbance of ESHAs.
- 6 • Policy CE 6 – Preserve and protect the biological integrity of marine habitats and
7 resources within and adjacent to Goleta.
- 8 • Policy 8 – To preserve and protect habitats for threatened, endangered, or other
9 special-status species of plants and animals to maintain biodiversity.

10 **4.6.3 Significance Criteria**

11 An impact on biological resources would be considered significant if any of the following
12 apply:

- 13 • There is a potential for any part of the population of a threatened, endangered, or
14 candidate species to be directly affected or if its habitat is lost or disturbed;
- 15 • If a net loss occurs in the functional habitat value of: a sensitive biological habitat,
16 including salt, freshwater, or brackish marsh; marine mammal haul-out or
17 breeding area; eelgrass; river mouth; coastal lagoons or estuaries; seabird
18 rookery; ESHA or Area of Special Biological Significance;
- 19 • Permanent change in the community composition or ecosystem relationships
20 among species recognized for scientific, recreational, ecological, or commercial
21 importance;
- 22 • Prolonged disturbance to or destruction of habitat (or functional habitat value) of
23 a species recognized as biologically or economically significant in local, State, or
24 Federal policies, statutes, or regulations;
- 25 • There is a potential for the movement or migration of fish or wildlife to be
26 impeded; or
- 27 • If a substantial loss occurs in the population or habitat of any native fish, wildlife,
28 or vegetation or if there is an overall loss of biological diversity. Substantial is
29 defined as any change that could be detected over natural variability.

30 An impact to commercial or recreational fishing would be considered significant if the
31 Project would:

- 32 • Temporarily reduce any fishery in the vicinity by 10 percent or more during a
33 season, or reduce any fishery by 5 percent or more for more than one season;
- 34 • Affect kelp and aquaculture harvest areas by 5 percent or more;

- 1 • Result in loss or damage to commercial fishing or kelp harvesting equipment; or
- 2 • Harvesting time lost due to harbor closures, impacts on living marine resources
- 3 and habitat, and equipment or vessel loss, damage, or subsequent replacement.

4 4.6.4 Impact Analysis and Mitigation

5 Potential construction- and operations-related impacts to marine biological resources
6 are evaluated below. Table 4.6-3, located at the end of Section 4.6.4, provides a
7 summary of such impacts and recommended MMs to address these impacts.

8 **Impact MBIO-1: Disturbance to Intertidal Organisms during Construction**

9 **Construction activities during recommissioning activities at Pier 421-2 and**
10 **following decommissioning and removal of Pier 421-1 would disturb and kill**
11 **intertidal invertebrates and might dislodge grunion eggs (Less than Significant**
12 **with Mitigation).**

13 **Impact Discussion**

14 Disturbance of sediment during construction activities associated with caisson repairs
15 on Pier 421-2 and recommissioning of Well 421-2 have the potential to impact marine
16 resources due to excavation and jetting of sand around the piles. Additionally,
17 decommissioning and removal of Pier 421-1, estimated to occur 1 year following Project
18 completion, would produce similar potential impacts.

19 The Project would require operation of heavy construction equipment on the beach to
20 improve all three non-seaward-facing walls on the caisson at Pier 421-2 as well as to
21 perform repairs to the 25-foot section of 6-inch pipeline near the 12th tee of the
22 Sandpiper Golf Course. These Caisson reinforcements would include construction of
23 walls similar to the one built on the seaward-facing side of Pier 421-2 in 2011. This
24 would include installation of steel piles in 25-foot-deep holes drilled around the caisson
25 and concrete panels between the steel piles. Concrete slurry will then be poured
26 between the new panels and the old caisson walls. To perform this work, an excavator
27 would be located on the beach to scrape sand from between the piles and cut into the
28 bedrock to key the concrete panels in the Monterey shale base. As the bottom panel of
29 each section is being set, a sand jet unit on top of the caisson would clear the sand so
30 that the panel would sit directly on or near the Monterey shale base. The excavation of
31 sand at the base of the caisson would kill intertidal invertebrates living in the sand. The
32 amount of sandy intertidal habitat affected by these construction activities would be
33 small (less than 0.5 acre). Additionally, repair of the 25-foot section of 6-inch pipeline
34 along the access road would also require that construction equipment access the beach
35 adjacent to this section of pipeline. Intertidal invertebrate communities are adapted to
36 the seasonal shifting of sand off and on the beach and repopulate rapidly. Because of
37 the small amount of intertidal habitat that would be affected and the fact that the

1 intertidal invertebrate community would be expected to re-establish within a year, these
2 impacts would be less than significant.

3 Decommissioning and removal of Pier 421-1, including the well, pier, and caisson,
4 would disturb the sand at the base of the pier and the surrounding area. Removal of
5 Pier 421-1 would require operation of heavy construction equipment on the beach to
6 decommission the well and deconstruct and remove the caisson and the pier. This
7 activity would include excavating around the piles to perform thermal cuts below the
8 existing ground surface so that the piles can be removed from the beach. This activity
9 would kill intertidal invertebrates living in the sand; however, the construction area
10 would be small and the invertebrate community would be expected to re-establish within
11 a year. This construction activity would be located approximately 250 feet west of the
12 construction activity associated with improvements to Pier 421-2, which is anticipated to
13 occur 1 year earlier. Therefore, it would not interfere with recently recovered or
14 recovering invertebrate populations at Pier 421-2. Because of the small amount of
15 intertidal habitat that would be affected and the fact that the intertidal invertebrate
16 community would be expected to re-establish within a year, these impacts would be less
17 than significant.

18 If caisson repair on Pier 421-2 or decommissioning and removal of Pier 421-1 occurs
19 between March and September, excavation or jetting of sand would potentially expose
20 grunion eggs deposited in the high intertidal zone. Because grunion populations are
21 declining and the beaches where they spawn are limited, destruction of grunion eggs
22 would result in a loss of the functional value of the beach as grunion spawning habitat.
23 The deposition of grunion eggs on a beach is patchy and even a small area can contain
24 a significant number of grunion eggs (Martin 2006). The destruction of grunion eggs is
25 considered less than significant with mitigation.

26 **Mitigation Measures**

27 **MM MBIO-1. Avoid Caisson Repair on Pier 421-2 and Removal of Pier 421-1**
28 **during Grunion Spawning Season.** Project activities that require equipment
29 access on the beach shall be scheduled to avoid, to the extent possible,
30 anticipated California grunion runs. In the event that construction will occur
31 during the seasonally predicted run period and egg incubation period for
32 California grunion as identified by the California Department of Fish and
33 Wildlife, a Project Biological Monitor, hired by the City of Goleta and paid by
34 Venoco, shall be present on the Project site each night, for the entire night,
35 from one night before the beginning of each seasonally predicted grunion run
36 until one night after the end of each run to monitor the presence of grunion on
37 the site. If any adult grunion are observed at the Project site, no construction
38 activities requiring equipment access within the area of the observed grunion
39 will be allowed until after the next predicted grunion run (or two weeks after the
40 last run in August) in which no adult grunion have been observed on the

1 Project site, unless otherwise approved by the California State Lands
2 Commission staff.

3 **Rationale for Mitigation**

4 Avoiding caisson repair and pier removal activities during the grunion spawning season
5 would ensure that no grunion eggs were killed or damaged by these activities. If pier
6 removal or caisson repair must occur between March and September, monitoring of
7 grunion spawning and avoiding disturbance to any areas where spawning occurred
8 would also avoid impacts to grunion eggs. Full implementation of MM MBIO-1 would
9 reduce Impact MBIO-1 to less than significant.

10 **Impact MBIO-2: Impacts to Marine Organisms from Sediment Resuspension in the** 11 **Near-Shore Zone due to Disturbance of Sediments during Construction**

12 **Activities during construction activities such as caisson repairs on non-seaward**
13 **facing walls on Pier 421-2 and later decommissioning and removal of Pier 421-1**
14 **would have the potential to resuspend sediments in near-shore waters due to the**
15 **disturbance of beach sediments. Resuspension of sediment, particularly**
16 **contaminated sediments, could have adverse impacts on marine organisms (Less**
17 **than Significant with Mitigation).**

18 **Impact Discussion**

19 Caisson repairs of the non-seaward facing walls on Pier 421-2 would disturb sediments
20 by excavation, jetting and the removal and placement of structures in the sand.
21 Additionally, decommissioning and removal of Pier 421-1, expected to occur about 1
22 year following recommissioning of Pier 421-2, would disturb the sand at the base of the
23 pier and the surrounding area during removal of the pier and caisson. Because the piers
24 are located in the intertidal zone, some of this sediment may become suspended in
25 near-shore waters. Suspended sediment may have a number of adverse effects on
26 marine organisms. Sand can interfere with the appendages of filter feeding
27 invertebrates and clog respiratory appendages of invertebrates. The gills of fishes may
28 become abraded by sediments, but usually fishes move out of the area before they
29 suffer harm. Suspended sediments may increase turbidity over the short term and
30 interfere with the foraging activities of visual predators including fishes, marine
31 mammals, and seabirds such as California brown pelicans and California least terns.

32 The proposed repair of the caisson at Pier 421-2 and future removal of the pier and
33 caisson at Pier 421-1 would disturb sand in the surf zone. These sediments would be
34 expected to settle rapidly and would not create extensive turbidity plumes. Marine
35 macrophytes like surfgrass, eelgrass, and kelp require light and, therefore, can be
36 affected adversely if turbidity reduces light levels for an extended period of time. No
37 surfgrass occurs in the Project vicinity. Some eelgrass and kelp beds are found
38 offshore. Because kelp and eelgrass are adapted to periods of natural turbidity,

1 temporary increases in turbidity during construction would not be expected to have an
 2 adverse impact on these habitats. Impacts to marine organisms from suspended
 3 sediments would be minimal because of the short duration and limited spatial extent of
 4 the impacts and because turbidity would occur in the intertidal and shallow subtidal
 5 zones that typically are subjected to sediment resuspension from wave action. Impacts
 6 would be less than significant.

7 As discussed in Section 4.5, Hydrology, Water Resources, and Water Quality, although
 8 no contaminants were discovered during recent repairs, subsurface soils and soil
 9 surrounding the piers have some potential to be contaminated. If these sediments are
 10 released into the marine environment during construction, contaminants may be at
 11 levels that could have an adverse impact on marine organisms. This impact would be
 12 less than significant with mitigation.

13 **Mitigation Measures**

14 Implement MMs WQ-1a through WQ-1b and MMs HAZ-1c through HAZ-1-d.

15 **Rationale for Mitigation**

16 Removal of contaminated sediments prior to in-water construction activities would
 17 prevent the release of existing petroleum hydrocarbons resulting from Project activities.
 18 Removal of contaminated sub-soil mobilized during drilling would prevent it reaching the
 19 surf zone. Erection of a silt curtain would reduce the dispersion of contaminated
 20 sediments from the soils surrounding the piers into the water column and would prevent
 21 resuspended sediments from dispersing beyond the immediate construction area. Full
 22 implementation of these measures would reduce Impact MBIO-2 to less than significant.

23 **Impact MBIO-3: Noise Impacts to Marine Life During Caisson Repairs on Pier 421- 24 2 and Decommissioning and Removal of Pier 421-1**

25 **Construction activities during caisson repairs on non-seaward facing walls on
 26 Pier 421-2 and decommissioning and removal of Pier 421-1 have the potential to
 27 generate noise from operation of heavy construction equipment and from
 28 excavation to install new piles and panels. Jetting of sand also can create high
 29 noise levels. Construction noise may disturb marine animals, especially marine
 30 mammals (Less than Significant).**

31 **Impact Discussion**

32 Construction activities associated with the repair of the caisson on Pier 421-2, as well
 33 as to perform repairs to the 25-foot section of 6-inch pipeline near the 12th tee of the
 34 Sandpiper Golf Course have the potential to produce loud noises due to operation of
 35 heavy equipment on the beach, including excavation for the installation of new piles and
 36 panels. Additionally, decommissioning and removal of PRC 421, expected to occur 1

1 year following recommissioning of Pier 421-2, would also require operation of heavy
2 equipment on the beach. The noise and activity of construction may alter the behavior
3 of fishes in the immediate vicinity of the pier or cause them to avoid the construction
4 area temporarily. Information on the sound levels to which fishes are sensitive is limited.
5 Fish sensitivity to noise depends on whether they have any sort of auditory mechanisms
6 for improving hearing sensitivity (Southall 2005). Most fishes do not have special
7 auditory mechanisms and are hearing generalists with relatively poor hearing sensitivity
8 over a narrow band of low sound frequencies (about 0.1 to 1.0 kilohertz [kHz]). Hearing
9 specialists have unique anatomical features that afford them greater hearing sensitivity
10 over a relatively wider range of low sound frequencies (about 0.1 to 3.0 kHz). Hastings
11 et al. (1996) exposed fish (*Astronotus ocellatus*, the oscar) in the laboratory to sounds
12 to determine the effects of sound at various levels typical of man-made sources on the
13 sensory epithelia of the ear and the lateral line. Sounds varied in frequency (60 to 300
14 hertz [Hz]), duty cycle (20 percent or continuous) and intensity (100, 140, or 180
15 decibels standardized at 1 micropascal at 1 meter [dB//1uPa]). The only damage that
16 was observed was in four of five fish stimulated with 300-Hz continuous tones at 180
17 dB//1uPa and allowed to survive for four days. Damage was limited to small regions of
18 the ear. These data suggest that for at least some types of fish only limited physical
19 damage will occur even at exposure to very high levels.

20 Loud noises may disturb California brown pelicans and cormorants roosting on the
21 structures offshore from Piers 421-1 and 421-2. Varanus Biological Services monitored
22 the behavior of brown pelicans roosting on the breakwater during dredging of the Marina
23 del Rey entrance channel (Varanus 1999). Punctuated events including dredge start-up
24 after periods of inactivity and the tugboat passing between the dredge and the breakwater
25 to retrieve the haul barge caused disturbance to the colony including movements of
26 occasionally large numbers of birds. However, these impacts were generally of short
27 duration (a few minutes) and resulted in pelicans shifting positions along the breakwater.
28 Unusual, sudden or infrequent events of a dramatic nature (fireworks, spotlighting the
29 colony by a boat closely approaching the breakwater, illuminating the breakwater by the
30 dredge after long periods of inactivity) displaced roosting pelicans from the breakwater for
31 lengthy periods of time. The largest reaction to disturbance observed during the
32 monitoring was to an earthquake. All the pelicans left the breakwater in reaction to the
33 event and did not return for 45 minutes. The Bird Island structures are located over 800
34 feet offshore from the Project site. Noise from Project construction would be expected to
35 attenuate to the 60 to 65 dBA range by this distance and it is unlikely the noise would
36 disturb the roosting birds on the structure.

37 Noise associated with any potential excavation or drilling would not disturb marine
38 mammals. Baleen whales are thought to be most sensitive to low frequency sounds
39 (about 0.01 kHz to 5 kHz) based on characteristics of their auditory morphology and
40 sound production (Southall 2005). Most odontocete cetaceans that have been directly
41 tested have relatively good hearing sensitivity across a broader range of mid to high

1 frequencies (about 4 kHz to 100 kHz). Sea lions and fur seals have been shown to be
2 sensitive to a fairly wide range of mid frequencies (about 1 kHz to 30 kHz). True seals
3 are generally capable of hearing across a wide range of low to mid sound frequencies
4 (about 0.2 kHz to 50 kHz). The dominant components of the "communication" calls of
5 most marine mammals fall within the 20 Hz to 20 kHz range (CSLC 2009).

6 NMFS has adopted 160 decibels (dB) as an acceptable level of impulsive underwater
7 sound. Based on available scientific evidence, acoustic harassment of marine mammals
8 would not be expected to occur below this conservative level. No Project activities are
9 expected to exceed 160 dB; therefore, pier removal and caisson repair operations
10 would not have the potential to produce noises at a level high enough to have adverse
11 impacts to marine mammals.

12 Marine mammal monitors were present during caisson repair on Pier 421-1 in 2004 and
13 on Pier 421-2 in 2011 (City of Goleta 2006; J. Storrer pers. comm. 2011). A 500-foot
14 safety zone was established for marine mammals and a vibrating pile driver was used,
15 which generated greater noise levels than would occur under the Project. During pile
16 driving activities, monitors neither observed any marine mammals within the 500-foot
17 safety zone nor did they observe changes in the movement or behavior of more distant
18 individuals that would indicate any reaction to pile driving noise.

19 Because no adverse impacts to marine mammals were noted during previous pile
20 driving operations at PRC 421, and Project activities would generate less noise than
21 occurred during those activities, the Project would have less than significant effects on
22 marine life.

23 **Mitigation Measures**

24 None required.

25 **Impact MBIO-4: Oil Spill Impacts to Marine Resources**

26 **Leaks and spills of petroleum hydrocarbons into the ocean could adversely affect**
27 **marine organisms (Significant and Unavoidable).**

28 **Impact Discussion**

29 Oil production on PRC 421 and transport of crude oil from the Project via onshore
30 pipeline have the potential to result in the accidental release of limited quantities of
31 petroleum hydrocarbons. Potential oil spill releases from the Project are discussed in
32 Section 4.2, Safety. A release at Pier 421-2 or from PRC 421 pipelines under most
33 conditions would immediately contact the shore. Oil released to marine waters from the
34 PRC 421 Project area was assumed to be transported approximately 1 mile west of the
35 site and 2 miles to the east, as shown in Figure 4.2-9. A number of sensitive marine
36 habitats occur within the area most vulnerable to a Project-related oil spill such as those

1 within the Campus Point SMCA. The Bell Canyon Creek lagoon and the Devereux
2 Slough estuary are estuarine habitats that would be highly likely to suffer impacts in the
3 event of a Project-related oil spill if their mouths were open. Tecolote Creek estuary also
4 is within the area most likely to be affected by an oil spill from the Project.

5 Significant rocky intertidal habitat that would be vulnerable to a Project oil spill occurs
6 near Coal Oil Point east of PRC 421 and within the bend of "Ellwood Cove"
7 approximately 0.5 mile east of the Project site. Rocky intertidal habitat, primarily
8 boulders and cobble, also occurs west of the Project area up-coast from the Bacara
9 Resort. These rocky intertidal areas are used for research by UCSB.

10 A sizable kelp bed is located approximately 500 feet offshore of the existing caissons
11 and extends for over 1 mile southeast along the Ellwood Coast. Some eelgrass also
12 occurs offshore the PRC 421 piers.

13 The Bird Island structures, constructed about 850 feet offshore Pier 421-1, support large
14 numbers of roosting seabirds including the brown pelican and double-crested
15 cormorant, a California Species of Special Concern. These birds would be vulnerable to
16 an oil spill when they are foraging in the water. A Project-related spill could also impact
17 beaches used as foraging and nesting habitat by the Federal threatened western snowy
18 plover and waters used for foraging by the State and Federal endangered California
19 least tern, which nests at Coal Oil Point. Although not common, the Federal threatened
20 southern sea otter occurs in the Project area. This species is very vulnerable to oil.

21 Small spills from the Line 96 pipeline (less than 1 gallon) would be highly unlikely to
22 reach the marine environment. Significant impacts to marine biological resources could
23 result in the unlikely event that a large spill from the Line 96 pipeline (greater than 1
24 gallon) occurred during high winds or tides that would convey the spilled material
25 towards the shoreline and to sensitive habitats such as Devereux Slough, Goleta
26 Slough, Naples Reef, or Refugio Canyon.

27 Oil spills have been found to have varying effects on marine resources (Aspen 2005).
28 Documented biological damage from an oil spill has ranged from little apparent damage
29 in the Apex Galveston Bay spill (Greene 1991) to widespread and long-term damage,
30 such as the 1969 West Falmouth spill (Sanders 1977). Some factors influencing the
31 extent of damage caused by a spill are the dosage of oil, type of oil, local weather
32 conditions, location of the spill, time of year, methods used for cleanup, and the affected
33 area's previous exposure to oil. Other levels of concern are the possibility of food chain
34 contamination by petroleum products and the impact of an oil spill on the structure of
35 biological communities as a whole. The effects of the 2010 spill in the Gulf of Mexico
36 from the Deepwater Horizon are still under investigation, but research published to date
37 on the short-term impacts indicates increased developmental abnormalities in fish
38 (Dubansky et al. 2013; Whitehead 2012), substantial shifts in the composition of

1 microbial species in the water column (Rivers et al. 2013), and significant reductions in
2 the abundance and diversity of benthic fauna (Montagna et al. 2013).

3 Oil spilled into the ocean gradually changes in chemical and physical makeup as it is
4 dissipated by evaporation, dissolution and mixing, or dilution in the water column.
5 Various fractions respond differently to these processes, and the weathered residue
6 behaves differently from the material originally spilled. Toxicity usually tends to
7 decrease as oil weathers. Depending on tidal stage and wave energy, oil can become
8 deeply buried in sand and later re-exposed, causing recurrent releases, possibly
9 spanning months or longer.

10 Laboratory tests have demonstrated the toxicity of petroleum hydrocarbons for many
11 organisms. Soluble aromatic compounds in crude oil are generally toxic to marine
12 organisms at concentrations of 0.1 to 100 ppm. Planktonic larval stages are usually the
13 most sensitive. Very low levels of petroleum, below 0.01 mg/L, can affect such delicate
14 organisms as fish larvae (National Response Center [NRC] 1985). Concentrations as
15 low as 0.4 parts per billion (ppb) caused premature hatching and yolk-sac edema in
16 Pacific herring eggs exposed to weathered Alaska crude oil (NRC 2003).

17 Biological impacts of oil spills include lethal and sublethal effects and indirect effects
18 resulting from habitat alteration and/or destruction or contamination of a population's
19 food supply. Directly lethal effects may be chemical (i.e., poisoning by contact or
20 ingestion) or physical (i.e., coating or smothering with oil). A second level of interaction
21 is sublethal effects, which are those which do not kill an individual but which render it
22 less able to compete with individuals of the same and other species.

23 Impacts to plankton from oil pollution could range from direct lethal effects caused by
24 high concentrations of oil in the surface layers of the water column after a major spill to
25 a variety of sublethal effects such as decreased phytoplankton photosynthesis and
26 abnormal feeding and behavioral patterns in zooplankton. Studies of oil spills have
27 generally failed to document major damage to plankton, although lethal effects or
28 severe oiling of individual zooplankton organisms in the immediate vicinity of a spill has
29 been reported in a number of studies. Because plankton distribution and abundance are
30 variable in time and space, any evidence of damage would be very difficult to document.

31 Plankton populations on the open coast are expected to have low vulnerability to a
32 project-related oil spill. Even if a large number of individual organisms were oiled, rapid
33 replacement by individuals from adjacent waters is expected. In addition, the
34 regeneration time of phytoplankton cells is rapid (9 to 12 hours) and zooplankton
35 organisms are characterized by wide distributions, large numbers, short generation
36 times, and high fecundity (NRC 1985). The impacts to plankton of a spill from PRC 421
37 operations are expected to be adverse but less than significant.

1 Open coast sandy beaches, like those immediately adjacent to Piers 421-1 and 421-2
2 generally would not be expected to suffer long-term damage from a project-related oil
3 spill. Once the oil has been removed, recolonization by sandy beach organisms tends to
4 be rapid (Aspen 2005). However, if large amounts of oil coat the beach, substantial loss
5 of intertidal organisms could occur. Sand and gravel beach habitat was adversely
6 affected by the 1997 Torch/Platform Irene spill off the south-central coast of California
7 (Torch/Platform Irene Trustee Council 2006). After the spill, invertebrates on the beach,
8 particularly sand crabs, and Pismo clams, likely suffered significant mortality due to
9 smothering under blankets of oil and sand compression caused by heavy equipment
10 from cleanup operations. Therefore, in the event of a large spill, impacts to sandy beach
11 habitat could be significant.

12 Most studies of oil spills have shown that rocky intertidal communities tend to suffer
13 harmful impacts, although spills have occurred where no impacts to this habitat were
14 observed (e.g., Chan 1987). Oil represents a physical and chemical hazard, and
15 intertidal organisms are especially vulnerable to the physical effects of oil (Percy 1982).
16 Sessile species, such as barnacles, may be smothered, while mobile animals, such as
17 amphipods, may be immobilized and glued to the substrate or trapped in surface slicks
18 in tidepools. It has been hypothesized (Hancock 1977) that organisms in the upper
19 intertidal areas where the oil dries rapidly are more apt to be affected by physical effects
20 of oil, such as smothering, whereas organisms in the lower intertidal areas are more
21 exposed to the chemical toxic effect of the liquid petroleum.

22 The 1997 Torch/Platform Irene spill oiled rocky intertidal habitat in many places along
23 the shoreline. Although levels of injury greater than 10 percent were not documented,
24 the oil exposure was thought to cause low levels of injury to a variety of rocky intertidal
25 species including crustacea, mollusks, arthropods, and algae (Torch/Platform Irene
26 Trustee Council 2006). Black abalone (*Haliotis cracherodii*) and mussel beds were
27 observed to be coated with oil along or near the shores of Vandenberg Air Force Base
28 and at other nearby rocky shorelines.

29 If an intertidal area suffers severe damage from an oil spill, it may take years for
30 complete recovery. A study of recovery of rocky intertidal communities of central and
31 northern California (Foster et al. 1991) suggested that the high intertidal, algal-
32 dominated *Endocladia/Mastocarpus* community would take one to six years to recover
33 in places where a large area had been decimated, while the mid-intertidal mussel bed
34 assemblage would be likely to take more than 10 years to recover from a disturbance
35 that affected a large area. Mussel beds have been found to trap oil and under some
36 circumstances may allow the oil to persist for years after a spill (NRC 2003).
37 Documented recovery times of intertidal communities from actual oil spills have varied,
38 but have been generally consistent with the above predictions. In contrast, McCall and
39 Pennings (2012) found intertidal crabs and terrestrial arthropods (insects and spiders) to

1 be resilient to oil exposure; although populations were suppressed following the 2010
2 Deepwater Horizon spill in the Gulf of Mexico, they had largely recovered after 1 year.

3 Impacts to valuable intertidal habitat in the immediate Project area is of particular
4 concern because oil spilled from the piers or pipelines could reach these areas rapidly.
5 Rocky intertidal ESHAs occur at “Ellwood Cove” east of the site, Coal Oil Point, and
6 areas along the Gaviota Coast. Impacts to rocky intertidal habitat from a Project-related
7 petroleum spill could potentially be significant.

8 Compared to the readily observable impact on intertidal communities, impacts on
9 benthic subtidal communities have been more difficult to document. This lack of
10 documented impacts has been found both in the shallow (6 to 60 feet) and deep (>60
11 feet) subtidal areas. However, the studies that have shown impacts have generally been
12 of shallow water benthic habitats. Often the lack of effects on subtidal communities
13 appears to be because oil does not sink to the bottom. For example, in shallow subtidal
14 SCUBA diving surveys following the 1988 Nestucca spill in Gray’s Harbor, Washington,
15 no evidence of subtidal oil deposits was found, and no sediment samples contained oil
16 and grease above detection limits (Carney and Kvitek 1990).

17 Most studies have failed to document negative effects of oil spills on kelp beds.
18 However, Thom et al. (1993) found that the tissues of bull kelp, *Nereocystis luetkeana*,
19 were damaged following direct exposure to several oil types, including intermediate fuel
20 oil, diesel fuel, and Prudhoe Bay crude oil. Furthermore, oil can cling to kelp and cause
21 the surrounding shoreline to be repeatedly doused by oil as happened in the 1992 Avila
22 spill (Togstad 1993). Kelp holdfasts also can retain oil for years after a spill (NRC 2003).
23 Impacts to Project area kelp beds are unlikely to significantly affect the kelp itself but the
24 oil could persist and affect the associated ecosystem.

25 Oil spills can affect seabirds directly through oil contamination and indirectly through
26 degradation of important habitat. The direct effect of oiling on birds is predominantly
27 contamination of feathers, removing insulative qualities and reducing buoyancy (Holmes
28 and Cronshaw 1977; Moskoff 2000). Oiling of feathers leads to elevated metabolic rate
29 and hypothermia (Hartung 1967). Oiled birds may also ingest oil through preening of
30 feathers or feeding on contaminated prey. Effects of ingested oil can range from acute
31 irritation and difficulties in water absorption to general pathologic changes in some
32 organs (e.g., Crocker et al. 1974; Fry 1987; Nero and Associates 1983). Ingestion of oil
33 can also result in changes in yolk structure, and reduction in number of eggs laid and
34 egg hatchability (Hartung 1965; Grau et al. 1977). Oiled birds that are able to return to a
35 nest can contaminate the exterior of eggs, reducing hatchability (e.g., Hartung 1965;
36 Patten and Patten 1977). Indirect effects result principally from contamination of habitat
37 where feeding occurs.

1 Marine birds are known to be conspicuous casualties of oil spills (Hope-Jones et al.
2 1970; Ford et al. 1991; Torch/Platform Irene Trustee Council 2006). For example, it has
3 been estimated that between 100,000 and 435,000 birds died within three months of the
4 Exxon Valdez spill (Moskoff 2000). Nearly 11 million gallons of oil, orders of magnitude
5 more oil than could be spilled from the Project, were spilled in the 1989 Exxon Valdez
6 spill, but the effects of the Exxon Valdez spill are mentioned to illustrate the extreme
7 vulnerability of seabirds to spilled oil. Those species suffering greatest mortality from
8 past spills along the outer coast have been alcids, cormorants, loons, grebes, and
9 scoters (Smail et al. 1972; Dobbin et al. 1986; Page and Carter 1986). These groups
10 are more vulnerable because they are found in large numbers on the water. Other birds
11 (e.g., gulls and pelicans) typically spend less time on the water or will relocate from the
12 area affected by a spill (Sowls et al. 1980). In the years since the Exxon Valdez spill
13 several species of birds have demonstrated indirect or delayed responses to the spill
14 (NRC 2003). These responses were found in sea ducks and shorebirds, species that
15 forage primarily on intertidal and shallow subtidal invertebrates, as well as several
16 species that forage on small fish found in inshore waters.

17 The Torch/Platform Irene spill is estimated to have adversely impacted between 635
18 and 815 seabirds and shorebirds (Torch/Platform Irene Trustee Council 2006). Seabird
19 species impacted by the spill included Brandt's cormorants, common murre (*Uria*
20 *aalga*), western grebe, rhinoceros auklet (*Cerorhinca monocerata*), pigeon guillemot
21 (*Cephus columba*), elegant tern (*Sterna elegans*), common loon (*Gavia immer*),
22 California brown pelican and several species of shearwaters and gulls.

23 California brown pelicans and cormorants roosting on the Bird Island structures on PRC
24 421 are likely to suffer impacts from a Project-related oil spill at Pier 421-2. These birds
25 would be expected to forage in Project area waters and are likely to be oiled. If a spill
26 occurred during the least tern nesting season, California Least Terns from the colony at
27 the Coal Oil Point Reserve might be impacted by the oil. Clearly, a Project-related oil
28 spill has the potential to significantly impact seabirds.

29 Direct effects of oiling on pinnipeds and sea otters include both surface contamination of
30 fur and possible ingestion of oil while grooming or during suckling of pups. Harbor seals,
31 elephant seals, and sea lions rely predominantly on subcutaneous fat and a high
32 metabolic rate to keep warm. In contrast, fur seals and sea otters depend on the
33 integrity of an air layer trapped in clean fur to provide insulation and buoyancy. Harbor
34 seal pups may be born with a lanugo coat of dense woolly fur to keep them warm until
35 they have stored sufficient subcutaneous fat. These fur-bearing pinnipeds are at
36 particular risk from an oil spill because oiling can reduce the heat-retaining properties of
37 the fur and result in hypothermia and death.

38 Sea otters, fur seals, and very young harbor seal pups are at extreme risk of mortality
39 from oil spills. Although the main sea otter population is north of Point Conception and

1 would only be vulnerable to a Project-related spill from the transportation of PRC 421 oil
2 to the San Francisco area, sea otters do occur in the Ellwood area and one or more
3 otters could be oiled from a spill at Pier 421-2 or the pipeline to the EOF. There is no
4 evidence that sea otters are able to successfully avoid oiling if a spill reaches near-
5 shore waters, and both adults and younger animals are equally susceptible to death
6 from oiling. Fur seals, while sensitive to oiling, are typically found over the continental
7 slope and waters farther offshore and are rare in Project area waters. Harbor seal pups
8 with a lanugo coat are susceptible to impacts from oil spills in the first week of life. After
9 molt of the natal fur, and when sufficient fat has been acquired, oil contamination is not
10 likely to have adverse effects. If oil spilled in Project area waters reached the harbor
11 seal rookery east of Naples when pups were present, their fur could become oiled.
12 Impacts of an oil spill on sea otters or harbor seal pups would be significant.

13 Cetaceans have smooth skin to which oil does not readily adhere. Direct effects of oil
14 spills are limited in large part to inhalation of volatile components and ingestion during
15 feeding by baleen whales. Baleen whales feed opportunistically, but regularly visit
16 specific feeding grounds where euphausiid crustaceans and other invertebrates or small
17 fish form dense shoals. Gray whales, although abundant in winter and spring, feed
18 infrequently and only opportunistically during migration.

19 The extent to which large whales will avoid oil spills is still unclear. Migrating gray
20 whales have been noted making some attempt to avoid natural oil seeps, but the
21 behavior is inconsistent (Kent et al. 1983). Humpback whales have been observed
22 feeding in an area off Cape Cod where thin oil sheens were present from the Regal
23 Sword spill (Goodale et al. 1979).

24 Toothed whales, which use echo-location to orient and find prey, may be able to avoid
25 oil slicks. In studies with captive animals, bottlenose dolphins were found to reliably
26 detect oil in a slick one millimeter thick and avoid contact (Geraci et al. 1983; Smith et
27 al. 1983). However, a recent study in the Gulf of Mexico after the Deepwater Horizon
28 spill found increased rates of lung disease and hypoadrenocorticism in bottlenose
29 dolphins (Schwake 2013).

30 **Mitigation Measures**

31 In addition to the measures listed below, MM BIO-4a from the Line 96 Modification
32 Project EIR required update of the OSCP to protect sensitive resources along the
33 pipeline route, and reduces impacts to marine biological resources from oil spills that
34 could reach the ocean through drainages.

35 **MM MBIO-4a. Update South Ellwood Field Oil Spill Contingency Plan (OSCP)**
36 **to Address a Spill from Lease PRC 421 Oil Production.** Prior to beginning
37 construction at PRC 421 and prior to the City of Goleta's issuance of the Land
38 Use permit, Venoco shall update the South Ellwood Field OSCP to address

1 protection of sensitive biological resources disturbed during an oil spill or
2 cleanup activities. The revised OSCP shall include specific measures to avoid
3 impacts on Federal- and State-listed endangered and threatened species, and
4 shall specifically identify training and procedures to contain oil spilled from
5 production at Lease PRC 421. The OSCP shall identify sensitive resources,
6 including the birds on the Bird Island platforms, kelp beds offshore the piers,
7 intertidal and subtidal resources within the Campus Point SMCA such as those
8 at Coal Oil Point, the harbor seal rookery at Burmah Beach and Naples Reef,
9 and the Naples MPA that could be oiled rapidly from a spill on PRC 421. Rapid
10 response procedures to protect those sensitive resources shall be identified.
11 Venoco shall submit the updated South Ellwood Field and OSCP to the
12 California State Lands Commission, Department of Fish and Wildlife Office of
13 Spill Prevention and Response, California Coastal Commission, Santa Barbara
14 County, and City of Goleta staffs for review and approval prior to operation of
15 the recommissioned facilities.

16 **MM MBIO-4b. Develop a Protection Plan to Keep Birds Roosting on Bird Island**
17 **from Harm in the Event of an Oil Spill on Lease PRC 421.** Prior to starting
18 construction at PRC 421 and prior to the City of Goleta's issuance of a Land
19 Use Permit, Venoco shall engage a biologist experienced with wildlife and bird
20 rehabilitation to determine whether it is necessary to develop a plan specifically
21 to protect pelicans and cormorants roosting on the Bird Island platforms from
22 harm in the event of an oil spill. The biologist shall submit a memorandum
23 explaining their position to the California State Lands Commission staff for
24 review and approval. If the biologist deems plan preparation necessary,
25 Venoco shall include this plan within the revised OSCP, potentially including
26 methods to deter the birds from feeding or resting in oiled waters. The plan
27 also shall include procedures to capture and rehabilitate oiled birds. If the plan
28 is deemed necessary, Venoco shall submit the Plan to the California State
29 Lands Commission, California Coastal Commission, Santa Barbara County,
30 and City of Goleta staffs for review and approval prior to operation of the
31 recommissioned facilities.

32 **Rationale for Mitigation**

33 The South Ellwood Field EAP refers to the beachfront leases of PRC 421 but no
34 procedures specific to those leases are identified. With the resumption of oil production
35 from PRC 421, the potential exists for oil to be spilled from Pier 421-2 and during
36 transport by onshore pipeline. Procedures to protect sensitive marine resources in the
37 immediate vicinity of Pier 421-2 would help to keep oil from reaching these resources.
38 Pelicans and cormorants roosting on the Bird Island platforms in Lease PRC 421 are in
39 immediate danger from a spill at the lease. The development of specific procedures to
40 deter birds from oiled areas and rehabilitate oiled birds would help to reduce impacts on
41 these species.

1 **Residual Impacts**

2 Even with specific procedures to protect sensitive marine resources in the Project
3 vicinity, impacts of a major oil spill would be significant and unavoidable.

4 **Impact MBIO-5: Oil Spill Impacts to Commercial and Recreational Fishing**

5 **Accidental discharge of petroleum hydrocarbons into marine waters would**
6 **adversely affect commercial and recreational fishing (Significant and**
7 **Unavoidable).**

8 **Impact Discussion**

9 A wide variety of fish and shellfish species are commercially harvested in the Project
10 area and biota residing in intertidal and shallow subtidal habitats are vulnerable to oil
11 spills. Several species are commercially and recreationally harvested in the intertidal
12 zone. Sea urchins, for example, ranked first in both pounds landed and dollar value over
13 the six-year period from 1999 to 2005. Both sea urchins and lobsters are high-value
14 species that are harvested commercially and recreationally in the immediate Project
15 area. In addition, market squid alone accounted for over half (70 percent) of the dollar
16 value of the commercial catch during the six years, and accounted for 44 percent of the
17 total catch in biomass. Other intertidal or shallow subtidal organisms such as sea
18 cucumbers and whelks are also harvested within the Santa Barbara Channel.
19 Additionally, The Cultured Abalone relies on kelp harvest from lease 27 located near the
20 Project area.

21 In the event of an oil spill, impacts could occur to the local commercial and recreational
22 fishing industry. The degree of oiling and the oil spill impacts depend on several factors.
23 These include location of spill, volume, type of oil, amount of weathering, evaporation,
24 dispersion of oil into the water column or shoreline, weather conditions at the time of the
25 spill and immediately following, and the amount of oil that is contained and cleaned
26 immediately after a spill. Although large spills, e.g., greater than 2,000 barrels, are rare,
27 the Santa Barbara oil spill of 1969 was estimated at 80,900 barrels (CSLC 2009). The
28 1997 spill from the rupture of the Torch Pedernales pipeline was estimated at 163 to
29 1,242+ barrels (CSLC 2009). While the probability for a spill that would cause oil to
30 contact and foul the shoreline or shallow subtidal areas where commercial or
31 recreational species are harvested is low, the potential for such a spill exists. While
32 contaminated shorelines may be cleaned, in some instances, depending on substrate
33 type, oil may persist in sediments for several years.

34 Since the Exxon Valdez spill in 1989 and the Deepwater Horizon spill in 2010 several
35 studies have described the effects of oil spills in marine environments, the results of
36 which are incorporated into this analysis by reference (Hayes and Michel 1998, Coats et
37 al. 1999, Spies et al. 1996, and Brown et al. 1996; Dubansky et al. 2013; Rivers et al.
38 2013; Montagna et al. 2013). Adult fish, due to their mobility, may be able to avoid or

1 minimize exposure to spilled oil. However, there is no conclusive evidence that fish
2 would avoid spilled oil. Egg and larval stages would also not be able to avoid exposure
3 to spilled oil. The resultant potential losses to commercial and recreational fish
4 resources and those losses due to closure of fishing areas for most or all of a fishing
5 season is considered a potentially significant impact. In addition, fish harvested from
6 contaminated areas may also be reduced in value, and fishing gear may be damaged
7 due to oil fouling, causing additional significant impacts. This impact would be significant
8 and unavoidable.

9 **Mitigation Measures**

10 Implementation of MMs identified in Sections 4.2, Safety; 4.5, Hydrology, Water
11 Resources, and Water Quality; and 4.7, Terrestrial Biological Resources, for
12 contingency planning and spill response would be required.

13 **Rationale for Mitigation**

14 The measures presented in the above-mentioned sections provide improved oil spill
15 response capabilities, oil spill containment measures, and protection of resources. With
16 implementation of those measures, the risk to the marine environment and impacts to
17 commercial and recreational fishing may be reduced.

18 **Residual Impacts**

19 Because there are limitations to thorough containment and cleanup of an offshore oil
20 spill, significant impacts would remain for commercial and recreational fisheries in the
21 intertidal and shallow subtidal zones after mitigation.

22 **Impact MBIO-6: Impacts to Kelp Harvesting**

23 **Oil spills could cause damage to kelp beds, which would subsequently affect kelp**
24 **harvesting. Damage would likely be minor, and kelp would likely recover rapidly**
25 **(Less than Significant).**

26 **Impact Discussion**

27 The effects of oil spills from the Project on beds of giant kelp along the Pacific Coast
28 have been examined several times. Oil spills have caused little damage to the giant kelp
29 beds, even with considerable quantities of crude oil fouling the surface canopies (CSLC
30 2009). It appears crude oil stays on the surface of the water and does not tend to
31 adhere to the fronds of the giant kelp. The literature indicates that an oil spill and its
32 cleanup cause little damage to kelp beds. Should damage occur, recruitment and
33 recolonization occur rapidly. Therefore, although impacts could occur to kelp canopies,
34 which could affect commercial kelp harvesting, they are generally localized and

1 temporary in nature. Hence, impacts to kelp and commercial and recreational kelp
 2 harvesting operations are adverse but not significant.

3 **Mitigation Measures**

4 None required.

Table 4.6-3. Summary of Marine Biological Resources Impacts and Mitigation Measures

Impact	Mitigation Measures
MBIO-1: Disturbance to Intertidal Organisms during Construction	MBIO-1a. Avoid Caisson Repair or Pier Removal During the Grunion Spawning Season.
MBIO-2: Impacts to Marine Organisms from Sediment Resuspension in the Near-Shore Zone due to Disturbance of Sediments during Construction	HAZ-1c. Soil Sampling. HAZ-1d. Removal Action Plan. WQ-1a. Avoidance of High Tides and Silt Curtain. WQ-1b. Water Quality Certification.
MBIO-3: Noise Impacts to Marine Life during Removal of Pier 421-1 and Caisson Repairs on Pier 421-2	None required.
MBIO-4: Oil Spill Impacts to Marine Resources	MBIO-4a. Update the South Ellwood Field OSCP to Address a Spill from Lease PRC 421 Oil Production. MBIO-4b. Develop a Protection Plan to Keep Birds Roosting on Bird Island from Harm in the Event of an Oil Spill on Lease PRC 421. MM BIO-4a (update Emergency Action Plan and Oil Spill Contingency Plan) contained in the certified Line 96 Modification Project EIR.
MBIO-5: Oil Spill Impacts to Commercial and Recreational Fishing	Implementation of MMs identified in Sections 4.2, Safety; 4.5, Hydrology, Water Resources, and Water Quality; and 4.7, Terrestrial Biological Resources for contingency planning and spill response.
MBIO-6: Impacts to Kelp Harvesting	None required.

5 **4.6.5 Cumulative Impacts Analysis**

6 The proposed oil development on PRC 421 would add to the cumulative risk of impacts
 7 to marine resources from an oil spill.

8 **Impact MBIO-7: Cumulative Impacts of an Oil Spill on Marine Resources**
 9 **Oil development at PRC 421 would add to the cumulative risk that marine**
 10 **resources would be impacted by one or more oil spills (Significant and**
 11 **Unavoidable).**

12 **Impact Discussion**

13 Oil development projects that would add to the risk of an oil spill in the study area
 14 include the Carpinteria Field Redevelopment Project, with the proposed drilling of up to
 15 25 new wells from Platform Hogan, Venoco’s Carpinteria Onshore Project, Venoco’s

1 South Ellwood Field Project, and maintenance projects such as the Santa Ynez Unit
2 Offshore Power System Reliability – B Project. The maintenance of the cooperative oil
3 response company, Clean Seas, helps to address cumulative oil spill impacts by
4 maintaining oil spill containment and clean-up equipment, vessels and trained personnel
5 in the study area. The Project-specific contribution of the Project on PRC 421 to
6 cumulative oil spill impacts would be addressed by its EAP for the South Ellwood Field
7 and the SPCC Plan for PRC 421. Project specific MMs MBIO-4a and MBIO-4b would
8 apply to the Project's share of the cumulative oil spill risk; however, potential cumulative
9 impacts would remain significant and unavoidable.

10 **Mitigation Measures**

11 Implementation of MMs MBIO-4a and MBIO-4b would be required.

12 **Rationale of Mitigation**

13 Implementation of Project-specific MMs would help to reduce the impacts of a Project-
14 related oil spill.

15 **Residual Impact**

16 Even with specific procedures to reduce the risk of a Project-related oil spill, the
17 cumulative impacts of an oil spill would remain significant and unavoidable.

1 **4.7 TERRESTRIAL BIOLOGICAL RESOURCES**

2 This section describes terrestrial biological resources in the Project vicinity including
3 local habitats, communities, and sensitive species and evaluates the impacts that
4 implementation of the Project may have on these resources. This analysis focuses on
5 terrestrial biological resources that could be affected by construction and operation as
6 well as removal of primary Project components, including operation of Well 421-2 and
7 decommissioning and removal of Well 421-1 and the associated pier. This analysis also
8 briefly discusses area resources that could be affected by the operation of secondary
9 Project components (existing facilities not proposed for modification) such as the Line
10 96 pipeline.

11 This analysis is based on reconnaissance level fields surveys, information from the
12 California Natural Diversity Database (CNDDDB) (California Department of Fish and
13 Wildlife [CDFW] 2013), U.S. Fish and Wildlife Service (USFWS), City of Goleta 2006
14 Mitigated Negative Declaration (MND) (06-MND-001), and Santa Barbara County 2001
15 MND (01-ND-34) and an accompanying wetland delineation study prepared by URS
16 Corporation, incorporates by reference the conclusions of the Ellwood Marine Terminal
17 (EMT) Lease Renewal Environmental Impact Report (EIR) (California State Lands
18 Commission [CSLC] 2009) and Line 96 Modification Project EIR (Santa Barbara County
19 2011) regarding area biological resources and the potential impacts on such resources
20 associated with operation of the Line 96 pipeline, and summarizes these where
21 appropriate.

22 **4.7.1 Environmental Setting**

23 **Study Area Location and Description**

24 The primary Project study area comprises the immediate onshore areas of the Ellwood
25 Coast that could be subject to direct impacts as a result of Project implementation. This
26 area includes existing PRC 421 facilities, access road, the flowline route along the
27 access road, coastal bluff, golf course easement, and tie-in at the existing Ellwood
28 Onshore Facility (EOF) and adjacent habitats such as Bell Canyon Creek. The
29 secondary Project study area includes the Gaviota Coast and is only discussed in
30 environmental issue areas where the potential exists for impacts that are different from
31 those identified in the certified Line 96 Modification Project EIR.

32 The primary Project site is located west of the Ellwood-Devereux Open Space and
33 Habitat area and is bordered to the north by the Sandpiper Golf Course. The
34 undeveloped open space surrounding the Ellwood Mesa and Devereux Slough supports
35 the largest complex of coastal ecosystems remaining in the urban area of the south
36 coast of Santa Barbara County. To the west of the primary Project area is Bell Canyon,
37 which drains northwestern Goleta and coastal slopes of the Transverse Range.

1 The secondary study area includes an 8.5-mile-long segment of the Gaviota Coast that
2 is traversed by the Line 96 pipeline, particularly drainages such as Tecolote, Las Varas,
3 Gato, Dos Pueblos, and Las Flores Creeks.

4 Sensitive area habitats in these areas include native grasslands, vernal pools, riparian
5 areas, coastal salt marsh and freshwater wetlands, coastal dunes, strand, and sage
6 scrub. These sensitive habitats support a variety of rare plant and animal species which
7 are discussed below. For more details on these habitats and associated species, see
8 the EMT Lease Renewal and Line 96 Modification Project EIRs. To the south of the
9 Project study areas lies the Santa Barbara Channel, which supports a variety of marine
10 species and habitats. Section 4.6, Marine Biological Resources, discusses area marine
11 biological resources and impacts of the Project on such resources.

12 **Historical Repairs of PRC 421 Access Road**

13 As discussed further below, the PRC 421 access road crosses three wetland areas of
14 concern. In 2001, Venoco was granted emergency permits by Santa Barbara County to
15 conduct major repairs on the PRC 421 access road to permit access to PRC 421-1 and
16 421-2 for a major well stabilization project. According to the County's environmental
17 document (Santa Barbara County 01-ND-34), the access road to PRC 421 had become
18 "severely eroded and was in need of major repair." Based on 01-ND-34, Venoco used
19 an "excavator, grading tractor, front end loader, backhoe, compactor, road grader, 10
20 wheeler trucks, and a 2,000 gallon water truck" to effectuate major repairs to the road.
21 Approximately 200 tons of rip rap were installed within the gaps of the existent
22 beachside rock revetment to enhance road stability and afford protection from wave
23 erosion. The access road was graded and compacted and then topped with at least 3
24 inches of road base gravel. Float rock was installed beneath the road base in areas with
25 poor subsurface drainage (e.g., wetland areas). One hundred tons of both road base
26 and float rock were used to adequately secure the road for heavy equipment travel.

27 URS Corporation prepared a wetland delineation report for three wetlands along the
28 PRC 421 access road, which totaled 6,125 square feet at that time and supported
29 hydrophytic vegetation, wetland hydrology, and hydric soils. Two of the smaller wetland
30 areas were filled in with float rock and road base as avoidance was deemed infeasible.
31 The third (easternmost) wetland at the end of the access road at PRC 421-2 was more
32 substantial, encompassing approximately 5,855 square feet, with wetland hydrology and
33 vegetation. The County estimated that 19.8 percent (1,157 square feet) of that wetland
34 would be impacted through installation of rock base in the area to provide an adequate
35 road and load-bearing surface. In order to stabilize the road, topsoil and biomass in
36 wetland areas, ranging between 6 inches and 2.5 feet deep were removed and three
37 layers of rock were used to fill the excavated area, angular large rock (4- to 12-inch size
38 rock), crushed rock (2-inch size rock), and a final 3-inch layer of road base to complete
39 the surface construction of the area. The County required a 3:1 replacement ratio for the

1 first and second (westernmost) wetland areas, while a 5:1 ratio was used for the larger,
2 more significant third (easternmost) wetland area. This information remains relevant to
3 the remaining wetlands along this road with potential to be impacted by the Project.

4 **Biological Communities**

5 The following habitats occur in the Project vicinity and are considered in the City of
6 Goleta General Plan to be ESHAs: marine resources, beach and shoreline resources,
7 coastal dunes, coastal bluff scrub, foredune, oak woodlands/savannah, dense stands of
8 native grasslands, all wetlands such as vernal pools, riparian habitats, butterfly roosts,
9 raptor roosts and nests, and habitats that support special-status plant and wildlife
10 species, including western snowy plover habitat.

11 *Upland Habitats*

12 Native upland habitat in the Project vicinity consists of southern coastal bluff scrub,
13 which consists of dwarf shrubs, herbaceous perennials, and annuals; and may also
14 include succulent species. It occurs on poor soils exposed to high salt- and moisture-
15 content winds. Dominant species of this habitat in the area include Brewer's saltbush
16 (*Atriplex lentiformis* ssp. *breweri*), lemonade berry (*Rhus integrifolia*), and seashore blite
17 (*Suaeda taxifolia*) (CSLC 2009). Coyote bush (*Baccharis pilularis* ssp. *consanguinea*)
18 and prickly pear cactus (*Opuntia* sp.) were also noted in the area during a field visit.
19 Since the shoreline area of the Project is armored with a seawall, southern dune
20 habitats are absent from the immediate area of the Project. Therefore, southern coastal
21 bluff scrub habitat begins at the upper boundary of the beach and extends to the bluff
22 crest. Within this habitat, particularly in the vicinity of the seawall, giant reed (*Arundo*
23 *donax*) has begun to colonize the area just above the armoring structure.

24 The area north and northeast of the Project above the bluff crest consists of the
25 Sandpiper Golf Course and can be characterized as a developed area; however, the
26 golf course vegetation does include species which are used by wildlife, including
27 eucalyptus, coyote bush, and coast live oaks (*Quercus agrifolia*).

28 *Wetland Habitats*

29 Wetlands and wetland buffers are protected habitat under the Goleta General Plan and
30 the Coastal Act. Although no wetland delineation has been conducted for the Project, at
31 least four wetlands are located in close proximity to the to the Project site. Three of
32 these wetland areas are supported by seeps located along the toe of the bluff
33 immediately adjacent to the project access road. As discussed above, this access road
34 consists of 3 inches of road base gravel and overlies a layer of larger float rock. In
35 addition, each of these wetland areas appears to have been at least partially or wholly
36 excavated and backfilled with rock during past emergency repairs. The largest
37 (approximately 5,440 square feet) and most diverse of the three seep-related wetlands

1 is located east of the access road terminus and Well 421-2. The dominant species in all
2 of these seep-related wetland areas is saltgrass (*Distichlis spicata*). The larger seep-
3 related fresh/brackish water marsh wetland also supports cattail (*Typha domingensis*),
4 rabbitsfoot grass (*Polypogon monspeliensis*), African brassbuttons (*Cotula*
5 *coronopifolia*), and saltmarsh sandspurry (*Spergularia marina*). The surface waters
6 present in at least this larger wetland are sufficient to support breeding populations of
7 Pacific tree frogs (*Pseudacris regilla*) and western toads (*Anaxyrus boreas*), and as
8 habitat for avian species. These wetlands are generally located landward of the existing
9 roadbed; however, wet un-vegetated soils exist within the roadbed.

10 The fourth wetland area is at Bell Canyon Creek, located approximately 100 feet west of
11 the access road (Figure 4.7-1). Portions of the marsh nearest the beach outlet function
12 as a saltmarsh and exhibit typical southern coastal salt marsh vegetation including
13 saltgrass, pickleweed (*Salicornia virginica*), and the non-native giant reed. Limited areas
14 of dune habitat are also present, especially along the western mouth of the canyon.
15 Upper reaches of Bell Canyon in the Project area function as coastal freshwater marsh,
16 riparian scrub, or riparian forest. In the immediate vicinity of the Project site, vegetation
17 includes Brewer's saltbush and bush sunflower (*Encelia californica*). The eastern bank
18 of the canyon has also been used as an oak woodland mitigation site for impacts due to
19 the construction of the Bacara Resort, which is located west of the canyon.

20 Two other significant coastal estuaries exist in the Project vicinity. Tecolote Creek,
21 located approximately 0.25 mile east of the Project site, is characterized by habitats and
22 species similar to those found at Bell Canyon Creek. Tecolote Creek exhibits the same
23 type of small coastal estuary fronted by a small dune area, with limited open water and
24 salt marsh habitat, which transition into freshwater and riparian areas away from the
25 beach. To the east, approximately 2 miles from the primary Project site, lies regionally
26 significant Devereux Slough coastal salt marsh. The Devereux Slough and surrounding
27 areas support a variety of wetland habitats and associated rare and endangered
28 species and is fronted by the largest coastal dune complex on the south coast of Santa
29 Barbara County. In recognition of its ecological significance, the Devereux Slough and
30 portions of the surrounding habitats have been incorporated into the University of
31 California Santa Barbara's (UCSB's) Natural Land and Water Reserve system as the
32 Coal Oil Point Ecological Reserve. See the EMT Lease Renewal EIR (CSLC 2009) for a
33 complete discussion of these habitats.

34 **Special Status Species**

35 Special status species data were collected from a variety of sources, including the
36 CNDDDB, California Native Plant Society's (CNPS's) Inventory of Rare and Endangered
37 Plants of California (2013), and available literature for information on the presence and
38 distribution of State or Federal endangered species.



1 *Special Status Plant Species*

2 No Federal- or State-listed rare, threatened, or endangered plant species are known to
 3 occur within the Project area; however, several rare, threatened, or endangered plant
 4 species are reported or have been recorded to occur in the Project vicinity, and are
 5 listed in Table 4.7-1.

Table 4.7-1. Sensitive Plants that are Known or Have the Potential to Occur in the Project Vicinity

Species	Status ¹	Notes/Occurrence
<i>Atriplex coulteri</i> Coulter's saltbush	List 1B	Spreading perennial, occurs on coastal bluffs. Reported to occur on ocean bluffs near UCSB.
<i>Atriplex serenana</i> ssp. <i> davidsonii</i> Davidson's saltbush	List 1B	Annual herb, occurs in coastal bluff scrub. May be extirpated from Santa Barbara County, historical occurrence at UCSB.
<i>Baccharis plummerae</i> ssp. <i> plummerae</i> Plummer's baccharis	List 4	Shrub, may occur in coastal scrub. Reported to occur at UCSB lagoon and Coal Oil Point Reserve.
<i>Calystegia sepium</i> ssp. <i> binghamiae</i> Santa Barbara morning-glory	List 1A	Perennial herb, occurs in marshes and swamps. Presumed extinct, noted to have historically occurred in the Project area in a local lagoon.
<i>Centromadia parryi</i> ssp. <i> australis</i> Southern tarplant	List 1B	Annual herb, occurs in moist places such as margins of marshes and mesic grassland.
<i>Horkelia cuneata</i> ssp. <i> puberula</i> Mesa Horkelia	List 1B	Perennial herb, may occur in sandy/gravelly coastal shrub habitat; listed in the Dos Pueblos Canyon U.S. Geological Survey (USGS) grid (CNPS 2013); not known to occur at the Project site.
<i>Lasthenia conjugens</i> Contra Costa goldfields	List 1B	Annual herb, occurs in Isla Vista open space and vernal pool reserves; not known to occur in area
<i>Lonicera subspicata</i> ssp. <i> subspicata</i> Santa Barbara honeysuckle	List 1B	Shrub, occurs in chaparral and coastal scrub. Known to occur at scattered locations in the Project vicinity.
<i>Malacothrix incana</i> Dunedelion	List 4	Perennial herb, occurs in coastal dunes and coastal scrub. Reported from dunes near Goleta Slough. Not known to occur in Project area.
<i>Malacothrix saxatilis</i> var. <i> saxatilis</i> Cliff malacothrix	List 4	Perennial herb, occurs in coastal bluff scrub and coastal scrub. Known to occur in the Project vicinity.
<i>Scrophularia atrata</i> Black-flowered figwort	List 1B	Perennial herb, occurs in chaparral, coastal scrub, coastal dunes and riparian scrub. Reported from dunes near Devereux Slough and Coal Oil Point.
<i>Suaeda esteroa</i> Estuary seablite	List 1B	Perennial herb, occurs in coastal salt marshes. Historically reported from Goleta Slough near the beach.
<i>Suaeda taxifolia</i> Woolly seablite	List 4	Shrub, occurs on margins of salt marshes and in coastal scrub and coastal bluff scrub. Present on the Ellwood Mesa and West Campus Bluffs Nature Park.

¹ California Native Plant Society status codes:

List 1A Presumed extinct in California

List 1B Rare, threatened, or endangered in California and elsewhere

List 4 Plants of limited distribution

Sources: CSLC 2009; CNPS 2013.

1 Of the plant species listed in Table 4.7-1, only the southern tarplant (*Centromadia*
2 [=*Hemizonia*] *parryi* ssp. *australis*) is known to occur in the immediate vicinity of the
3 Project. Southern tarplant is an annual herb that gemminates in the spring and blooms
4 from June to November. It is a member of the sunflower family and has small, yellow
5 flowers and green, bristly, spine-tipped leaves. The largest local population of this
6 species is reported to occur within the EMT lease boundary, which would not be
7 affected by the Project (CSLC 2009).

8 *Avian Special Status Species*

9 A number of avian special status species inhabit the Project area, including the Western
10 snowy plover (*Charadrius alexandrinus nivosus*), Belding's savannah sparrow, and
11 white-tailed kites (*Elanus leucurus*) (City of Goleta 2004). The CNDDDB also lists the
12 ferruginous hawk (*Buteo regalis*), a State watch list species, within the Dos Pueblos
13 Canyon USGS grid. These individual species, as well as other potentially occurring
14 special status species, are further discussed below.

15 **Western Snowy Plover.** The Western snowy plover was listed by the USFWS as
16 threatened on March 5, 1993. Critical habitat was designated for this species in 1999
17 and a draft recovery plan for the Western snowy plover is available. A revised version of
18 critical habitat has been proposed for the species which includes a series of beaches
19 along the Pacific coastline from Washington to Southern California, and includes beach
20 habitat along the western side of Coal Oil Point (USFWS 2011).

21 The Western snowy plover breeds on the Pacific coast from southern Washington to
22 southern Baja California, Mexico, and in interior areas of Oregon, California, Nevada,
23 Utah, New Mexico, Colorado, Kansas, Oklahoma, and north-central Texas, as well as
24 coastal areas of Texas and possibly northeastern Mexico. The Pacific coast population
25 of the Western snowy plover (defined as those individuals that nest adjacent to or near
26 tidal waters, and includes all nesting colonies on the mainland coast, peninsulas,
27 offshore islands, adjacent bays, and estuaries) is genetically isolated from Western
28 snowy plovers breeding in the interior. The coastal population of the Western snowy
29 plover consists of both resident and migratory birds; some birds winter in the same
30 areas used for breeding (CSLC 2009). Migratory individuals of the coastal Western
31 snowy plover travel either north or south within their coastal range.

32 The Western snowy plover forages primarily in wet sand at the beach-surf interface and
33 feeds on marine worms, small crustaceans, and insects. This species is most likely to
34 nest in shallow depressions on undisturbed, flat areas with loose substrate, such as
35 sandy beaches and dried mudflats along the California coast. Normally, two to three
36 eggs are laid and incubated by both sexes, and hatch in 25 to 30 days. Hatchlings
37 fledge at about 31 days. The breeding season for this species can extend from mid-
38 March through mid-September.

1 The decline in the Western snowy plover population is attributed primarily to human
2 disturbance, predation, and loss of nesting habitat to encroachment of introduced
3 European beachgrass (*Ammophila arenaria*), and urban development (CSLC 2009).

4 Devereux Beach is included as a critical habitat unit for 3.1 miles of beach along Coal
5 Oil Point, to the east of the Project site. Beginning at the western limit of Isla Vista
6 County Park, the critical habitat unit follows the beach around Coal Oil Point to the
7 beach adjacent to the end of Santa Barbara Shores Drive and covers a total of 36 acres
8 (CSLC 2009). Within Coal Oil Point Reserve, the mouth of the Devereux Slough is
9 overwintering and breeding habitat for the Western snowy plover (City of Goleta 2004).
10 The wintering plover population reached a maximum of 406 individuals in 2003. The
11 number of breeding pairs reached a maximum of 26 in 2004 (CSLC 2009).
12 Management efforts to protect these plovers include the installation of signage and
13 fences delineating protected areas to limit impacts from beach use on this sensitive
14 species.

15 **Belding's Savannah Sparrow.** Belding's savannah sparrows (*Passerculus*
16 *sandwichensis beldingi*) are non-migratory, year-round residents of coastal salt marshes
17 from Santa Barbara County south into Baja California, Mexico. Their wintering habitat
18 may also include upland habitats. As with other coastal marsh species, development
19 along Southern California's coastline has eliminated much of the sparrow's habitat.
20 Many of the high tidal marsh areas used by this species for nesting have been diked or
21 filled for houses, roads, and other uses. In response to a decline in populations and
22 habitat fragmentation, the Belding's savannah sparrow was listed as endangered under
23 the California Environmental Species Act (CESA) on January 10, 1974; in 1986, a
24 survey of 27 California marsh areas found approximately 2,274 pairs of Belding's
25 savannah sparrows. Approximately 45 percent of the individuals are located on U.S.
26 Navy lands and in the Tijuana Estuary National Wildlife Refuge (CSLC 2009).

27 Belding's Savannah sparrows feed on sand flies and insects found on mudflats,
28 beaches and coastal vegetation. The breeding season ranges from February through
29 September, with nesting usually occurring from mid-March through early July. Pairs may
30 have multiple clutches in a breeding season. They nest in pickleweed, just above the
31 high tide line, and have also been observed to nest in salt grass. A concealed cup nest
32 is constructed, usually with its rim flush to the ground. Belding's savannah sparrows
33 have been observed on the Ellwood Mesa and within the Goleta Slough (CSLC 2009).
34 Territorial pairs and adults with fledglings have been observed in salt marsh vegetation
35 around Devereux Slough since the spring of 1990 (City of Goleta 2004). There is
36 potential for Belding's savannah sparrows to occur in the Bell Canyon Creek habitat.

37 **Raptors.** Due to the presence of grassland habitat at Ellwood Mesa and open space at
38 the Sandpiper Golf Course, numerous raptor species have been observed in the Project
39 vicinity. Cooper's hawk (*Accipiter cooperi*), ferruginous hawk, loggerhead shrike, long-

1 eared owl, and northern harrier, all of which are California watch-listed species, and
2 white-tailed kites (a California fully protected species) have been documented to occur
3 in the Project vicinity (City of Goleta 2004, CNDDDB 2013). Other raptors observed in the
4 Project vicinity include sharp-shinned hawk, burrowing owls, and American prairie
5 falcon.

6 Turkey vulture (*Cathartes aura*) roosting sites (which are listed as “an ecological
7 community of great interest” in the Santa Barbara County (2002) Comprehensive Plan
8 and nesting sites of other raptors have also been observed in the area. Nests and
9 breeding sites of these species (and others) are protected under the Migratory Bird
10 Treaty Act (MBTA). Lands near to the Project area include large eucalyptus trees which
11 may be used by these species for reproduction. As such, trees would be protected from
12 disruption if breeding or nesting activities occurred in them during the breeding season.

13 **Light-footed Clapper Rail.** With fewer than 400 breeding pairs left in the wild, the
14 Federal- and State-endangered light-footed Clapper Rail (*Rallus longirostris levipes*) is
15 one of the most endangered birds in California. The decline of the light-footed clapper
16 rail is believed to be directly related to the degradation and destruction of coastal salt
17 marsh habitat. The light-footed clapper rail was last documented in the Goleta Slough
18 marshes in the 1960s and in Devereux Slough during the 1940s (Lehman 1994). It is
19 considered a rare migrant and unlikely to occur in the Project area due to lack of
20 suitable habitat and extreme rarity.

21 **California Least Tern.** Information on the California least tern (*Sterna antillarum*
22 *browni*), which was federally listed as endangered in 1970 and State-listed in 1971, is
23 provided in Section 4.6.1, Environmental Setting (Marine Biological Resources).

24 *Invertebrate Special Status Species*

25 Two local beetle species are included on the CDFW Special Animals list, but are not
26 formally protected. They inhabit foredune habitat, and are therefore unlikely to reside in
27 the immediate vicinity of the Project site (due to the armoring present at the base of the
28 bluff); however, suitable habitat for these species is present in the Project vicinity.

29 **Globose Dune Beetle.** The globose dune beetle (*Coelus globosus*) is one of four
30 species of dune beetles restricted to coastal sand dunes and beaches along the Pacific
31 Coast. This species, similar to the other three, is strongly fossorial (burrowing). The
32 globose dune beetle’s distribution covers coastal dunes from northwestern Baja
33 California Norte in Mexico to British Columbia (City of Goleta 2004). It is further
34 restricted to foredunes immediately adjacent to the ocean and can tolerate frequent
35 inundation from ocean tides. Globose dune beetles occur in foredunes around Bell
36 Canyon and Tecolote creeks (City of Goleta 2004). The globose dune beetle has not
37 been recorded within the primary Project area; the nearest observation was within the
38 dune system at Haskell’s Beach, approximately 1,800 feet west of the EOF (CDFW

1 2013). With the exception of a limited dune field at Bell Canyon Creek mouth, existing
2 intertidal ephemeral beach habitats adjacent to Pier 421-1 and 421-2 do not provide
3 high quality habitat for this species which generally requires foredunes or at least
4 persistent beach berms.

5 **Sandy Beach Tiger Beetle.** The sandy beach tiger beetle (*Cicindela hirticollis gravida*)
6 occupies sandy beaches and coastal scrub habitats near estuaries in central and
7 Southern California. The larvae use the moist margin of estuaries for burrowing. The
8 adult beetles are carnivorous and feed on flies and other insects common to the tidal
9 zone. The sandy beach tiger beetle has been observed around the mouth of Devereux
10 Slough on the Coal Oil Point Reserve and at Goleta Beach. Suitable habitat also occurs
11 in foredunes at the base of the bluffs along the Ellwood Mesa (City of Goleta 2004). The
12 sandy beach tiger beetle has not been recorded within the primary project area; the
13 closest known observation is within the dune system in the Coal Oil Point Reserve,
14 approximately one mile east of the site (CDFW 2013). With the exception of a limited
15 dune field at Bell Canyon Creek mouth, existing intertidal ephemeral beach habitats
16 adjacent to Pier 421-1 and 421-2 do not provide high quality habitat for this species
17 which generally requires foredunes or at least persistent beach berms.

18 **Monarch Butterfly.** The monarch butterfly (*Danaus plexippus*) is a common winter
19 migrant in Santa Barbara County known to occur within 1 mile of the Project site.
20 Monarchs are included in the CDFW's Special Animals List, and overwintering sites are
21 protected under the Santa Barbara County Local Coastal Program (LCP) and City of
22 Goleta (2006) General Plan/Coastal Land Use Plan (GP/CLUP) as environmentally
23 sensitive habitat (ESH). Butterfly aggregation sites within the City of Goleta's portion of
24 Open Space Plan Area are referred to as the Ellwood Complex (CSLC 2009; City of
25 Goleta 2004). The Ellwood Complex consists of six localized sites. All of these sites
26 consist of large clusters or windrows of eucalyptus trees. Roosting monarch butterflies
27 have not been observed at the Project site.

28 *Estuarine and Riparian Special Status Species*

29 Bell Canyon to the west of the Project site contains marsh habitats which qualify both as
30 estuarine (due to the influence of the adjacent ocean) and freshwater (further
31 upstream). Two special status species have been documented to reside in the area and
32 are discussed below:

33 **Southwestern Pond Turtle.** The southwestern pond turtle (*Clemmys marmorata*
34 *pallida*) is a California Species of Special Concern and is currently listed as a candidate
35 for Federal protection. Historically, the southwestern pond turtle had a relatively
36 continuous range along the Pacific slope drainages from southern Washington to Baja
37 California. Habitat requirements for this species include still or slow-moving water and
38 the availability of aerial and aquatic basking sites. The southwestern pond turtle is

1 known to occur in Devereux Slough, Goleta Slough, and the Campus Lagoon at UCSB.
2 There is potential for this species to occur in the middle and upper portions of Ellwood
3 Canyon, Bell Canyon Creek, and Tecolote Creek (City of Goleta 2004).

4 **Tidewater Goby.** The tidewater goby (*Eucylogobius newberryi*) was federally listed as
5 endangered in 1994 by the USFWS. It is a small estuarine fish reaching only 2 inches in
6 length. Preferred habitat for this species includes lagoons, marshes, and tributaries with
7 tidal influence between Del Norte County and San Diego County, California. The goby
8 resides in coastal streams within 2 miles of the ocean and slow, shallow, brackish
9 water. They usually inhabit water with salinities less than 10 parts per thousand (ppt)
10 (City of Goleta 2004); however, they can tolerate salinities up to 60 ppt. This species
11 feeds on small aquatic invertebrates and insect larvae. The majority of tidewater gobies
12 live only one year, making this species highly sensitive to adverse environmental
13 conditions during the breeding season. In the spring and summer of 1998, 1999, and
14 2002, dense populations of juvenile and adult tidewater gobies were present in the
15 terminal lagoons and lower reaches of Tecolote Creek and Bell Canyon Creek (City of
16 Goleta 2004).

17 **California Red-Legged Frog.** The California red-legged frog is listed as threatened by
18 the USFWS, and is considered a Species of Special Concern (CDFW 2009). Its
19 preferred habitats are freshwater marshes and streams with thick growths of emergent
20 vegetation in association with “plunge pools” of moderately deep water. According to the
21 City of Goleta General Plan Conservation Element, California red-legged frogs have
22 been recorded in Bell Canyon and Tecolote creeks (City of Goleta 2006).

23 **Invasive and Non-Native Species**

24 The giant reed, an invasive species native to the Middle East, is apparent in some areas
25 of the Project site and is believed to have been introduced to the area from upstream
26 sources or via rafting. In particular, loosely distributed clumps of the reed are present in
27 the vegetated areas just upslope from the shoreline armoring structures. The California
28 Invasive Plant Council (CIPC) has ranked the giant reed as a species with “severe
29 ecological impacts on physical processes, plant and animal communities, and
30 vegetation structure” (CIPC 2006).

31 **Overview of Biological Resources in the Secondary Study Area**

32 The 8.5-mile-long Line 96 oil pipeline traverses a range of habitat types which support a
33 variety of sensitive species. Most of the reach of this pipeline crosses agricultural lands,
34 disturbed or ruderal habitats along roadways and road corridors, and non-native annual
35 grasslands that do not typically support sensitive species. However, the pipeline also
36 crosses known environmentally sensitive habitats, particularly those found within and on
37 the slopes above drainages including Tecolote, Las Varas, Gato, Dos Pueblos, and Las
38 Flores Creeks. These coastal streams typically support coastal sage scrub and oak

1 woodland habitats on the slopes that are traversed by the Line 96 pipeline as well as
2 sensitive riparian woodlands along much of the pipeline's route. Where these creeks
3 drain to the Pacific Ocean, small estuaries and wetlands are present.

4 A variety of sensitive species that could be affected by operation of the Line 96 pipeline
5 can be found within these drainages. Of particular concern are sensitive in-stream fauna
6 that could be affected by a potential future oil spill from this pipeline, including the
7 federally endangered southern steelhead trout (*Oncorhynchus mykiss iridius*), the
8 federally threatened California red-legged frog (*Rana draytonii*), and the southwestern
9 pond turtle, a California species of special concern.

10 The habitats and sensitive species found along the Line 96 pipeline alignment that could
11 potentially be affected by pipeline operation are discussed in detail in the Line 96
12 Modification Project EIR (Santa Barbara County 2011).

13 **4.7.2 Regulatory Setting**

14 Terrestrial biological resources in and around the Project area are governed by a variety
15 of Federal, State, and local laws and regulations. Quantitative guidelines, standards,
16 limits, and restrictions promulgated in the regulations form the basis for many for the
17 criteria used to evaluate the significance of the Project's impacts to biological resources.
18 Federal and State laws that may be relevant to the Project, including the California and
19 Federal Endangered Species Acts, are identified in Table 4.0-1. Local laws, regulations,
20 and policies are discussed below.

21 **Local**

22 *The City of Goleta GP/CLUP*

23 The City of Goleta GP/CLUP has established policies relating to protecting biological
24 resources in the city limits in the Open Space and Conservation Elements. These
25 policies focus on the preservation and protection of Goleta's environmental resources,
26 including valuable habitat areas, to the maximum extent feasible, while allowing
27 reasonable development in conformance with the provisions of the Land Use Element.

28 *The Santa Barbara County Comprehensive Plan*

29 The Santa Barbara County Comprehensive Plan has established policies related to
30 protecting biological resources in the County. The Environmental Thresholds and
31 Guidelines Manual (1995), including Appendix A of the Manual, established significance
32 criteria and thresholds that supplement those provided in the State CEQA Guidelines for
33 determination of significant environmental effects. For the purpose of this analysis, the
34 Project is subject to Comprehensive Plan policies.

1 **4.7.3 Significance Criteria**

2 Impacts to terrestrial biological resources would be considered significant if the Project
3 results in:

- 4 • The potential for any part of the population of a threatened, endangered, or
5 candidate species to be directly affected or if its habitat is lost or disturbed;
- 6 • Any “take” of a Federal- or State-listed endangered, threatened, regulated, fully
7 protected, or sensitive species;
- 8 • Prolonged disturbance to, or destruction of, the habitat (or its functional habitat
9 value) of a species that is recognized as biologically or economically significant in
10 local, State, or Federal policies, statutes, or regulations;
- 11 • A net loss in the functional habitat value of any Environmentally Sensitive Habitat
12 Area (ESHA), including but not limited to salt, freshwater, or brackish marsh;
13 marine mammal haul-out or breeding area; eelgrass; river mouth; coastal lagoon
14 or estuary; seabird rookery; or Area of Special Biological Significance;
- 15 • Permanent change in the community composition or ecosystem relationships
16 among species that are recognized for scientific, recreational, ecological, or
17 commercial importance;
- 18 • Permanent alteration or destruction of habitat that precludes reestablishment of
19 native biological populations;
- 20 • Potential for the movement or migration of fish or wildlife to be impeded; or
- 21 • A substantial loss in the population or habitat of any native fish, wildlife, or
22 vegetation or if there is an overall loss of biological diversity. Substantial is
23 defined as any change that could be detected over natural variability.

24 **4.7.4 Impact Analysis and Mitigation**

25 Potential construction- and operations-related impacts to terrestrial biological resources
26 are evaluated below. Table 4.7-2, located at the end of this section, provides a
27 summary of these impacts and recommended MMs to address these impacts.

28 **Impact TBIO-1: Short-Term Construction Impacts to Biological Resources**
29 **Construction activities associated with installation of underground cables, repair**
30 **of pipelines, recommissioning of Pier 421-2, and decommissioning and removal**
31 **of Pier 421-1 and related infrastructure may impact existing wetlands along the**
32 **project access road and nearby ESHAs (Less than Significant with Mitigation).**

1 **Impact Discussion**

2 Project construction in the area involves the following components: (1) extending and
3 upgrading the existing 6-inch line to accommodate one internal 3-inch flowline from Pier
4 421-2 to the tie-in at the EOF; (2) installing subsurface cables for power and system
5 control between the EOF and Pier 421-2; ~~and~~ (3) installing an ESP and other equipment
6 to facilitate recommissioning of Pier 421-2; and (4) installing support equipment within
7 the already developed areas of the EOF, including the programmable logic controller
8 cabinet, variable speed drive package, transformer, and various pressure sensors and
9 gauges. This equipment would be located approximately 25 to 50 feet from the western
10 fenceline of the EOF and Bell Canyon Creek beyond, immediately adjacent to existing
11 industrial equipment. Additionally, within 90 days of recommissioning of Pier 421-2
12 Venoco would apply for decommissioning and removal of Pier 421-1 and its associated
13 well and caisson; this latter activity is expected to occur approximately 1 year following
14 Project construction, and is considered in this analysis. Designated Environmental
15 Sensitive Habitat Areas (ESHAs) of sage scrub/dune/bluff scrub are located on the bluff
16 behind the PRC 421 piers and Bell Canyon Creek and Sperling Preserve are located
17 less than 300 feet from the area that would be impacted by construction activities
18 related to the Project, including the subsequent decommissioning and removal of Pier
19 421-1.

20 Excavation for the new subsurface cables would occur in the vicinity of the 12th tee of
21 Sandpiper Golf Course, a highly disturbed area of limited habitat value, with the
22 exception of possible use by raptors for foraging. Use of this area would be expected to
23 include golfing and recreation, and the habitat value is therefore judged to be of similar
24 negligible value. ~~Further, only a~~ Areas near the ends of the 6-inch line would be affected
25 as construction procedures entail opening both ends of the line and sliding the internal
26 3-inch flowline inside. Additionally, the 6-inch pipeline extensions at both ends, including
27 the approximately 50-foot section by the EOF and 450-foot section along Pier 421-2 and
28 between Piers 421-1 and 421-2, as well as the repair of the 25-foot section near the 12th
29 tee of the Sandpiper Golf Course, would involve some excavation along and adjacent to
30 the access road. No excavation would occur within Bell Canyon Creek and no native
31 riparian vegetation would be removed in this area. Excavation of cable trenches and
32 installation of power and system control lines would take place along the PRC 421
33 access road right of way, an area which borders three small known wetlands. Impacts to
34 native species and habitats could occur through disturbance to fresh-/brackish-water
35 marsh wetland habitats and associated plant and wildlife species by trenching,
36 deposition of spoils, and operation of heavy equipment resulting in ground disturbance
37 and increased noise levels. Installation of support equipment at the EOF would occur
38 within the existing developed area of the EOF, adjacent and east of the access road,
39 removed by 25 to 50 feet from the ESHA within Bell Canyon Creek. Impacts to special
40 status species potentially including California red-legged frogs are not expected as a
41 result of these construction activities; however, incidental disturbance by equipment,

1 indirect construction effects, and impacts from accidental fuel or oil releases are
2 possible. If nesting birds are present near the Project, these animals could be disturbed
3 by construction activities. This impact would be less than significant with mitigation.

4 **Mitigation Measures**

5 In addition to mitigation listed below, MM WQ-2 would apply and would require wetland
6 avoidance and minimization measures be in place before construction commences.

7 **MM TBIO-1a. Locate Power Cables and Pipeline Outside ESHA.** To the
8 maximum extent feasible, Venoco shall locate new power cables and pipeline
9 repair activities outside existing wetland areas ~~and wetland buffers (defined as~~
10 ~~undeveloped lands surrounding wetlands)~~ along the access road. A wetland
11 delineation shall be performed in accordance with MM WQ-2. The delineation
12 report and related restoration plan, if required, will establish construction
13 avoidance techniques and restoration where impacts cannot be avoided. The
14 City of Goleta requires a minimum 3 to 1 ratio for wetland or wetland buffer
15 impacts. The wetland delineation, wetland protection plan, and related
16 restoration plan shall be prepared by Venoco for the City of Goleta and Coastal
17 Commission comment and final approval prior to issuance of the City's Land
18 Use Permit. To protect adjacent small wetlands from disturbance, the inland
19 edge of the access road shall be fenced prior to commencement of
20 construction activities. Any unavoidable intrusion of construction activities into
21 this area shall only be performed under the supervision of a City of Goleta-
22 approved biologist. Venoco shall also engage a qualified biologist to prepare a
23 Native Habitat and Special Status Species Survey and Protection Plan
24 (Protection Plan) to be submitted to the City of Goleta and the California
25 Coastal Commission for review and approval prior to the issuance of the City's
26 Land Use Permit. The Protection Plan will map and describe accurate locations
27 of resources in the City's jurisdiction, from the mean high tide line north to
28 Hollister Avenue, in the context of the Project features and all construction
29 staging, laydown, stockpile, and parking areas and shall identify methods to
30 avoid or reduce related impacts to sensitive biological resources and resource
31 buffers. Protection measures will include, at a minimum, a requirement for pre-
32 construction surveys, worker training, the presence of the Project Biological
33 Monitor during all construction activities, and authorization of the Project
34 Biological Monitor to stop work if threats to any sensitive species or habitats
35 are identified during monitoring.

36 **MM TBIO-1b. Project Biological Monitors.** The City of Goleta shall hire a Project
37 Biological Monitor, paid for by Venoco, to supervise pipeline and cable
38 installation, and oversee all construction activities that cross sensitive biological
39 areas and habitat restoration and enhancement activities. The Project
40 Biological Monitor shall ensure that damage to any sensitive wetland habitat
41 within or adjacent to construction zones is minimized. The Project Biological
42 Monitor and the project engineer shall clearly designate "sensitive resource
43 zones" on the project maps and construction plans, which would include the
44 mouth of Bell Canyon Creek. Sensitive resource zones shall be defined in the

1 Native Habitat and Special Status Species Survey and Protection Plan
2 (required under MM TBIO-1a), to avoid impacts to special status biological
3 resources. If the Project Biological Monitor determines that birds are nesting
4 and/or breeding in the Project vicinity, Venoco shall cease Project activities that
5 may affect these birds during the breeding season.

6 **MM TBIO-1c. Restoration Plan/Restoration.** Venoco shall submit a Restoration
7 Plan prepared by a consultant specializing in restoration ecology to the City,
8 California State Lands Commission, California Coastal Commission, and
9 California Department of Fish and Wildlife staffs for review and approval prior
10 to the issuance of the City's Land Use Permit. The Restoration Plan shall
11 include at least the following elements and shall be consistent with the wetland-
12 specific guidance and Native Habitat and Special Status Species Survey and
13 Protection Plan associated with implementation of MM WQ-2a and TBIO-1a.

- 14 • Venoco shall restore any plant communities disturbed by Project
15 construction activities within 90 days of completion of Project construction in
16 conformance with the City-approved Restoration Plan.
- 17 • The Plan shall include criteria for evaluating success of restoration efforts
18 and contingencies in the event efforts are not successful.
- 19 • Any salvaging and replanting of existing native vegetation shall be
20 undertaken as much as feasible at the direction of the Project Biological
21 Monitor.
- 22 • Only native vegetation and locally derived seeds shall be planted in project
23 restoration areas.
- 24 • Monitoring and reporting of restored sites by the Project Biological Monitor
25 shall occur for a minimum of 5 years after Project completion, with changes
26 made as necessary based on annual monitoring reports.

27 **MM TBIO-1d. Protect Stockpiles of Excavated Material.** In addition to Best
28 Management Practices identified in the State Water Resource Control Board
29 401 certification, materials excavated to install the underground cables shall be
30 stockpiled in such a way that they will not inadvertently spill into or be washed
31 into wetland areas. Stockpile areas shall be located at least 100 feet from
32 delineated wetlands. Drainages and any riparian areas shall be prohibited from
33 use for disposal or temporary placement of excess fill. The Project Biological
34 Monitor shall ensure compliance with this mitigation measure during
35 construction monitoring activities.

36 **MM TBIO-1e. Equipment Use, Storage, and Maintenance.** Prior to issuance of the
37 Project Land Use Permit, Venoco shall submit an equipment use, storage, and
38 maintenance work plan to the City of Goleta and California State Lands
39 Commission staffs for review and approval. The work plan shall include at least
40 the following elements.

- 41 • Heavy equipment and construction activities shall be restricted to the
42 defined construction right-of-way. Vehicles and personnel shall only use
43 existing access roads to the maximum degree feasible.

- 1 • Emergency provisions shall be in place at all drainage crossings prior to the
- 2 onset of construction to deal with accidental spills.
- 3 • All equipment used on site and in or near drainages shall be maintained
- 4 such that no leaks of oil, fuel, or vehicle residues will take place.
- 5 • Provisions shall be in place to remediate any accidental spills.
- 6 • All machinery shall be stored and fueled in designated locations, such as
- 7 the equipment laydown areas next to the Ellwood Onshore Facility, as
- 8 specified in previous sections.

9 **MM TBIO-1f. Biological Enhancement Activities.** Where possible (e.g., not
 10 including steep slopes adjacent to the roadway), existing native habitats within
 11 100 feet of the proposed trenching activities shall be enhanced in terms of their
 12 biological value through removal of invasive, non-native species and the
 13 planting of appropriate native species. Enhancement activities are to include
 14 removal of the non-native giant reed (*Arundo donax*) and other invasive
 15 species identified by the Project Biological Monitor. Hand-removal of above-
 16 ground stalk and rhizome biomass shall be undertaken to prevent damage to
 17 adjacent native plants. Monitoring and reporting of restored sites by the Project
 18 Biological Monitor shall occur for a minimum of 5 years after Project
 19 completion, with changes made as necessary based on annual monitoring
 20 reports.

21 Rationale for Mitigation

22 Implementation of MMs TBIO-1a through TBIO-1f would reduce short-term construction
 23 related impacts to onshore biological resources by protecting sensitive resources in the
 24 immediate Project area, providing for construction supervision, and requiring
 25 restoration-enhancement of impacted habitats.

26 After implementation of MMs TBIO-1a through TBIO-1f, impacts to terrestrial biological
 27 resources from short-term construction activities would be mitigated to a less than
 28 significant level.

29 **Impact TBIO-2: Oil Spill Impacts to Terrestrial Biological Resources**

30 **An accidental oil spill and subsequent cleanup efforts during operation of the**
 31 **Project would potentially result in the loss or injury of threatened, endangered, or**
 32 **candidate species such as the Western snowy plover; the loss or degradation of**
 33 **functional habitat value of sensitive biological habitats such as coastal wetlands;**
 34 **or cause a substantial loss of a population or habitat of native fish, wildlife, or**
 35 **vegetation (Significant and Unavoidable).**

36 Impact Discussion

37 An oil spill could occur from Project components including the wells or caisson at Pier
 38 421-2 the pipeline from Pier 421-2 to the EOF, or the Line 96 pipeline; an oil spill would

1 cause a potentially significant impact to biological resources. Spills in the primary study
2 area would likely be limited to a maximum of 1.7 barrels and those within the secondary
3 study area to a maximum of 60 barrels along the Line 96 pipeline for Llagas Creek and
4 52 barrels from Corral Canyon. While these spills are relatively small, the threshold for
5 such spills is zero and impacts would be considered potentially significant.

6 These impacts could include (1) the loss or injury of Federal- or State-listed wildlife
7 species, (2) the loss or degradation of upland, wetland, aquatic, or sensitive biological
8 habitat (including salt, freshwater, or brackish marsh; river mouth; coastal lagoons,
9 estuaries, and breeding habitat designated as critical for the Western snowy plover), or
10 (3) injury to plants and terrestrial and aquatic wildlife (potentially including California red-
11 legged frogs) through direct toxicity, smothering, or entrapment from cleanup efforts.
12 Small leaks or spills that would be contained and remediated quickly could have minor
13 or negligible impacts on biological resources while large spills have the potential to
14 spread onto larger surface areas and may increase the potential for long-term impacts
15 on biological resources. Any large spill from the onshore pipeline would require
16 subsequent cleanup. The cleanup operations and repair would result in impacts on
17 habitat in the Project vicinity, with the extent of disturbance determined by the
18 magnitude of the spill.

19 Spills from activities from the wells, caissons, pipelines near or on the beach, or
20 disturbances resulting from cleanup efforts within the sandy beach and foredune
21 habitats could affect Western snowy plover and California least tern, especially if a spill
22 were to occur during the breeding seasons for these species. Western snowy plovers
23 use Devereux Slough and the adjacent beaches to the west as wintering and nesting
24 sites. Proposed critical habitat for the Western snowy plover would include Devereux
25 Beach. Effects of an oil spill in this area during the breeding season would potentially
26 increase mortality of nesting plovers, chicks, and fledglings depending on the timing of
27 the spill. A spill would also contaminate or increase mortality of invertebrates that are
28 forage material for the plover, therefore resulting in indirect impacts on individual
29 plovers and/or breeding success. Western snowy plover populations have been
30 decreasing throughout California; however, the population at Coal Oil Point Reserve
31 has increased since 2001 due to successful management efforts by the reserve's staff
32 and volunteer docents (Coal Oil Point Reserve 2008). An accidental oil spill and cleanup
33 activities would interfere with restoration efforts intended to improve the status of the
34 species and would degrade critical habitat. Other sensitive beach area species
35 potentially affected by a spill include the globose dune beetle, the sandy tiger beetle,
36 California red-legged frog, and the tidewater goby in the Bell Canyon and Tecolote
37 Creek marshes, or to steelhead or steelhead Critical Habitat in Tecolote Creek.

38 Similarly, spills from activities from the wells, caissons, pipelines near or on the beach,
39 or disturbances resulting from cleanup efforts within areas coastal estuaries such as
40 Tecolote Creek and the Devereux Slough could impact sensitive coastal wetland

1 habitats and dependent species. See the EMT Lease Renewal EIR (CSLC 2009) and
2 Line 96 Expansion Project EIR (Santa Barbara County 2011) for more discussions of
3 potential impacts to regional wetland habitat areas from an oil spill.

4 A rupture in the proposed 3-inch flowline connecting Well 421-2 to the EOF would likely
5 be contained within the 6-inch line and detected at the control facility where a proper
6 response would be initiated. However, if a spill was not contained, it would likely flow
7 downhill through the coastal bluff scrub habitat and potentially onto the upper intertidal
8 and/or into marsh areas adjacent to the site (either at the terminus of the access road or
9 Bell Canyon). Alternatively, if the spill occurred along the western portion of the pipeline,
10 oil would flow into Bell Canyon Creek. Due to the area's topography, most spills from
11 this portion of the pipeline with sufficient volume to have overland flow would potentially
12 affect the coastal bluff scrub, marsh, dune, and marine habitats.

13 Spills that enter drainages or riparian corridors along the Line 96 pipeline route to the
14 Plains All American Pipeline L.P. (PAAPLP) Coastal Pipeline tie-in could affect federally
15 listed species, including southern steelhead trout, California red-legged frog, and
16 tidewater goby, especially if a spill occurred during these species' breeding season.
17 Line 96 is designed with numerous safety systems to prevent spills and minimize the
18 potential amount of oil that can be spilled into sensitive areas. These include regular
19 pipeline monitoring and inspection, block valves and flow controls. However, the Project
20 would result in an incremental increase in oil transport operations associated with the
21 Line 96 pipeline, which would incrementally increase the potential for a pipeline failure.
22 Small leaks or spills that could be contained and remediated quickly would potentially
23 have minor or negligible impacts on onshore biological resources. In contrast, large
24 spills or pipeline ruptures that have the potential to spread onto larger surface areas
25 would have significant impacts to terrestrial biological resources. The new pipeline
26 crosses several major streams and tributaries that flow to the Pacific Ocean.

27 The effects of spilled oil on terrestrial biological resources would depend on factors such
28 as the physical and chemical properties of the oil, specific environmental conditions at
29 the time of the spill, and the species present. Certain types of communities would be
30 more severely affected by an oil spill than others. Salt or fresh water marshes would be
31 most sensitive because the biological activity is concentrated near the soil or water
32 surface where oil would be stranded. Oil could also be potentially widely dispersed by
33 stream or tidal flow, depending on season and meteorological conditions.

34 An oil spill would impact vegetation both directly and indirectly. Direct effects include
35 smothering of plants that would reduce the availability of water, nutrients, and oxygen to
36 the plant root system. This would potentially result in reduced growth or death.
37 Vegetation recovery would potentially be slow in areas of oiled soils because of
38 lingering toxicity or altered soil characteristics. Impacts of cleanup might be more
39 substantial than the effect of the spilled oil, depending on the remediation method.

1 Clearing or grading would potentially be required to provide access to ruptured pipelines
2 and oiled vegetation; soils would likely need to be removed and disposed.

3 Direct impacts on wildlife from oil spills include physical contact with oil, ingestion of oil,
4 and loss of food and critical nesting and foraging habitats. Aquatic reptiles, amphibians,
5 and birds would be the most vulnerable to oil spills. For any impacted sensitive wildlife
6 species, the level of impact would depend on the size and location of the spill, the
7 amount of habitat affected, and the number of individuals and species affected. Impacts
8 on sensitive wildlife species could be short to long term depending on the amount of oil
9 spilled, environmental conditions at the time, containment and cleanup measures taken,
10 and length of time for habitat and sensitive species recovery. This impact would be
11 significant and unavoidable.

12 **Mitigation Measures**

13 Venoco currently maintains an oil spill contingency ~~plan~~ plan (OSCP) that addresses
14 spill response actions to be completed in the event of a “significant event” (Venoco
15 2011a; 2011b). Where a spill or cleanup has the potential to result in impacts on
16 sensitive biological resources or the loss of native vegetation, implementing the
17 following updates to the Venoco OSCP would reduce impacts to onshore biological
18 resources.

19 **MM TBIO-2a. Oil Spill Contingency Plan (OSCP) Measures Regarding**
20 **Protection of Biological Resources.** Before re-starting production at PRC
21 421, Venoco shall revise and update the OSCP to address protection of
22 sensitive biological resources disturbed during an oil spill or cleanup activities.
23 The revised OSCP shall, at a minimum, include: (1) specific measures to avoid
24 impacts on Federal- and State-listed endangered and threatened species and
25 Environmentally Sensitive Habitat Areas (ESHAs) during response and
26 cleanup operations; (2) identify, feasible, low-impact, site-specific, and species-
27 specific techniques; (3) identify standards of a spill response personnel training
28 program; (4) funding (up to \$5,000 each) for City and Coal Oil Point Reserve
29 updates to multi-hazard response plans and other emergency response
30 documents (e.g., those for Coal Oil Point Reserve) to ensure clear internal and
31 inter-agency communication in the event of an accident and for spill clean-
32 up/restoration; and (5) provide one-time training and a brief checklist regarding
33 the OSCP and the Emergency Action Plan for Neighborhood Services and
34 Public Safety Department and Planning and Environmental Review
35 Department, and the staff of the Coal Oil Point Reserve. Venoco shall submit
36 the updated OSCP to the California State Lands Commission, Department of
37 Fish and Wildlife Office of Spill Prevention and Response, California Coastal
38 Commission, Santa Barbara County, and City of Goleta staffs for review and
39 approval prior to operation of the recommissioned facilities.

40 **MM TBIO-2b. Oil Spill Contingency Plan (OSCP) Measures Regarding Habitat**
41 **Protection and Restoration.** Before re-starting production at PRC 421,

1 Venoco shall revise and update the OSCP to address revegetation of any
2 areas disturbed during an oil spill or cleanup activities. The revised OSCP shall
3 include: (1) preemptive identification of access and egress points, staging
4 areas, and material stockpile areas that avoid sensitive habitat areas; (2)
5 stipulations for development and implementation of site-specific habitat
6 restoration plans and other site-specific and species-specific measures; (3)
7 identification of sources for restoration project implementation (e.g., restoration
8 contractors, seed vendors, native plant nursery facilities, academic institution
9 support); (4) procedures for timely re-establishment of vegetation; (5)
10 monitoring procedures and minimum success criteria to be satisfied for
11 restoration areas; (6) funding (up to \$5,000 each) for City and Coal Oil Point
12 Reserve updates to multi-hazard response plans and other emergency
13 response documents to ensure clear internal and inter-agency communication
14 in the event of an accident and for spill clean-up/restoration; and (7) provide
15 one-time training a brief checklist regarding the OSCP and the Emergency
16 Action Plan for Neighborhood Services and Public Safety Department and
17 Planning and Environmental Review Department. Venoco shall submit the
18 updated OSCP to the California State Lands Commission, Department of Fish
19 and Wildlife Office of Spill Prevention and Response, California Coastal
20 Commission, Santa Barbara County, and City of Goleta staffs for review and
21 approval prior to operation of the recommissioned facilities.

22 The certified Line 96 Modification Project EIR (Santa Barbara County 2011) also
23 included MM BIO-4a that required an update to the OSCP to protect sensitive biological
24 resources in the vicinity of the pipeline route; that MM has been implemented.

25 **Rationale for Mitigation**

26 MM TBIO-2a would provide greater specificity to the OSCP by planning for targeted
27 efforts to minimize remediation impacts on special status species and their habitats,
28 identifying methodologies to reduce impacts from an oil spill, and minimizing the use of
29 procedures that have the potential to cause more damage to a sensitive habitat than the
30 oil spill itself. This measure would also permit training and provide funding for related
31 revisions to plans by the two understaffed agencies most responsible for oversight of
32 the sensitive biological resources potentially affected by a Project-related oil spill.

33 MM TBIO-2b would ensure that restoration efforts after an impacting event are
34 undertaken efficiently and effectively by establishing plans for mitigating impacts on
35 local populations of sensitive wildlife species and to restore native plant and animal
36 communities to pre-spill conditions. It would include preemptive identification of access
37 and egress points, staging areas, and material stockpile areas that avoid sensitive
38 habitat areas. Assistance and training would be provided to the two agencies with
39 management authority for wetlands and beaches potentially affected by such a spill.

1 Residual Impacts

2 An oil spill that potentially results in impacts on Federal- or State-listed wildlife species,
3 such as the Western snowy plover and California least tern, cannot be reduced below
4 significance criteria. Although implementation of MMs TBIO-2a and TBIO-2b would
5 reduce impacts on plant communities and common wildlife species, and could reduce
6 impacts on Federal- and State-listed species and other sensitive plant and wildlife
7 species and their habitats, it would not entirely eliminate the risk of spill impacts to these
8 and other biological resources.

9 MM TBIO-2a would require Venoco to undertake a planning effort addressing
10 contingencies for an oil response. Contingencies would be targeted and focused on
11 preserving species of concern and their habitat and other plant and wildlife communities
12 to the maximum extent practicable. MM TBIO-2b would provide greater information and
13 capabilities on how to develop and implement habitat restoration plans needed to
14 effectively restore native plant and animal communities to pre-spill conditions and
15 provide monitoring effectiveness criteria. These would help minimize potential oil spill-
16 induced impacts on biological resources including sensitive species, sensitive species
17 habitat, the nearby dune swale pond, surrounding wetland areas, and Devereux Slough.
18 Revegetating with native species in areas where vegetation is removed or otherwise
19 impacted by a spill or cleanup activities would potentially reduce significant impacts on
20 native vegetation and wildlife habitats to below significance criteria; however, large spills
21 that result in impacts to designated (or proposed) critical habitat, wetland and aquatic
22 habitats, and biota, including Federal- and State-listed species would remain significant
23 even after mitigation.

24 MM BIO-4a from the Line 96 Modification Project EIR required update of the OSCP to
25 ensure protection of sensitive resources, and ensures that response capabilities are in
26 place to address potential future oil spills from this pipeline as required to ensure spill
27 cleanup and protection of sensitive habitats and species.

Table 4.7-2. Summary of Terrestrial Biological Resources Impacts and Mitigation Measures

Impact	Mitigation Measures
TBIO-1: Short-Term Construction Impacts to Biological Resources	TBIO-1a. Locate Power Cables and Pipeline Outside ESHA. TBIO-1b. Project and Biological Monitors. TBIO-1c. Restoration Plan/Restoration. TBIO-1d. Protect Stockpiles of Excavated Material. TBIO-1e. Equipment Use, Storage, and Maintenance. TBIO-1f. Biological Enhancement Activities. WQ-2. <u>Wetland Delineation, Avoidance and Impact Minimization</u>
TBIO-2: Oil Spill Impacts to Biological Resources	TBIO-2a. OSCP Measures Regarding Protection of Biological Resources. TBIO-2b. OSCP Measures Regarding Habitat Protection and Restoration. MM BIO-4a (update <u>Emergency Action Plan and Oil Spill Contingency Plan</u>) contained in the certified Line 96 Modification Project EIR.

1 4.7.5 Cumulative Impacts Analysis

2 **Impact TBIO-3: Cumulative Impacts to Terrestrial Biological Resources**

3 **Potential oil spills occurring as a result of recommissioning Pier 421-2 could**
4 **result in contributions to cumulative terrestrial biological resource impacts**
5 **(Significant and Unavoidable).**

6 **Impact Discussion**

7 Potential Project-related oil spills could contribute to cumulative impacts to terrestrial
8 biological resources in the Project vicinity. Section 3, Cumulative Impacts Methodology,
9 details projects in the surrounding area that could produce impacts to terrestrial
10 biological resources similar to those anticipated by the Project. Several residential,
11 commercial, institutional, and recreational projects are under environmental review,
12 pending approval, or approved in the Project vicinity and Line 96 pipeline. All of these
13 projects would involve ground disturbance that may impact onshore biological resources
14 in the Project area, as may other approved and probable future projects. The region of
15 influence for onshore biological resource impacts includes Devereux, Bell, Tecolote,
16 Eagle, Dos Pueblos, Las Varas, Gato, Las Llagas, El Capitan, and Corral/Las Flores
17 creeks. Much of the past, present and foreseeable onshore development activity is
18 concentrated within the Devereux Creek area. Potential oil spills from production at
19 PRC 421 and transport through the Line 96 pipeline, when combined with the potential
20 for spills from on-going operations at the LFC processing facility and the PAAPLP
21 Coastal Pipeline could result in adverse biological impacts to Corral/Las Flores Creek.
22 Potential oil spills occurring as a result of Project completion could cumulatively
23 contribute to those impacts. Because of the severity of impacts associated with potential
24 large oil spills from the EOF or Line 96 pipeline, the Project's contribution to the
25 cumulative degradation of Devereux Slough and other waterways and habitat along the
26 pipeline route would be significant and unavoidable.

27 **Mitigation Measures**

28 MMs TBIO-2a and -2b would apply to this impact. MM BIO-4a from the Line 96
29 Modification Project EIR required update of the OSCP to protect sensitive resources,
30 which further protects sensitive terrestrial biological resources.

31 **Residual Impacts**

32 Each of these projects must meet regulatory requirements designed to reduce the
33 probability and consequences of accidental releases to the environment. However, even
34 the best designed and implemented MMs, such as safe design of the facilities, oil spill
35 contingency plans, training and drills, and availability of oil spill cleanup means, cannot
36 eliminate all risk of an oil spill. The Project's contribution to cumulative impacts would
37 remain significant and unavoidable.

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1 **4.8 LAND USE, PLANNING, AND RECREATION**

2 This section details the existing land use, planning, and recreation conditions in the
3 Project vicinity, outlines applicable land use plans and policies, and summarizes
4 potential land use, planning, or recreation impacts and mitigation measures (MMs)
5 associated with the Project. Information in this section is primarily based on the:

- 6 • City of Goleta General Plan/Coastal Land Use Plan (GP/CLUP) Land Use, Open
7 Space, and Conservation Elements;
- 8 • City of Goleta Coastal Zoning Ordinance;
- 9 • City of Goleta GP/CLUP Environmental Impact Report (EIR); and
- 10 • Santa Barbara County Comprehensive and Coastal Plans.

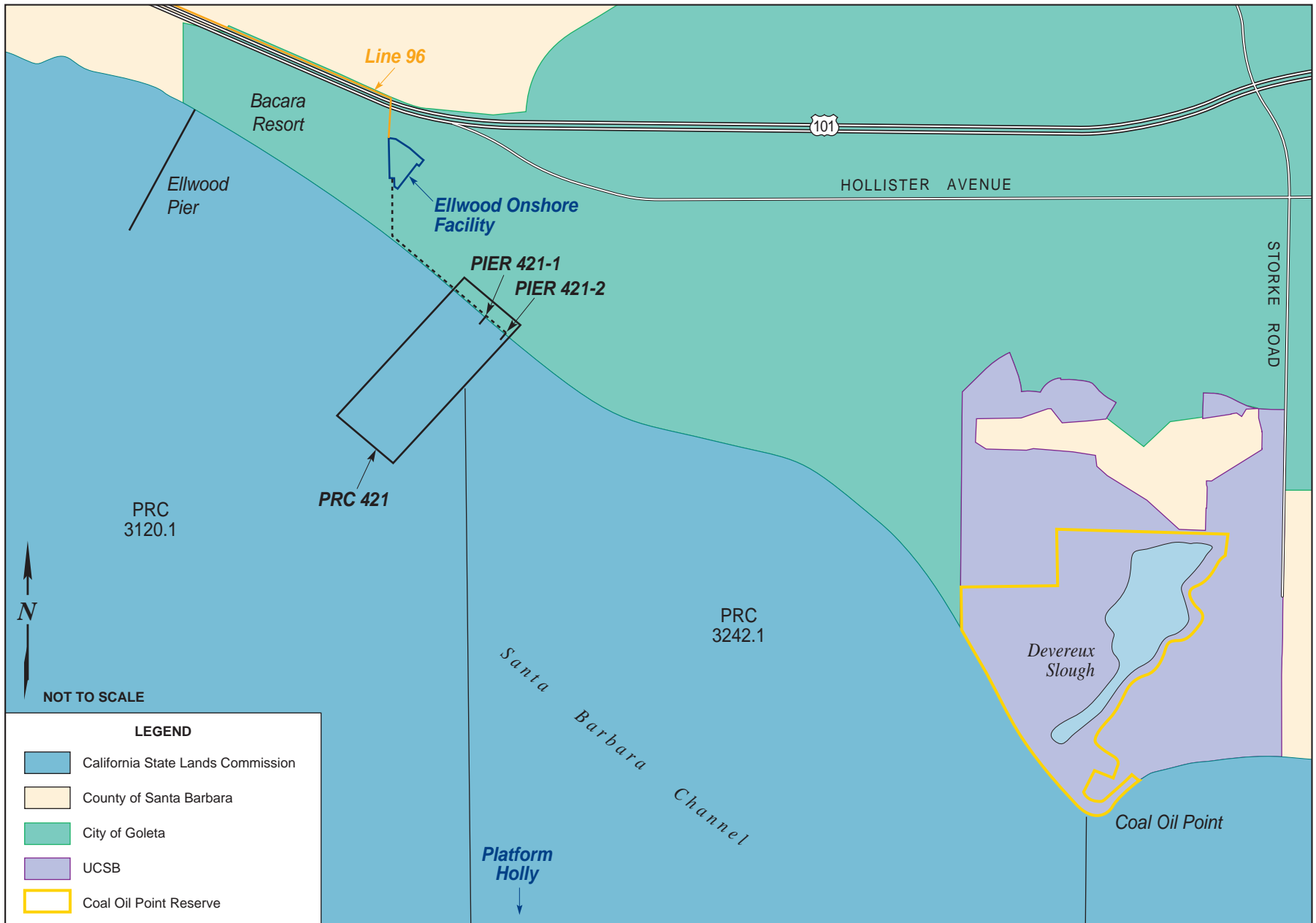
11 This section also summarizes and incorporates by reference the conclusions of the
12 Ellwood Marine Terminal (EMT) Lease Renewal EIR (California State Lands
13 Commission [CSLC] 2009) and Line 96 Modification Project EIR (Santa Barbara County
14 2011) regarding potential land use impacts, including agriculture resources, associated
15 with operation of the Line 96 pipeline. This document also incorporates data from Santa
16 Barbara County 01-ND-34 and City of Goleta 06-MND-001.

17 **4.8.1 Environmental Setting**

18 **Study Area Location and Description**

19 The primary Project study area comprises the areas of the Ellwood coast that surround
20 the Project site and would be subject to land use or recreational impacts or potential
21 policy inconsistencies as a result of Project implementation. The secondary Project
22 study area includes the Gaviota Coast as discussed in the certified Line 96 Modification
23 Project EIR.

24 The Project site is located in Santa Barbara County in the City of Goleta, just south of
25 the Sandpiper Golf Course, east of the Bacara Resort north of the Pacific Ocean, and
26 west of the Ellwood Mesa Open Space. As shown in Figure 4.8-1, jurisdiction over the
27 primary Project elements is shared by the CSLC, California Coastal Commission (CCC),
28 and City of Goleta. Santa Barbara County would also have permit authority over
29 changes to facilities under its jurisdiction that may be required as mitigation for this
30 Project, as well as operation and maintenance of the Line 96 pipeline. The majority of
31 the Project located below the mean high tide line (i.e., caissons, wells, electric
32 submersible pump (ESP), and associated construction activities) is under the
33 jurisdiction of the CSLC and CCC, while portions of the Project located above the mean
34 high tide line (including the piers, pipelines, and access road are under the jurisdiction
35 of the City of Goleta and the CCC.



**FIGURE
4.8-1**

1 **4.8.2 Land Use and Zoning Designations**

2 **State Oil and Gas Lease PRC 421 (PRC 421)**

3 As stated above, the PRC 421 wells and caissons are primarily under the jurisdiction of
4 the CSLC and the CCC, as all or most of these facilities are located below the mean
5 high tide line.¹⁰ Land surrounding the piers that is above the mean high tide line is within
6 the City of Goleta and is designated as a Open Space/Active Recreation area by the
7 City's Land Use Element and is zoned as Recreation by the City's Coastal Zoning
8 Ordinance (City of Goleta 2006b, 2006c). Figure 4.8-2 summarizes land use in the
9 Project vicinity. While the PRC 421 piers are not used for recreational purposes, the site
10 is surrounded by recreational uses including the Sandpiper Golf Course, the Bacara
11 Resort, and by Ellwood and Haskell's beaches, which serve as major public coastal
12 access points and are frequented by beach goers, joggers, surfers and walkers (City of
13 Goleta 2006c). The Ellwood Onshore Facility (EOF) and Sandpiper Golf Course are
14 designated as Open Space/Active Recreation and zoned Coastal Recreation. The
15 Bacara Resort is designated as Commercial Visitor-Serving by the Goleta GP/CLUP
16 and is zoned C-V, Resort/Visitor Serving Commercial (City of Goleta 2006b, 2006c).

17 **Other Ellwood Area Facilities Related to the Project**

18 Ellwood Onshore Facility: The Project would transport oil/gas/water pumped at Pier
19 421-2 to existing facilities at the EOF for processing, along with Platform Holly
20 production, and subsequent delivery into the Line 96 pipeline. The Project would also
21 modify and depend upon control facilities located at the EOF. The EOF is zoned
22 Recreation and has been a legal nonconforming use since implementation of this
23 designation in 1991 (City of Goleta 2006b, 2006c). The change in land-use and zoning
24 designations in 1991 converted the EOF to a legal nonconforming use that allows the
25 facility to continue to operate under the rights of its current permit, but not to expand,
26 extend, enlarge, or exceed the current rights. The existing EOF is an oil and gas
27 treating facility with the capability to treat 20,000 barrels of oil per day (BOPD) of wet oil
28 and 20,000 million standard cubic feet per day of gas. Currently, Santa Barbara County
29 APCD Permit 7904-R7 limits throughput at the EOF to 13,000 BOPD dry basis
30 (excluding water content), based on permit emissions limits of dry crude oil tanks TK-
31 202 and TK-203.

¹⁰ The mean high tide demarcates the jurisdiction boundary between local governments such as the City of Goleta and the inter-tidal or offshore waters under jurisdiction of the CSLC. Determination of the mean high tide line requires a survey which has not been performed to date. For that reason, the precise boundary between State and local jurisdiction is not determined.



Land Use Designations in the Project Vicinity

FIGURE 4.8-2

1 **Line 96 Pipeline:** The Project would use the 8.5-mile-long Line 96 pipeline to transport
2 oil produced at PRC 421. This pipeline connects to the Plains All American Pipeline L.P.
3 (PAAPLP) Coastal Pipeline west of Las Flores Canyon (LFC). This pipeline is mostly
4 located in areas under County jurisdiction, with a limited portion located under City of
5 Goleta jurisdiction (see Figure 4.8-1). The lands under County jurisdiction are primarily
6 zoned for agricultural use. Impacts to agricultural resources were fully analyzed and
7 mitigated for the construction and operation of the new pipeline in the Line 96
8 Modification Project EIR (Santa Barbara County 2011).

9 **4.8.3 Recreation**

10 The Project site is located in a region that offers a wealth of recreational opportunities,
11 due to its natural beauty, undeveloped beaches and open space, topography, and
12 climate (Figure 4.8-3). PRC 421 is located on the beach, just east of the Bacara Resort,
13 the only beachfront resort in the City of Goleta, and due south of Sandpiper Golf
14 Course, which is open to the public. Sands Beach, the University of California Santa
15 Barbara's (UCSB's) Coal Oil Point Reserve and open lands, and the Ellwood Mesa
16 Open Space and associated five coastal access points are all located east of and within
17 2 miles of the site. These undeveloped open spaces and beaches are major coastal
18 recreational areas used by thousands of beach goers annually. The combination of the
19 miles of beach front, varied ecological habitats, and scenic ocean and mountain vistas
20 attracts many visitors to the area. This is a heavily used, passive recreation area that
21 provides high quality recreational opportunities to the inhabitants of the surrounding
22 areas, as well as of the greater Santa Barbara area and beyond. Passive recreational
23 activities currently take place over most of the area that is accessible to the public.

24 The primary recreational activities that currently take place in the Project vicinity include
25 walking, jogging, picnicking, wildlife viewing, mountain biking, horseback riding, sun
26 bathing, swimming, surfing, surf fishing, dog walking, bird-watching, and photography.
27 One public golf course is in the immediate vicinity of the Project area: the 200-acre, 18-
28 hole Sandpiper Golf Course, located due north of and adjacent to the Project area
29 (CSLC 2009). Additional recreational resources are maintained and operated by a
30 number of entities, including Santa Barbara County, City of Goleta, and private
31 providers.

32 The City of Goleta has six park types including one community center, three mini parks,
33 five community parks, seven regional open spaces, eight neighborhood parks, and 14
34 neighborhood open spaces, totaling approximately 526 acres. The three larger City-
35 owned regional open space preserves—the Sperling Preserve, Santa Barbara Shores
36 Open Space (which together comprise the Ellwood Mesa), and Lake Los Carneros
37 Natural and Historical Preserve—collectively account for 363 acres.



FIGURE 4.8-3

1 Approximately 40 percent of the city’s 2.0 miles of Pacific shoreline is in city ownership
2 (City of Goleta 2006c). The Santa Barbara Shores Park is located due east of
3 Sandpiper Golf Course and the Sperling Preserve adjacent to the eastern boundary of
4 the park, approximately 0.8 mile east of the Project site (City of Goleta 2006c). The
5 Santa Barbara Shores Park currently provides an entry point for equestrian use for the
6 system of interconnected trails in the Ellwood-Devereux open space area (CSLC 2009).

7 **4.8.4 Regulatory Setting**

8 No Federal regulations, authorities, or administering agencies that regulate land use are
9 specifically applicable to recreational resources with respect to the Project; State laws,
10 regulations, and policies, including those of the California Coastal Act, are discussed in
11 Table 4.0-1, while the local regulatory setting is discussed below.

12 The Coastal Commission (CCC) was established by voter initiative in 1972 (Proposition
13 20) and later made permanent by the Legislature through adoption of the California
14 Coastal Act of 1976. The CCC, in partnership with coastal cities and counties, plans and
15 regulates the use of land and water in the coastal zone. Development activities, which
16 are broadly defined by the Coastal Act to include (among others) construction of
17 buildings, divisions of land, and activities that change the intensity of use of land or
18 public access to coastal waters, generally require a coastal permit from either the CCC
19 or the local government. Implementation of Coastal Act policies is accomplished
20 primarily through the preparation of local coastal programs (LCPs) that are required to
21 be completed by each of the counties and cities located in whole or in part in the coastal
22 zone. Completed LCPs must be submitted to the CCC for review and approval.
23 Following certification of an LCP, coastal permit authority is delegated to the local
24 jurisdiction, but the CCC retains original permit jurisdiction over certain specified lands
25 (such as tidelands and public trust lands). The CCC also has appellate authority over
26 development approved by local governments in specified geographic areas as well as
27 certain other developments (e.g., oil and gas projects). The City of Goleta has not yet
28 submitted their LCP to the CCC for certification and as such, Project components within
29 the coastal zone of the City will require a coastal development permit from the CCC.
30 The standard of the review for the CCC is the Chapter 3 policies of the Coastal Act.
31 Table 4.8-2, located at the end of Section 4.8, summarizes some of the Coastal Act
32 policies as they relate to the Project.

33 The CSLC has jurisdiction and management authority over all ungranted tidelands,
34 submerged lands, and the beds of navigable lakes and waterways. All tidelands and
35 submerged lands, granted or ungranted, as well as navigable lakes and waterways, are
36 subject to the protections of the Common Law Public Trust.

37 As general background, the State of California acquired sovereign ownership of all
38 tidelands and submerged lands and beds of navigable lakes and waterways upon its

1 admission to the United States in 1850. The State holds these lands for the benefit of all
2 people of the State for statewide Public Trust purposes, which include but are not
3 limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat
4 preservation, and open space.

5 **Local**

6 *Santa Barbara County Goleta Community Plan*

7 The Goleta Community Plan provides development policies, including the general type
8 and location of land uses, specifically tailored for the unincorporated Goleta area and
9 identifies measures to implement those policies. All development within the
10 unincorporated Goleta area must comply with the policies set forth in the Goleta
11 Community Plan. In addition, those portions of the Goleta Community Plan located
12 within the coastal zone have also been incorporated into Santa Barbara County's LCP.

13 *Santa Barbara County LCP*

14 The LCP contains principal land use policies for development within the coastal zone in
15 Santa Barbara County. The project component that lies in the jurisdictional authority of
16 the County's LCP is the Line 96 pipeline that extends west from the City of Goleta. The
17 County's LCP, pursuant to requirements of the Coastal Act (section 30108.5), contains
18 the relevant portion of a local government's general plan, or local coastal element,
19 which indicates the kinds, location, and intensity of land uses, the applicable resource
20 protection and development policies, and a listing of implementing actions. The LCP
21 first came into effect in 1982, and has been revised periodically to update policies. The
22 CLUP represents one component of the LCP, which also includes the Land Use Maps
23 of the Coastal Zone, the Coastal Zoning Ordinance (codified as Article II of Chapter 35
24 in the Santa Barbara County Code), and the Coastal Zoning Maps (CSLC 2009).

25 The County has incorporated numerous goals and policies into the LCP to ensure
26 conformance with Coastal Act policies. These include multiple policies intended to
27 protect environmentally sensitive habitats and associated species. Some recent
28 amendments to these policies are intended to update the county's oil transportation
29 policies to bring the policies and ordinances into accordance with present-day
30 circumstances and into consistency with current California law, including amendments
31 to the Coastal Act contained in Assembly Bill (AB) 16, which was adopted in 2003.
32 These amendments would revise several sections of the Coastal Plan and Land Use
33 Element of Santa Barbara's County's Comprehensive Plan, and sections of the Coastal
34 and Inland Zoning Ordinances (Articles II and III, Chapter 35, Santa Barbara County
35 Code); however, these amendments have not been certified by the CCC (CSLC 2009).

1 *Santa Barbara County Land Use Development Code*

2 The Santa Barbara County Land Use and Development Code, adopted January 2007,
 3 constitutes a portion of Chapter 35 of the Santa Barbara County Code. This Code
 4 carries out the policies of the Santa Barbara County Comprehensive Plan and LCP by
 5 classifying and regulating the uses of land and structures within the County. The Land
 6 Use Development Code describes numerous land use zones, including Coastal Zone,
 7 Oil and Gas Facilities, and describes allowed uses and permitting provisions. However,
 8 the Coastal Zone portions of the Land Use Development Code must be certified by the
 9 CCC, and there is currently no estimated time when that will occur. Until the Coastal
 10 Zone portions are certified, Article II (Coastal Zoning Ordinance) is still in effect.

11 *City of Goleta GP/CLUP*

12 The Goleta GP/CLUP, which was adopted on October 2, 2006, governs land use and
 13 physical development within the city limits. The Coastal Zone portions of this GP/CLUP
 14 have not yet been certified by the CCC; until these portions of the GP/CLUP are
 15 certified, the CCC retains jurisdiction over the Coastal Zone.

16 The Goleta GP/CLUP includes elements that contain policies to guide development
 17 while protecting the natural resources within and integrity of the city (City of Goleta
 18 2006c). Because the GP/CLUP has not been certified by the CCC, the City's policies do
 19 not apply to the issuance of a CDP for the Project; the standard of review for issuance
 20 of a CDP for the Project is Chapter 3 of the Coastal Act. City policies apply to other
 21 required City permits and approvals. The standard of review for any Project components
 22 within the City of Goleta will be the following elements of the Goleta GP/CLUP
 23 governing land use at the Project site:

- 24 • *Land Use Element* – The Land Use Element consists of a policy statement and a
 25 land use plan map showing the spatial distribution, location, and extent of lands
 26 designated for housing, business, industry, open space, agriculture, and other
 27 categories of public and private uses of land.
- 28 • *Open Space Element* – The Open Space Element ensures that Goleta
 29 recognizes that open space land is a limited and valuable resource that must be
 30 conserved wherever possible and establishes policies to protect open space in
 31 the city.
- 32 • *Conservation Element* – The Conservation Element addresses conservation,
 33 development, and use of natural resources, including water, creeks, soils,
 34 wildlife, and other natural resources. Population growth and development
 35 generally require the consumption of both renewable and nonrenewable natural
 36 resources. One role of the Conservation Element is to establish policies that
 37 reconcile conflicting demands placed on natural resources and define the
 38 balance sought between managed use and preservation of resources

- 1 • *Visual and Historic Resources Element* – This element establishes policies and
2 development standards to protect scenic resources and viewsheds.
- 3 • *Safety Element* – The Safety Element addresses general safety policies, as well
4 as bluff erosion and retreat, beach erosion and shoreline hazards, soil and slope
5 stability hazards, flood hazards, urban and wildland fire hazards, oil and gas
6 industry hazards, airport-related hazards, hazardous materials and facilities, and
7 emergency preparedness. The Safety Element contains policies that prevent
8 development or land use activities in hazardous areas, and/or require appropriate
9 mitigation to minimize hazards.
- 10 • *Noise Element* – The Noise Element identifies and evaluates noise problems in
11 the surrounding community and includes current and projected noise contour
12 maps showing the intensities of noise associated with various sources such as
13 highways, freeways, railroads, airports, industrial plants, etc. Noise contours are
14 considered in establishing the pattern of land uses in a manner that minimizes
15 the exposure of residents to excessive noise.
- 16 • *Public Facilities Element* – The Public Facilities Element addresses the nature of
17 existing infrastructure facilities and services, available service capacities,
18 generalized long-term policies to meet future needs, and financing options. This
19 element discusses acceptable levels of service, funding priorities, timing of
20 facility or service availability, and the location of future facilities and
21 improvements to ensure that facilities and services are provided to existing and
22 future development in an efficient and cost-effective manner.
- 23 • *Transportation Element* – The Transportation Element guides the continued
24 development and improvement of the transportation system to support land uses.
25 This element contains policies and plans that integrate the transportation and
26 circulation system with planned land uses, promotes the safe and efficient
27 transport of goods and the safe and effective mobility of all segments of the
28 population, and protects environmental quality and promotes the wise and
29 equitable use of economic and natural resources.

30 Key policies from these elements of the Goleta GP/CLUP and their relationship to the
31 Project are summarized in Table 4.8-3 at the end of Section 4.8. Although the Project is
32 in the Coastal Zone, which is currently governed by the Coastal Act, a policy
33 consistency analysis is included in Table 4.8-3 for information purposes and to address
34 consistency with the GP/CLUP when these policies become active.

35 *City of Goleta Coastal Zoning Ordinance*

36 The City of Goleta Coastal Zoning Ordinance is the tool used to implement the policies
37 of the GP/CLUP. This ordinance largely mirrors County Coastal Zoning Ordinance,

1 Article II, which restricts the location and type of development permissible within the
2 city. The following provisions are most applicable to the Project (City of Goleta 2006b):

- 3 • **Section 35-61: Beach Development.** Prohibits permanent above-ground
4 structures on the dry sandy beach except facilities necessary for public health
5 and safety, such as lifeguard towers, or where such restriction would cause the
6 inverse condemnation of the lot by the county. This section also requires all new
7 development between the first public road and the ocean to grant lateral
8 easements to allow for public access along the shoreline. In coastal areas, where
9 the bluffs exceed 5 feet in height, the lateral easement shall include all beach
10 seaward of the base of the bluff.
- 11 • **Section 35-89: Recreation District.** This district provides open space for
12 various forms of outdoor recreation of either a public or private nature. The intent
13 is to encourage outdoor recreational uses which will protect and enhance areas
14 which have both active and passive recreation potential because of their beauty
15 and natural features. No permits for development including grading shall be
16 issued except in conformance with an approved Final Development Plan, as
17 provided in Sec. 35-174 (Development Plans), and with Sec. 35-169 (Coastal
18 Development Permits).
- 19 • **Section 35-160, Nonconforming Structures and Uses, Purpose and Intent.**
20 This section permits nonconformities until they are removed, but does not
21 encourage their survival.
- 22 • **Section 35-174: Development Plans.** No permit shall be issued for any
23 development, including grading, for any property subject to the provisions of this
24 section until a Preliminary and/or Final Development Plan has been approved.

25 **4.8.5 Significance Criteria**

26 Land use and recreational impacts will be considered significant if the Project would
27 result in:

- 28 • Conflicts with adopted land use plans, policies, or ordinances, including the
29 Coastal Act and Goleta GP/CLUP and zoning ordinance;
- 30 • Conflicts with planning efforts to protect recreational resources of the Project
31 area;
- 32 • Incompatible adjacent land uses as defined by planning documentation; or
- 33 • Residual impacts on sensitive shoreline lands, and/or water and non-water
34 recreation due to a release of oil.

1 **4.8.6 Impact Analysis and Mitigation**

2 The Project could create short-term episodic impacts to public recreation due to
3 disruption of ongoing recreational activities during Project construction. These would be
4 considered insignificant due to their short-term nature (3 months) and because the
5 project contains best management practices (BMPs) (e.g., roping off construction areas,
6 directing beach users around the site, removal of equipment from the beach) which
7 would ensure that recreation activities are not unduly disrupted during construction.
8 Table 4.8-1, located at the end of this section, provides a summary of these impacts
9 and recommended MMs to address these impacts.

10 **Impact LU-1: Conflicts with Goleta General Plan/Coastal Land Use Plan and**
11 **underlying Coastal Act Policies**
12 **Production of oil and gas at PRC 421 would increase the potential for accidental**
13 **releases of oil into the environment and conflict with policies contained within the**
14 **Goleta General Plan/Coastal Land Use Plan (GP/CLUP) Land Use, Open Space, or**
15 **Conservation Elements and relevant underlying Coastal Act policies (Significant**
16 **and Unavoidable).**

17 **Impact Discussion**

18 Implementation of the Project, particularly the potential for impacts resulting from the
19 accidental release of oil into the environment, would conflict with the City of Goleta
20 Coastal Zoning Ordinance, several policies of the Goleta GP/CLUP, and with the
21 Coastal Act upon which the Goleta GP/CLUP is based. Direct releases of oil onto
22 Goleta area beaches are projected to be limited to approximately 1.7 barrels of oil;
23 however, the Project would incrementally contribute to larger spills upcoast into Gaviota
24 area streams, with a low potential for spills as large as 60 barrels of oil, a portion of
25 which could find its way to the shoreline and potentially onto downcoast Goleta area
26 beaches. However, the Project has been designed to minimize potential for an
27 accidental release of oil and to be generally consistent with the policies included in the
28 Goleta GP/CLUP and the Coastal Act.

29 **Coastal Zoning Ordinance Section 35-160, Nonconforming Structures and Uses,**
30 **Purpose and Intent.** This ordinance directs that the City shall not encourage the
31 survival of nonconforming uses such as the EOF by permitting modifications that may
32 increase its utility or extend its useful life. The Project is potentially inconsistent with this
33 ordinance, though it is not clear that the proposed minor changes to the EOF qualify as
34 “modifications” under this ordinance.

35 The Goleta GP/CLUP is not yet certified by the CCC, so it does not currently act as the
36 standard of review for issuance of a CDP for the Project. However, the city has adopted
37 the program and, following certification these policies, the Goleta GP/CLUP will become
38 the governing policy document for the primary Project study area. Therefore, the

1 following policy consistency analysis is currently informational, but addresses
2 consistency with the GP/CLUP when these policies become active.

3 **Policy LU 10.1: Oil and Gas Processing Facilities.** This policy details City support for
4 the County's policies that emphasize consolidation of oil and gas processing in the
5 South Coast Consolidation Planning Area¹¹, located at LFC in the unincorporated area
6 west of Goleta, and emphasizes that the EOF is currently operating as a nonconforming
7 use of the Project site. The new or upgraded support facilities proposed to be added to
8 the EOF to accommodate production of the PRC 421 product may be considered an
9 enlargement, expansion or extension of the EOF's nonconforming use that is prohibited
10 by the Goleta Municipal Code, section 35-160 et seq. The Goleta Municipal Code also
11 requires the City to approve a Development Permit and Major Conditional Use Permit
12 (CUP) for Venoco to process the PRC 421 product at the EOF. Therefore, the Project
13 would potentially be inconsistent with Policy LU 10.1 and impacts would be significant
14 and unavoidable.

15 **Policy LU 10.4: CSLC Lease PRC 421.** This policy documents the city's intention not
16 to support recommissioning oil production at PRC 421 due to the environmental
17 hazards posed by the resumption of oil production and processing over coastal waters
18 and the impacts to visual resources and recreation at the beach. The policy states:

19 *Unless it is determined that there is a vested right to resume production at PRC*
20 *421, the city supports termination of the lease by the CSLC and/or a quitclaim of*
21 *the lease by the owner/operator.... If resumption of production is considered for*
22 *approval, on pier processing...shall not be approved unless it is demonstrated*
23 *that there is no feasible and less damaging alternative....*

24 Recommissioning of oil production at Pier 421-2 would incrementally increase the
25 potential for oil spills from the Project site; however, the Project has been designed to
26 minimize the potential for spills in the tidal zone by moving all processing of
27 oil/gas/water to the EOF. This would eliminate the need for processing on Pier 421-2
28 demonstrating a feasible and less environmentally damaging alternative, consistent with
29 Policy LU 10.4. Additionally, the Project calls for decommissioning Pier 421-1

¹¹ The Santa Barbara County's consolidation policy (Zoning Code, Art. II, § 35-154) provides that all "new production" must be processed at designated consolidated oil and gas processing sites on the South Coast. New production is defined as:

- "The development of any oil and/or gas after the adoption of these policies which requires new discretionary local, state, or federal permits unless it's from an existing well or platform; or
- The development of any oil and/or gas which, after the adoption of these policies, requires approval of a new platform, or a new subsea or onshore well completion."

Because the PRC 421 wells were in existence (producing and operating) as of the date of the adopted policies and there is an existing lease with existing wells, production from PRC 421 is not considered new production under the above definition; therefore, the production is not subject to the consolidation policy. Processing PRC 421 oil at the EOF, however, could be in conflict with other policies due to the nonconforming use of the EOF.

1 immediately and proper abandonment of all PRC 421 facilities at the end of the Project
2 life, including restoration of the site to its natural conditions. Nonetheless, because oil
3 production would be resumed at PRC 421, the Project would be inconsistent with the
4 intent of Policy 10.4 and impacts to land use from the Project are would be significant
5 and unavoidable.

6 **Mitigation Measures/Rationale for Mitigation**

7 Implementation of MMs identified in Sections 4.1, Geological Resources; 4.2, Safety,
8 4.3 Hazardous Materials; 4.5, Hydrology, Water Resources, and Water Quality; 4.6,
9 Marine Biological Resources, and 4.7, Terrestrial Biological Resources for properly
10 engineered reinforcement of caisson containment walls and contingency planning and
11 spill response would reduce oil spill impacts (see cited Sections for rationale).

12 **MM LU-1a. Obtain Property Owner Authorizations.** Prior to issuance of any Land
13 Use Permit, Venoco shall secure all required property owner authorizations or
14 other documentation, including encroachment permits or easements to the
15 satisfaction of the City allowing the project on or within property not owned by
16 the permittee, including, but not limited to property owned by Sandpiper Golf
17 Trust and the City.

18 **MM LU-1b. Obtain Permits Required by Title 15 of Goleta Municipal Code.**
19 Venoco shall obtain from the City's Planning and Environmental Review
20 Department all Building, Electrical, Well or other Permits required by Title 15 of
21 the Goleta Municipal Code prior to the construction, erection, moving,
22 alteration, enlarging, rebuilding of any building, structure, or improvement, or
23 any other action(s) requiring a Building Permit pursuant to Title 15 of the
24 Goleta Municipal Code.

25 **MM LU-1c. Obtain City Land Use Permit Prior to Development.** The permittee
26 shall obtain from the City's Planning and Environmental Review Department a
27 Land Use Permit prior to commencement of any uses and/or development
28 authorized by this permit.

29 **Residual Impacts**

30 With implementation of MMs for oil spill impacts, land- and water-related land use and
31 recreational uses may be impacted from oil spills from primary Project components.
32 Implementation of MM LU-1a through -1c would reduce but not eliminate the conflict
33 with Goleta GP/CLUP Policies, inconsistency with GP Land Use designations, or
34 inconsistency with City zoning; therefore, this impact would remain significant and
35 unavoidable.

Impact LU-2: Oil Releases Could Affect Recreational Activities

High-quality recreational resources are located within the area and could be impacted by the spread of oil from an accidental release from surf zone production activities at Pier 421-2, associated pipelines, and transportation by the Line 96 pipeline. Shoreline and water-related uses would be disrupted by oil on the shoreline and in the water, resulting in significant impacts to on- and off-shore public recreation (Significant and Unavoidable).

Impact Discussion

Impacts from accidental oil releases could preclude the use of beach areas and associated recreational activities. The degree of impact is influenced by many factors including, but not limited to, spill location, spill size, type of material spilled, prevailing wind and current conditions, the vulnerability and sensitivity of the resource, and response capability.

Spill risk is addressed in Section 4.2, Safety. The greatest risk of spills occurs at Pier 421-2, where small spills could occur during normal operations, as well as from leaks at pipe fittings and valves. Direct releases of oil onto Goleta area beaches are projected to be limited to approximately 1.7 barrels of oil; however, the Project would incrementally contribute to larger spills upcoast into Gaviota area streams, with a low potential for spills as large as 60 barrels of oil, a portion of which could find its way to the shoreline and potentially onto downcoast Goleta area beaches. The capability to immediately respond and deploy appropriate containment booming would also influence the extent of affected area. Response capability is analyzed in Section 4.2, Safety.

As discussed above, the Project area provides high quality recreational opportunities for local residents and tourists. Shoreline and water-related uses would be disrupted by oil on the beach and in the water. While not readily quantifiable, a coastal spill could significantly affect coastal recreation and tourism, resulting in lost commercial recreation and tourism revenues. Several sections of this EIR (e.g., Sections 4.1, 4.3, 4.4, 4.5, 4.6, 4.7, 4.12, and 4.13) discuss in detail the effects of a spill on the local environmental resources. Because it is impossible to predict with any certainty the potential consequences of spills, impacts are considered to be significant and unavoidable, because large spills could have residual impacts that could affect the beach and recreational uses.

Mitigation Measures/Rationale for Mitigation

Implementation of MMs identified 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, for protection of the proposed oil separator, reinforcement of caisson containment walls, and

1 contingency planning and spill response would reduce impacts to recreational activities
2 associated with oil releases (see cited Sections for rationale).

3 **Residual Impacts**

4 Even with implementation of MMs for oil spill impacts, land- and water-related
5 recreational uses may be impacted from large spills and impacts would remain
6 significant and unavoidable.

7 Impact LU-3: Oil Releases from Pier 421-2 or Pipelines Could Affect Sensitive 8 Area Resources and Raise Consistency Issues with Adopted Policies.

9 Spills that reach the shore along sensitive land use areas or heavily used areas, 10 including recreational areas, would limit or preclude such uses and result in 11 significant adverse impacts (Significant and Unavoidable).

12 **Impact Discussion**

13 Depending on spill size and location, a spill could affect sensitive resources in the area
14 including Environmentally Sensitive Habitat Areas (ESHAs) and sensitive species.
15 Direct releases of oil onto Goleta area beaches are projected to be limited to
16 approximately 1.7 barrels of oil, a relatively modest amount; however, the Project would
17 incrementally contribute to larger spills upcoast into Gaviota area streams, with a low
18 potential for spills as large as 60 barrels of oil, a portion of which could find its way to
19 the shoreline and potentially onto downcoast Goleta area beaches. Although spills from
20 Project facilities are anticipated to be limited, even spills of limited magnitude would
21 exceed adopted thresholds. Conflicts with the Goleta GP/CLUP Conservation Element
22 Policy would result from an oil spill impacting such resources. Specific to the Project,
23 Policy CE 1.2 designates all marine areas offshore from Goleta extending from the
24 mean high tide line seaward to the outer limit of State waters and all areas extending
25 from the mean high tide line landward to the top of the ocean bluffs as ESHAs, as well
26 as Tecolote Creek and Lagoon, Bell Canyon Creek and Lagoon, Sandpiper Golf Course
27 pond, and Devereux Creek. Therefore, the vast majority of the immediate Project area
28 and several key nearby resources are designated as ESHAs. An oil spill from the
29 Project could impact these resources and violate the intentions of several Conservation
30 Element policies including CE 1.6, Protection of ESHAs, CE 6.2, Protection of Marine
31 ESHAs, and CE 7.3, Protection of Beach Areas.

32 Spills on the shore would damage existing resources and would result in significant
33 adverse impacts (see Sections 4.1, Geological Resources; 4.4, Air Quality; 4.5,
34 Hydrology, Water Resources, and Water Quality; 4.6, Marine Biological Resources; 4.7,
35 Terrestrial Biological Resources; 4.12, Aesthetic/Visual Resources; and 4.13, Cultural,
36 Historical, and Paleontological Resources).

1 Transportation of oil through the Line 96 pipeline from the EOF to the PAAPLP Coastal
2 Pipeline west of LFC could create potential impacts through an increased potential for
3 spills from the pipeline, potentially inconsistent with City of Goleta policies (e.g., LU 10.1
4 and 10.3) as well as with County LCP policies regarding protection of ESHAs, certain
5 other creeks, associated riparian and wetland habitats, and agricultural areas. Although
6 the possibility of a spill or release exists, pipelines are the safest method available for
7 the transportation of crude oil. Further, the new 8.5-mile-long pipeline is equipped with
8 state-of-the-industry safety measures, including cathodic protection against corrosion,
9 check valves and shut off valves to limit accidental releases both up and downstream of
10 major creek crossings and “smart pigging” capabilities. These new state-of-the-industry
11 construction and safety features, when combined with the Project’s operating horizon
12 would substantially reduce the potential for pipeline spills (see Impact S-6).

13 Because it is impossible to predict with any certainty the potential consequences of
14 spills, impacts are considered to be significant and unavoidable since severe spills
15 could have residual impacts that could affect the beach and/or recreational uses.

16 **Mitigation Measures/Rationale for Mitigation**

17 Implementation of MMs identified in Sections 4.2, Safety; 4.5, Hydrology, Water
18 Resources, and Water Quality; 4.6, Marine Biological Resources; and 4.7, Terrestrial
19 Biological Resources, for reinforcement of caisson containment walls and contingency
20 planning and spill response (see cited Sections for rationale.) The certified Line 96
21 Modification Project EIR (Santa Barbara County 2011) provides MM AG-2 that is
22 incorporated by reference into this document (see Appendix H). This MM requires all
23 agricultural areas contaminated as a result of an oil leak or spill along the pipeline route
24 be restored to their prior state with equivalent soils and agricultural resources resulting
25 in a less than significant impact.

26 **Residual Impacts**

27 Even with implementation of MMs for oil spill impacts, sensitive biological and water
28 resources may be impacted from large spills and impacts would remain significant and
29 unavoidable.

Table 4.8-1. Summary of Land Use and Recreation Impacts and Mitigation Measures

Impact	Mitigation Measures
<p>LU-1: Conflicts with Goleta GP/CLUP Policies</p>	<p><u>MMs identified 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.</u> MM LU-1a. Obtain Property Owner Authorizations. MM LU-1b. Obtain Permits Required by Title 15 of Goleta Municipal Code. MM LU-1c. Obtain City Land Use Permit Prior to Development.</p>
<p>LU-2: Oil Releases Could Affect Recreational Activities</p>	<p>Implementation of those measures identified 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.</p>
<p>LU-3: Oil Releases from Pier 421-2 or Pipelines Could Affect Sensitive Area Resources and Raise Consistency Issues with Adopted Policies</p>	<p>Implementation of those measures identified 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. <u>MM AG-2 contained in the certified Line 96 Modification Project EIR would also apply to LU-3.</u></p>

1 **4.8.7 Cumulative Impacts Analysis**

2 Project impacts were assessed in conjunction with the projects identified in Table 3-2.

3 **Impact LU-4: Cumulative Impacts of Potential Project-Related Oil Spills on Area**
 4 **Land Use and Recreational Uses**

5 **Impacts to sensitive shoreline lands, and/or water and non-water recreation due**
 6 **to a release of oil would result in potentially significant impacts. When the**
 7 **cumulative environment is considered, the contribution from the Project could be**
 8 **significant (Significant and Unavoidable).**

9 **Impact Discussion**

10 The risk of an oil release associated with Project operation would contribute to impacts
 11 to the cumulative environment given increased demand for the transportation of oil.
 12 Over the lifetime of the Project, this would represent an incremental increase in spill risk
 13 and oil spill risks to land uses and recreational uses would be associated with that
 14 increase. Other projects would contribute to the spill risk, exacerbating an already
 15 significant impact. When the cumulative environment is considered, the contribution
 16 from the Project adds to the cumulative risks of an oil spill. Impacts to sensitive
 17 shoreline lands, and/or water and non-water recreation due to a release of oil would
 18 remain significant and unavoidable.

1 **Mitigation Measures/Rationale for Mitigation**

2 Implementation of those measures identified in Sections 4.2, Safety; 4.5, Hydrology,
3 Water Resources, and Water Quality; 4.6, Marine Biological Resources; and 4.7,
4 Terrestrial Biological Resources, for properly engineered reinforcement of caisson
5 containment walls and contingency planning and spill response would be required (see
6 cited Sections for rationale.)

7 **Residual Impacts**

8 Impacts would remain significant and unavoidable.

Table 4.8-2. California Coastal Act Policy Summary

Policy	Relationship to Project
<p>Section 30230: Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.</p>	<p>Potentially inconsistent. The Project is located in an area of special biological importance with identified marine resources including kelp beds, rocky intertidal habitat, and three coastal estuaries. Primary issues of concern affecting these resources include potential for oil spills from the caisson and pipelines. Direct releases from PRC 421 and the flow line are projected to be limited to 1.75 barrels of oil; releases from Line 96 would be limited to 60 barrels, only portions of which would reach the shoreline. Project construction could also affect marine water quality through mobilization of sediments and potential release of contaminated materials.</p>
<p>Section 30240: (a) Environmentally sensitive habitat areas (ESHAs) be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.</p>	<p>Potentially inconsistent. There are several ESHAs in the Project vicinity, including the Devereux Slough, Bell and Tecolote Creeks, two small wetlands adjacent to the access road, snowy plover habitat near Coal Oil Point, and rocky intertidal areas. Primary issues of concern affecting these resources include the potential for oil spills from the caisson and pipelines in the volumes listed above. Project construction could also affect the two small wetlands.</p>
<p>Section 30232: Oil and hazardous substance spills Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.</p>	<p>Potentially consistent. The Project site is located in an area prized for public recreation and that also supports numerous ESHAs. Implementation of the Project would increase the likelihood of a release of oil from PRC 421 as well as one related to pipeline operations which could adversely impact recreational activities and biological resources. However, production from PRC 421 could reduce the potential for small incremental oil releases from old, improperly abandoned sub-sea oil wells as the pressure in the reservoir appears to be rising since production was shut terminated in 1994</p>
<p>Section 30250: Location; existing developed area. (a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.</p>	<p>Potentially consistent. The Project is located in an area that was historically developed and is located on a site where oil and gas development has taken place since 1928.</p>
<p>Section 30251: Scenic and visual qualities. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually</p>	<p>Potentially consistent. The proposed development would consist of minor alternations to the existing development on Pier 421-2, which would be generally compatible with the character of the area. Additionally, the Project would include the decommissioning and removal of Pier 421-1, which would generate beneficial impacts to the aesthetic</p>

Table 4.8-2. California Coastal Act Policy Summary

Policy	Relationship to Project
compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.	resources of the Project area.
Section 30101: Coastal-dependent development. "Coastal-dependent development or use" means any development or use which requires a site on, or adjacent to, the sea to be able to function at all.	Consistent. The Project requires a site on, or adjacent to, the sea in order for its use to function.
Section 30260: Coastal-dependent industrial facilities. Coastal-dependent industrial facilities shall be encouraged to locate or expand within existing sites and shall be permitted reasonable long-term growth where consistent with this division. However, where new or expanded coastal-dependent industrial facilities cannot feasibly be accommodated consistent with other policies of this division, they may nonetheless be permitted in accordance with this section and Sections 30261 and 30262 if (1) alternative locations are infeasible or more environmentally damaging; (2) to do otherwise would adversely affect the public welfare; and (3) adverse environmental effects are mitigated to the maximum extent feasible.	Consistent. The Project includes no new coastal industrial facilities – only repairs and modifications to existing facilities and decommissioning and removal of Pier 421-1 and the associated well. In the unlikely event that Project design is altered to include new facilities, the Project would qualify for consideration of override approval under the three tests of this policy.
Section 30211: Development not to interfere with access. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.	Potentially inconsistent. The Project is located in an area of moderate to heavy public beach use. This public beach access could be intermittently impacted during construction activities if the public was not allowed to pass under or in front of the structure for public safety reasons. The resulting development would not interfere with the public's right of access to the ocean or beach area.
Section 30262: Oil and gas development. a) Oil and gas development shall be permitted in accordance with Section 30260, if the following conditions are met: (1) The development is performed safely and consistent with the geologic conditions of the well site. (2) New or expanded facilities related to that development are consolidated, to the maximum extent feasible and legally permissible. (5) The development will not cause or contribute to subsidence hazards unless it is determined that adequate measures will be undertaken to prevent damage from such subsidence.	Potentially consistent. The recommissioning of PRC 421 would return oil and gas production to the immediate project area. This development would be subject to regulation to ensure safety and consistent with geologic conditions of the site, and would not contribute to a subsidence hazard.

Table 4.8-3. Goleta GP/CLUP Policy Summary

Policy	Relationship to Project
LAND USE ELEMENT (LU)	
<p>LU 1.7 New Developments and Protection of Environmental Resources.</p> <p>Approvals of all new development shall require adherence to high environmental standards and the preservation and protection of environmental resources, such as environmentally sensitive habitats, consistent with the standards set forth in the Conservation Element and the City's Zoning Code.</p>	<p>Potentially inconsistent. ESHAs near the Project site include Bell Creek, Tecolote Creek, two wetland areas adjacent to Sandpiper Golf Course, snowy plover habitat, and all areas located below the mean high tide line. Although direct releases from PRC 421 are projected to be limited to 1.75 barrels of oil, accidental oil releases could adversely affect these environmental resources. Project implementation would incrementally increase the potential for accidental releases.</p>
<p>LU 1.3 Adequate Infrastructure and Services. For health, safety, and general welfare reasons, approvals of new development shall be subject to a requirement that adequate infrastructure will be available, including the following:</p> <p>a. Project-specific and cumulative traffic volumes shall not cause the level of service standards established in Transportation Element Policy TE 4 to be exceeded.</p> <p>b. Any transportation improvements needed to maintain the level of service standard have been programmed and funding has been committed consistent with Transportation Element Sub-policies TE 13.3 and TE 13.4.</p> <p>c. Environmental review of needed circulation improvement projects has been completed.</p> <p>d. Sewer, water, and other infrastructure capacities are sufficient to serve the new development or will be available by the time the development is constructed.</p>	<p>Consistent. The Project would generate limited additional vehicular movement along roads in the Project vicinity, including Highway 101, Winchester Canyon and Storke Road interchanges, Hollister Avenue, and the Bacara Access Road. A traffic management plan has not yet been prepared by Venoco and precise estimates of construction-related traffic are unavailable. However, it is anticipated that construction-related traffic would be short-term and would not adversely affect long-term area roadway or intersection operations. Operation-generated traffic would be minimal. Sewer, water, and other infrastructure capacities are sufficient for the Project and Venoco will be required to contribute towards fire response improvements through an impact development fee payment.</p>
<p>LU 6.3 Open Space/Passive Recreation. This designation is intended to identify existing or planned areas for public parks and active recreational activities and facilities, such as playgrounds, picnic areas, tennis courts, ballparks, and sports fields. This use category is also intended to apply to significant private outdoor recreational facilities, such as golf courses and privately owned parks. Individual recreational areas may include a mix of passive and active recreational features or improvements. Appropriate caretaker facilities and residences may also be allowed if consistent with the character of the planned uses. The designation may also include storm drainage facilities.</p>	<p>Inconsistent. The industrial uses at PRC 421 are not compatible with the recreation land use designation. The portions of the Project within the City's jurisdiction comprise a legal nonconforming use. Expansion or extension of such use is prohibited.</p>
<p>LU 9.2 Site #2 – Coastal Recreation. This parcel, occupied as of 2005 by the Venoco EOF, is designated in the Open Space/Active Recreation use category. The requirements applicable to this site are as follows:</p> <p>a. Despite the Recreation designation, the nonconforming status of the existing use may continue as long as the project does not enlarge, expand or extend the nonconforming use. The use was nonconforming at the time of incorporation of the City of</p>	<p>Potentially inconsistent. The legal nonconforming status of the EOF allows it to continue to operate at this site, despite the inconsistent land use category, as long as the project does not enlarge, expand or extend the nonconforming use.</p> <p>a. The EOF would continue to operate as a nonconforming use for the site.</p> <p>b. Oil and gas processing would not expand beyond currently permitted quantities, however,</p>

Table 4.8-3. Goleta GP/CLUP Policy Summary (continued)

Policy	Relationship to Project
<p>Goleta. Its nonconforming status dates to the early 1990s when the property’s zoning was changed by the County of Santa Barbara to the Recreation District as part of a plan to consolidate onshore oil and gas processing at the Las Flores Canyon site in the unincorporated area west of Goleta.</p> <p>b. The intent is that in the long-term use of the property for oil and gas processing shall be terminated. The processing of hazardous materials and the risks associated with air emissions make this location, which is adjacent to Bacara Resort and Sandpiper Golf Course and near Ellwood School and the residential neighborhoods of Santa Barbara Shores and Winchester Commons, unsuitable for oil and gas processing in the long term.</p> <p>c. Until such time as the oil and gas processing use is terminated, any modifications or alternations of the existing facilities must be in accordance with the provisions of LU 10.1 and the City of Goleta zoning ordinances and shall be limited to and designed to improve air quality, reduce environmental impacts and hazards, and improve safety for nearby lodging, recreational, and residential uses.</p> <p>d. Upon termination of the oil and gas processing use, the priority use for the site shall be coastal-dependent and coastal-related recreational uses that are conducted primarily outdoors or limited to small-scale structures. Adequate onsite parking shall be provided to serve all recreational uses (see related Policy OS 2).</p>	<p>improvements proposed to be added to the EOF to accommodate production of the PRC 421 product may be considered an enlargement, expansion or extension of the EOF’s nonconforming use that is prohibited by the Goleta Municipal Code.</p> <p>c. The EOF would be decommissioned at the same time as Platform Holly, regardless of its use for processing PRC 421 oil. Project approval would not extend the life of the EOF.</p> <p>d. The Project requires some modifications to the EOF.</p> <p>e. Upon termination of the nonconforming use, the site would be redeveloped for recreational use following decommissioning of the EOF.</p>
<p>LU 10: Energy-Related On- and Off-Shore Uses Objective: To promote the discontinuation of onshore processing and transport facilities for oil and gas, the removal of unused or abandoned facilities, and the restoration of areas affected by existing or former oil and gas facilities within the city.</p>	<p>Inconsistent. The Project would restart production of PRC 421 facilities.</p>
<p>LU 10.1 Oil and Gas Processing Facilities. The following standards shall apply to oil and gas processing facilities:</p> <p>a. The City supports county policies regarding consolidation of oil and gas processing in the South Coast Consolidation Planning Area at Las Flores Canyon.... No new oil and gas processing facilities shall be permitted within Goleta.</p> <p>b. The Venoco EOF site is an inappropriate location for processing of oil and gas because of the public safety and environmental hazards associated with this type of use... .</p> <p>c. The EOF shall continue to be subject to the rights and limitations applicable to nonconforming uses under California law. No modifications or alterations of the facility or other actions shall be authorized that would result in the expansion of the permitted throughput capacity of the EOF or that would enlarge, expand or extend the nonconforming use of the EOF.</p> <p>d. Until the EOF use is terminated, the priority shall be to insure that the facility strictly meets or exceeds all applicable environmental and safety standards.</p>	<p>Potentially inconsistent. The Project would restore production at an existing well with oil/gas/water produced at this well processed at existing facilities at the EOF.</p> <p>a) The Project would not involve construction of new oil and gas processing facilities and would use existing facilities at the EOF and pipelines to LFC.</p> <p>b) The Project would not extend the life of the EOF.</p> <p>c) The Project would not result in modifications or alterations that would result in the expansion of the permitted throughput capacity of the EOF. However, the new or upgraded support facilities proposed to be added to the EOF to accommodate production of the PRC 421 product may be considered an enlargement, expansion or extension of the EOF’s nonconforming use that is prohibited by the Goleta Municipal Code and could result in the use being terminated before the</p>

Table 4.8-3. Goleta GP/CLUP Policy Summary (continued)

Policy	Relationship to Project
<p>LU 10.3 Oil and Gas Transport and Storage Facilities. The following shall apply to oil and gas transport and storage facilities within the city:</p> <p>a. New oil and gas pipelines and storage facilities, except for transmission and distribution facilities of a Public Utility Commission (PUC) regulated utility, shall not be approved within the city unless there is no feasible or less environmentally damaging alternative location for a proposed pipeline.</p> <p>b. In the event that extended field development from Platform Holly is approved, the City supports the processing of oil and gas production at the South Coast Consolidation Planning Area at Las Flores Canyon.</p> <p>c. Unused, inactive, or abandoned pipelines as of 2005, including the remnants of the Arco pipeline, shall be required to be decommissioned.</p> <p>d. Existing pipelines that were actively used as of 2005 shall be decommissioned as part of and concurrent with the decommissioning of the related oil and gas facilities.</p> <p>e. When onshore and offshore oil and gas pipelines are decommissioned...the pipeline and all related debris shall be removed.</p> <p>f. The existing owner/operator of a pipeline to be decommissioned shall be responsible for all costs related to the decommissioning.</p>	<p>completion of the Project.</p> <p>d) Measures are included to meet applicable environmental and safety standards.</p> <p>Potentially inconsistent. Under the Project, the Line 96 pipeline connecting the EOF to the PAAPLP Coastal Pipeline west of LFC (Line 96 Pipeline EOF-PAAPLP Connection) would be used. It is an existing pipeline and has available capacity to support the Project. A new oil flowline would be constructed between Pier 421-2 and the EOF, but would be installed within an existing 6-inch line.</p>
<p>LU 10.4 State Lands Commission Lease 421.</p> <p>a. The City's intent is that oil production not be recommenced at PRC because of the environmental hazards posed by the resumption of oil production and processing over coastal waters and the impacts to visual resources and recreation at the beach. Unless it is determined that there is a vested right to resume production at PRC 421, the City supports termination of the lease by the CSLC and/or a quitclaim of the lease by the owner/operator.</p> <p>b. If resumption of production is considered for approval, on pier processing of the oil at a site within the tidal zone shall not be approved unless it is demonstrated that there is no feasible and less environmentally damaging alternative to processing on the pier. The development of new processing facilities over the sea would result in an increased and unacceptable level of risk of environmental damage.</p> <p>c. Decommissioning and proper abandonment of S.L. 421 facilities, including the piers and riprap seawall, shall be required concurrent with decommissioning of the EOF or immediately upon termination of S.L. 421.</p> <p>d. Decommissioning work shall include restoration of the site to its natural pre-Project conditions.</p>	<p>Potentially inconsistent. Under the Project, processing would occur at the EOF; however, a potential release could occur during production activities at Pier 421-2 or from the pipeline that carries oil/gas/water to the EOF.</p> <p>a) While the proposed recommissioning of PRC 421 may raise consistency issues with this policy, the use of the EOF for processing/separation may be the option most in line with the intent of this policy. Processing of oil would not occur over coastal waters. Further, Venoco has a vested right to produce oil at this site as it has a valid State oil and gas lease.</p> <p>b) The Project would not include processing of oil at a site within the tidal zone; oil separation would occur at the EOF, a location determined to be the environmentally superior option.</p> <p>c) PRC 421 facilities are not required to be decommissioned at this time as the use of the EOF has not yet been terminated. If recommissioning PRC 421 is approved, Pier 421-1 would be decommissioned within 1 year; infrastructure and pipelines associated with Pier 421-2 would then be decommissioned at the end of the Project in 20 or more years.</p>

Table 4.8-3. Goleta GP/CLUP Policy Summary (continued)

Policy	Relationship to Project
	d) Decommissioning of Pier 421-1 would occur within 1 year of project operation; decommissioning and restoration of the pier and caisson at 421-2 and the access road and seawall would occur at the end of the Project life.
<p>LU 10.6 Oil and Gas Production Areas.</p> <p>a. The City shall oppose any new leases in the western Santa Barbara Channel for offshore oil and gas production within State waters and within the waters of the OCS.</p> <p>b. The City shall oppose the construction of any new oil and gas production or processing facilities in the waters offshore of Goleta.</p> <p>c. Upon cessation of production at Platform Holly, the City supports the timely quitclaim of all associated leases, permanent discontinuation of all oil and gas production, and inclusion of all former lease areas into the California Coastal Sanctuary offshore of Goleta and the Santa Barbara County.</p> <p>d. If oil and gas production from new offshore leases or facilities occurs, the new production shall not be processed at the EOF. Any such production shall be transported by pipeline to the nearest consolidated processing facility as defined by the Santa Barbara County's South Coast Consolidation Planning Area policies.</p>	<p>Potentially inconsistent. Existing oil production facilities at Pier 421-2 would be recommissioned. No new production facilities would be constructed with processing occurring at existing facilities located at the EOF.</p> <p>a) PRC 421 is an existing lease.</p> <p>b) No new oil and gas production or processing facilities would be constructed.</p> <p>c) Production at PRC 421 would be discontinued when production at Platform Holly is discontinued (if not already terminated).</p> <p>d) PRC 421 is an existing lease. The new or upgraded support facilities proposed to be added to the EOF to accommodate production of the PRC 421 product may be considered an enlargement, expansion or extension of the EOF's nonconforming use that is prohibited by the Goleta Municipal Code and could result in earlier termination of the use at the EOF.</p>
OPEN SPACE ELEMENT (OS)	
<p>OS 1.3 Preservation of existing coastal access and recreation. Goleta's limited Pacific shoreline of approximately 2 miles provides a treasured and scarce recreational resource for residents of the city, region, and State.</p> <p>Existing public beaches, shoreline, parklands, trails, and coastal access facilities shall be protected and preserved and shall be expanded or enhanced where feasible.</p>	<p>Potentially inconsistent. The Project may result in short-term disruption of lateral access during initial construction and future repair activities. Pier 421-2 and its caisson would continue to inhibit or block the public's view laterally along the coast. During high tide events, continuation of the Project pier and seawall would inhibit lateral access along this section of coast as higher tides, particularly during low sand conditions in fall, winter and spring can reach to the base of the seawall rendering lateral access along the beach infeasible.</p>
<p>OS 1.10 Management of Public Lateral Access Areas. The following criteria and standards shall apply to use and management of lateral shoreline access areas:</p> <p>a. Private commercial uses of public beach areas shall be limited to coastal dependent recreational uses, including but not limited to surfing schools, ocean kayaking, and similar uses. All commercial uses of beach areas and other lateral accessways shall be subject to approval of a permit by the City. The number, size, duration, and other characteristics of commercial uses of beach areas may be limited in order to preserve opportunities for use and enjoyment of the beach area by the general public. For-profit commercial uses at the City-owned Santa Barbara Shores Park and Sperling Preserve (the Ellwood-Devereux</p>	<p>Potentially inconsistent. The PRC 421 piers are surrounded by recreational uses including the Sandpiper Golf Course, the Bacara Resort, and by Ellwood and Haskell's beaches which serve as major public coastal access points and are frequented by beach goers, joggers, surfers, and walkers. This is a heavily used, passive recreation area that provides high quality recreational opportunities to the inhabitants of the surrounding areas and of greater Santa Barbara. Project construction activities could disrupt recreational activities along the Ellwood beach area in the vicinity of the PRC 421 piers, but impacts would be</p>

Table 4.8-3. Goleta GP/CLUP Policy Summary (continued)

Policy	Relationship to Project
<p>Open Space and Habitat Management Plan [OSHMP] area) are prohibited (see related Policy OS 5).</p> <p>b. Temporary special events shall minimize impacts to public access and recreation along the shoreline. Coastal Development Permits shall be required for any temporary event that proposes to use a sandy beach area and involves a charge for admission or participation.</p> <p>c. Where sensitive habitat resources are present, limited or controlled methods of access and/or mitigation designed to eliminate or reduce impacts to ESHAs shall be implemented.</p> <p>d. The hours during which coastal access areas are available for public use shall be the maximum feasible while maintaining compatibility with nearby neighborhoods and land uses. The hours for public use shall be set forth in each individual coastal development permit. Unless specific hours are described within a permit, the access shall be deemed to be 24 hours per day and 7 days per week.</p> <p>e. In order to maximize public use and enjoyment, user fees for access to lateral beach and shoreline areas shall be prohibited. Activities and/or uses that would deter or obstruct public lateral access shall be prohibited.</p> <p>f. Overnight camping and use of motorized vehicles, except for public safety vehicles and vehicles associated with construction of access improvements and maintenance and restoration or enhancement activities, shall be prohibited in lateral shoreline access areas.</p>	<p>short-term. However, oil releases could affect recreational activities and sensitive area resources. Despite MMs designed to prevent oil releases and impacts to the public and sensitive terrestrial and marine biological resources, should oil be released, potential conflicts with adopted policies could occur.</p>
<p>OS 1.4 Minimization of impacts to lateral coastal access. New development, including expansions and/or alterations of existing development, shall be sited and designed to avoid impacts to public access and recreation along the beach and shoreline. If there is no feasible alternative that can eliminate all access impacts, then the alternative that would result in the least significant adverse impact shall be required. Impacts shall be mitigated through the dedication of an access and/or trail easement where the Project site encompasses an existing or planned coastal access way.</p>	<p>Potentially inconsistent. The Project may result in short-term disruption of lateral access during initial construction and future repair activities. Pier 421-2 and its caisson would continue to inhibit or block the public's view laterally along the coast. During high tide events, continuation of the Project pier and seawall would inhibit lateral access along this section of coast as higher tides, particularly during low sand conditions in fall, winter and spring can reach to the base of the seawall rendering lateral access along the beach infeasible.</p>
CONSERVATION ELEMENT (CE)	
<p>CE 1.2 Designation of Environmentally Sensitive Habitat Areas. ESHAs include the following resources:</p> <p>a. Creek and riparian areas;</p> <p>b. Wetlands, such as vernal pools;</p> <p>c. Coastal dunes, lagoons or estuaries, and coastal bluffs;</p> <p>d. Beach and shoreline habitats;</p> <p>e. Marine habitats;</p> <p>f. Coastal sage scrub and chaparral;</p> <p>g. Native woodlands and savannahs;</p> <p>h. Native grassland;</p> <p>i. Monarch butterfly aggregation sites, including autumnal and winter roost sites, and related habitat areas;</p> <p>j. Beach and dune areas that are nesting and foraging</p>	<p>Consistent. This policy designates areas surrounding the Project as ESHAs, including Bell Canyon Creek and Lagoon, Tecolote Creek, and all areas seaward and landward of the mean high tide line up to the northern edge of the Venoco access road, the boundary of the project area.</p>

Table 4.8-3. Goleta GP/CLUP Policy Summary (continued)

Policy	Relationship to Project
<p>locations for the Western Snowy Plover;</p> <p>k. Nesting and roosting sites and related habitat areas for various species of raptors;</p> <p>l. Other habitat areas for species of wildlife or plants designated as rare, threatened, or endangered under State or Federal law; and</p> <p>m. Any other habitat areas that are rare or especially valuable from a local, regional, or statewide perspective.</p>	
<p>CE 1.6 Protection of ESHAs. ESHAs shall be protected against significant disruption of habitat values, and only uses or development dependent on and compatible with maintaining such resources shall be allowed within ESHAs or their buffers. The following shall apply:</p> <p>a. No development, except as otherwise allowed by this element, shall be allowed within ESHAs.</p> <p>b. A setback or buffer separating all permitted development from an adjacent ESHA shall be required and shall have a minimum width as set forth in subsequent policies of this element. The purpose of such setbacks shall be to prevent any degradation of the ecological functions provided by the habitat area.</p>	<p>Potentially inconsistent. Recommissioning PRC 421 would incrementally increase to the potential for oil spills from the Project site and Line 96 Pipeline EOF-PAAPLP Connection. Direct releases from PRC 421 and the flow line are projected to be limited to 1.75 barrels of oil; releases from Line 96 would be limited to 60 barrels, only portions of which would reach the shoreline. However, such spills have the potential to create unavoidable and significant impacts to ESHAs near the Project site.</p>
<p>CE 6.1 Designation of Marine ESHAs. All marine areas offshore from Goleta extending from the mean high tide line seaward to the outer limit of state waters are hereby designated ESHAs. These areas include Areas of Special Biological Significance and Marine Protected Areas (as designated by the California Department of Fish and Game), and shall be granted the protections provided for ESHAs in this plan.</p>	<p>Potentially inconsistent. The Project has the potential to affect marine ESHAs as it would incrementally increase the potential for oil spills from the Project site and Line 96 Pipeline EOF-PAAPLP Connection. Such spills have the potential to create unavoidable and significant impacts to ESHAs near the Project site, with resultant potential policy conflicts.</p>
<p>CE 6.2. Protection of Marine ESHAs. The following protections shall apply to marine ESHAs:</p> <p>a. Marine ESHAs shall be protected against significant disruption of habitat values, and only uses dependent on such resources, such as fishing, whale watching, ocean kayaking, and similar recreational activities, shall be allowed within the offshore area.</p> <p>b. All existing oil and gas production facilities, including platform Holly and the piers at PRC 421, shall be decommissioned immediately upon termination of production activities. All facilities and debris shall be completely removed and the sites restored to their prior natural condition as part of the decommissioning activities. No new oil and gas leases or facilities shall be allowed within State waters offshore from Goleta.</p> <p>c. Permitted uses or developments shall be compatible with marine and beach ESHAs.</p> <p>d. Any development on beach or ocean bluff areas adjacent to marine and beach habitats shall be sited and designed to prevent impacts that could significantly degrade the marine ESHAs. All uses shall be compatible with the maintenance of the biological productivity of such areas. Grading and landform alteration shall be limited to minimize impacts from erosion and sedimentation on</p>	<p>Potentially inconsistent. Recommissioning PRC 421 reduces impacts to marine ESHAs through MMs designed to reduce impacts to water quality and biological resources. However, recommissioning PRC 421 would incrementally increase the potential for oil spills from the project site and Line 96 Pipeline EOF-PAAPLP Connection. Direct releases from PRC 421 and the flow line are projected to be limited to 1.75 barrels of oil; releases from Line 96 would be limited to 60 barrels, only portions of which would reach the shoreline. Although limited, such spills have the potential to create unavoidable and significant impacts to ESHAs near the Project site.</p>

Table 4.8-3. Goleta GP/CLUP Policy Summary (continued)

Policy	Relationship to Project
<p>marine resources.</p> <p>e. Marine mammal habitats, including haul-out areas, shall not be altered or disturbed by development of recreational facilities or activities, or any other new land uses and development.</p> <p>f. Near-shore shallow fish habitats and shore fishing areas shall be preserved and, where appropriate and feasible, enhanced.</p> <p>g. Activities by the CDFG; Central Coast RWQCB; CSLC; and Division of Oil, Gas and Geothermal Resources to increase monitoring to assess the conditions of near-shore species, water quality, and kelp beds, and/or to rehabilitate areas that have been degraded by human activities, such as oil and gas production facilities, shall be encouraged and allowed.</p>	
<p>CE 7.1 Designation of Beach and Shoreline ESHAs. All marine areas offshore from Goleta extending from the mean high tide line seaward to the outer limit of state waters are hereby designated ESHAs. These areas include Areas of Special Biological Significance and Marine Protected Areas (as designated by the California Department of Fish and Game), and shall be granted the protections provided for ESHAs in this plan.</p>	<p>Potentially inconsistent. The Project has the potential to affect beach and shoreline ESHAs. Several MMs are designed to reduce impacts to these ESHAs. However, recommissioning PRC 421 would incrementally increase the potential for oil spills from the Project site and Line 96 Pipeline EOF-PAAPLP Connection. Although limited, such spills have the potential to create unavoidable and significant impacts to ESHAs near the Project site and associated potential conflicts with adopted policy.</p>
<p>CE 7.3 Protection of Beach Areas. Access to beach areas by motorized vehicles, including off-road vehicles, shall be prohibited, except for beach maintenance and emergency response vehicles of public agencies. Emergency services shall not include routine vehicular patrolling by private security forces. Any beach grooming activities shall employ hand-grooming methods, and mechanical beach grooming equipment and methods shall be prohibited. All vehicular uses on beach areas shall avoid ESHAs to the maximum extent feasible.</p>	<p>Potentially consistent. The Project would entail utilizing construction equipment in beach areas to perform construction activities associated with recommissioning Pier 421-2 and decommissioning and removing Pier 421-1. Such construction would be performed in a manner to minimize impacts to beach resources.</p>
<p>CE 12.2 Control of Air Emissions from New Development. The following shall apply to reduction of air emissions from new development:</p> <p>a. Any development proposal that has the potential to increase emissions of air pollutants shall be referred to the Santa Barbara County Air Pollution Control District for comments and recommended conditions prior to final action by the City.</p> <p>b. All new commercial and industrial sources shall be required to use the best available air pollution control technology. Emissions control equipment shall be properly maintained to ensure efficient and effective operation.</p> <p>c. Wood-burning fireplace installations in new residential development shall be limited to low-emitting state- and U.S. Environmental Protection Agency (EPA)-certified fireplace inserts and woodstoves, pellet stoves, or natural gas fireplaces. In locations near monarch butterfly ESHAs,</p>	<p>Potentially consistent. The Project would increase emissions through construction and operation. Both the APCD and the City of Goleta have been consulted and worst case scenarios for emissions were calculated and analyzed for impacts. MMs contained within the EIR are designed to reduce emissions from the Project through proper maintenance, the use of diesel emission reduction measures, etc.</p>

Table 4.8-3. Goleta GP/CLUP Policy Summary (continued)

Policy	Relationship to Project
<p>fireplaces shall be limited to natural gas.</p> <p>d. Adequate buffers between new sources and sensitive receptors shall be required.</p> <p>e. Any permit required by the Santa Barbara County Air Pollution Control District shall be obtained prior to issuance of final development clearance by the City.</p>	
<p>CE 12.3 Control of Emissions During Grading and Construction. Construction site emissions shall be controlled by using the following measures:</p> <p>a. Watering active construction areas to reduce windborne emissions.</p> <p>b. Covering trucks hauling soil, sand, and other loose materials.</p> <p>c. Paving or applying nontoxic solid stabilizers on unpaved access roads and temporary parking areas.</p> <p>d. Hydroseeding inactive construction areas.</p> <p>e. Enclosing or covering open material stockpiles.</p> <p>f. Revegetating graded areas immediately upon completion of work.</p>	<p>Potentially consistent. The EIR recommends several MMs to reduce the impact of increased emissions. Emissions from construction activities would be reduced by idling time restrictions, utilizing emission reduction technologies, properly maintaining equipment to ensure proper working order, using cleaner burning fuels, watering to control dust, and hydro-seeding of disturbed areas.</p>
SAFETY ELEMENT (SE)	
<p>SE 2.6 Prohibition of Structures on Bluff Faces. No permanent structures shall be permitted on a bluff face, except for engineered public beach access ways. Such structures shall be designed and constructed to prevent any further erosion of the bluff face and to be visually compatible with the surrounding area.</p>	<p>Potentially consistent. No new structures are proposed for the bluff face.</p>
<p>SE 3.10 Complete and Prompt Abandonment of Shoreline Structures. Upon decommissioning of the two shoreline oil wells (State Lease 421 wells), the complete demolition and removal of all associated structures shall be required. The timeframe for complete demolition shall be within 3 years of the ceasing of production operations in accordance with LU 10.4. Associated structures include but are not limited to the caisson walls, the piers, the revetment, and any inactive pipelines within 100 feet of the top of the revetment. Abandonment in place for inactive pipelines associated with State Lease 421 production shall not be permitted, as subsequent coastal erosion could expose these structures. Pier supports and pilings shall be cut below the surface as far as possible, and ideally down to bedrock to prevent subsequent exposure by winter beach scour.</p>	<p>Potentially consistent. Pier 421-1 would be abandoned within 1-2 after resumption of production at Pier 421-2. Pier 421-2 and remaining facilities such as the access road and seawall would be abandoned after cessation of production. CSLC standards require submittal of an abandonment application within 6 months of decommissioning. Activities under such an application would be required to adhere to this policy.</p>
<p>SE 8.6 Quantitative Risk Assessment. The City shall require a Quantitative Risk Assessment to be a component of any application for a new oil and gas production and processing facility or for any proposed substantial alterations of existing oil and gas production and processing facilities. The scope of the assessment should include any pipelines associated with or serving the facility. The Quantitative Risk Assessment should identify and quantify any new or substantially changed risks and show any substantial changes to hazard footprints, such that any potential impacts to surrounding development and uses can be assessed and mitigated. The Quantitative Risk</p>	<p>Consistent. MM S-4e requires a Quantitative Risk Assessment prior to issuance of a Land Use Permit for this Project.</p>

Table 4.8-3. Goleta GP/CLUP Policy Summary (continued)

Policy	Relationship to Project
Assessment should also recommend any appropriate mitigation measures to limit exposure of new or expanded hazards to surrounding development and uses.	
SE 8.10 Safety, Inspection, and Maintenance of Oil and Gas Pipelines. The City shall condition discretionary land use approvals of new or substantially upgraded gas and oil pipelines to require a Safety Inspection, Maintenance, and Quality Assurance Program or similar mechanism to ensure adequate ongoing inspection, maintenance, and other operating procedures. Any such mechanism shall be subject to City approval prior to commencement of pipeline operations and provide for systematic updates as appropriate. Requirements shall be commensurate with the level and anticipated duration of the risk.	Consistent. This would apply to those areas of the Project within City jurisdiction. It is unclear whether the Project's pipeline upgrades would be considered "substantial" under this policy. Implementation of MM S-5c. Safety, Inspection, and Maintenance of Oil and Gas Pipelines would ensure that the Project would comply with this policy as required.
SE 8.14 Pipeline Burial Depths. New oil and gas pipelines, or relocation of existing oil and gas pipelines, excluding gas distribution pipelines, shall be buried at an appropriate depth, one that safely accommodates potential of scouring, slope failure, and other forms of natural or human-caused erosion and earth movement. The calculation of initial burial depth should take into account depth reduction via erosion and other forms of earth movement (including grading and construction) unless other means of maintaining a safe minimum burial depth can be incorporated throughout the operating life of a pipeline. Pipeline operators should assess burial depths every five years, or at a more frequent interval when geologic characteristics, flooding, and other circumstances indicate a prudent need for special monitoring. These requirements shall apply to new and existing pipelines where burial depths are specified. It shall also apply to existing, buried pipelines where depths are not prescribed but maintenance of a minimum depth is warranted. A minimum burial depth shall be maintained for the entire operating life of the pipelines.	Consistent. Would require that any new or relocated pipelines associated with the Project be buried to a sufficient depth that they would not exceed the minimum burial depth during the Project lifetime. The Project would comply with this policy as required.
SE 8.15 Pipeline Marking and Warning. New oil and gas pipelines, or relocation of existing pipelines, shall include measures to clearly warn outside parties about the presence of the pipeline, including proper marking of the right-of-way (ROW) with signage and use of brightly colored warning tape approximately 1 foot above buried pipelines where feasible.	Consistent. Would require that any new or relocated pipelines be marked appropriately and be accompanied with adequate warning information. The Project would comply with this policy as required.
VISUAL AND HISTORIC RESOURCES ELEMENT (VH)	
VH 1.1 Scenic Resources. An essential aspect of Goleta's character is derived from the various scenic resources within and around the city. Views of these resources from public and private areas contribute to the overall attractiveness of the city and the quality of life enjoyed by its residents, visitors, and workforce. The City shall support the protection and preservation of the following scenic resources: a. The open waters of the Pacific Ocean/Santa Barbara Channel, with the Channel Islands visible in the distance; b. Goleta's Pacific shoreline, including beaches, dunes,	Potentially consistent. The facilities have been on site for over 70 years and are part of the existing visual environment. Removal of Pier 421-1 and its associated caisson would be visually beneficial. Although visual changes to the long-existing facilities of Pier 421-2 would be minimal, the pier and associated caisson would remain in place, continuing to disrupt foreground lateral visual access along this section of coast by inhibiting or blocking portions of the public's view laterally along the

Table 4.8-3. Goleta GP/CLUP Policy Summary (continued)

Policy	Relationship to Project
lagoons, coastal bluffs, and open costal mesas; c. Goleta and Devereux Sloughs; and d. Creeks and the vegetation associated with their riparian corridors.	coast for several hundred feet.
VH 1.2 Scenic Resources Map. The <i>Scenic Resources Map</i> in Figure 6-1 [of the Goleta GP/CLUP] identifies locations on public roads, trails, parks, open spaces, and beaches that serve as public vantage points for viewing scenic resources. Views from these locations shall be protected by minimizing any impairment that could result from new development.	Potentially consistent. Accidental spills or road closures could temporarily prevent public access to portions of the beaches near PRC 421; however, the relatively short duration of project construction and applicable MMs would limit displacement of recreational uses.
VH 1.3 Protection of Ocean and Island Views. Ocean and island views from public viewing areas shall be preserved. View preservation associated with development shall be accomplished first through site selection and then by use of design alternatives that enhance rather than obstruct or degrade such views. To minimize impacts to these scenic resources and ensure visual compatibility, the following development practices shall be used, where appropriate: a. Limitations on the height and size of structures; b. Limitations on the height and use of reflective materials for exterior walls (including retaining walls) and fences; c. Clustering of building sites and structures; d. Shared vehicular access to minimize curb cuts; e. Downcast, fully shielded, full cut off lighting of the minimum intensity needed for the purpose; f. Use of landscaping for screening purposes and/or minimizing view blockage as applicable; and g. Selection of colors and materials that harmonize with the surrounding landscape.	Potentially consistent. Development of the Project would not degrade views of the ocean or islands. The existing facilities have been in place since 1928 and are part of the current visual setting. The Project would include removal of Pier 421-1 and the associated caisson, so these facilities would no longer be part of the visual environment. Pier 421-2 and the associated caisson would be repaired and remain in place, so there would be no significant change to these facilities.
PUBLIC FACILITIES (PF)	
PF 9.1 Integration of Land Use and Public Facilities Planning. The Land Use Plan and actions on individual development applications shall be consistent with the existing or planned capacities of necessary supporting public facilities and the fiscal capacity of the City to finance new facilities. a. The City shall integrate its land use and public works planning activities with an ongoing program of long-range financial planning to ensure that the City's Land Use Plan is supported by quality public facilities. b. Individual land use decisions, including but not limited to General Plan amendments, shall be based on a finding that any proposed development can be supported by adequate public facilities.	Potentially inconsistent. The project would create new demand for City public facilities at the PRC 421 facilities; demand for fire protection services would be offset by payment of a fee.

Source: City of Goleta 2006c.

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1 4.9 PUBLIC SERVICES

2 This section characterizes the fire protection and emergency response impacts generated
3 by the Project, including the ability of locally provided and funded fire protection and
4 emergency response services to respond to emergency situations at PRC 421 and the
5 impacts of the Project on these services and capabilities. The Environmental Setting
6 discusses the capacity of the Santa Barbara County Fire Department (SBCFD) and Santa
7 Barbara County Office of Emergency Management (OEM) to respond to incidents at PRC
8 421. This section also describes Venoco's existing fire protection and emergency
9 response systems and equipment at PRC 421.

10 The Project would not increase population in the area, and no employment increases
11 would occur except for the temporary construction crews and thus there would be no
12 impacts to police services or schools. Project construction would require some water
13 use for dust control, equipment washing, and hydrotesting of pipelines. In addition,
14 decommissioning of Pier 421-1 would generate waste requiring disposal. However,
15 operation of the Project would not increase water consumption, solid waste generation,
16 or discharges to sewers. Therefore, impacts to these public services are not examined
17 further in this document.

18 A detailed analysis of risks from fires, explosions, and oil spills associated with the
19 Project is presented in Section 4.2, Safety. Details regarding the emergency response
20 capability for potential incidents (e.g., oil spills) are also discussed in Section 4.2,
21 Safety. Crude oil generally has a relatively low potential for ignition or explosion,
22 particularly the heavier oils such as that produced from Platform Holly. However, due to
23 a higher percentage of light volatile compounds, the light "sweet" crude oil produced at
24 PRC 421 may present a somewhat increased risk of fire or explosion than that
25 associated with existing production from Platform Holly.

26 Information contained in this section was derived from the Goleta General Plan/Coastal
27 Land Use Plan (GP/CLUP), and several Venoco emergency preparedness plans,
28 including the South Ellwood Field Emergency Action Plan (EAP) and South Ellwood
29 Facilities Fire Prevention and Preparedness Plan. This section also incorporates by
30 reference and summarizes the conclusions of the Ellwood Marine Terminal (EMT)
31 Lease Renewal Environmental Impact Report (EIR) (California State Lands Commission
32 [CSLC] 2009) and Line 96 Modification Project EIR (Santa Barbara County 2011), as
33 appropriate. Where this document relies upon mitigation measures (MMs) contained in
34 these EIRs to address Project impacts, these measures are summarized to permit
35 comprehension of their relationship to the Project.

1 4.9.1 Environmental Setting

2 Study Area Location and Description

3 The primary Project study area comprises the immediate areas of the Ellwood coast
4 that surround PRC 421 and would be subject to direct impacts as a result of Project
5 implementation. This area includes existing PRC 421 facilities, access road, and the
6 flowline route along the access road, coastal bluff, golf course easement, and tie-in at
7 the existing Ellwood Onshore Facility (EOF). The secondary Project study area includes
8 the Gaviota Coast and is only discussed in environmental issue areas where potential
9 exists for impacts that are different from those identified in the certified Line 96
10 Modification Project EIR.

11 Regional Fire Protection and Emergency Response

12 The SBCFD, which serves an area of approximately 1,441 square miles of
13 unincorporated and incorporated areas of the county, provides fire protection services to
14 the Project area. The SBCFD has 16 fire stations. Five fire stations are located in the
15 Goleta valley and three (Fire Stations 11, 12, and 14) are located within Goleta's city
16 limits. A sixth station, located on the Gaviota Coast (Station 18) assists in responding to
17 calls in the rural Gaviota area. In general, all firefighters are trained as emergency
18 medical technicians (City of Goleta 2006). The SBCFD employs the following three
19 standards with respect to provision of fire protection services:

- 20 1. **Firefighter-to-population ratio of one firefighter on duty 24 hours a day for**
21 **every 2,000 in population as the ideal goal, and one firefighter per 4,000 in**
22 **population as the absolute maximum population that can be adequately**
23 **served.** Fire stations 11, which services the Project area, and 12 fell short of this
24 service standard as of 2005, as indicated in Table 4.9-1. The current ratio of
25 firefighters-to-population is 1 per 4,909 citywide.

Table 4.9-1. Goleta Fire Station Service Characteristics, 2010

Station Number	Location/Address	Population Served ¹	Personnel ²	Equipment ³	Population per Firefighter
11 ⁴	6901 Frey Way (Storke Rd. south of Hollister Ave.)	21,594	6	P, T, RP, WR, US&R	3,599
12	5330 Calle Real	16,623	3	P, RP	5,541
14	320 Los Carneros	5,960	3	P, BT	1,987
	Total	44,177	12		3,681

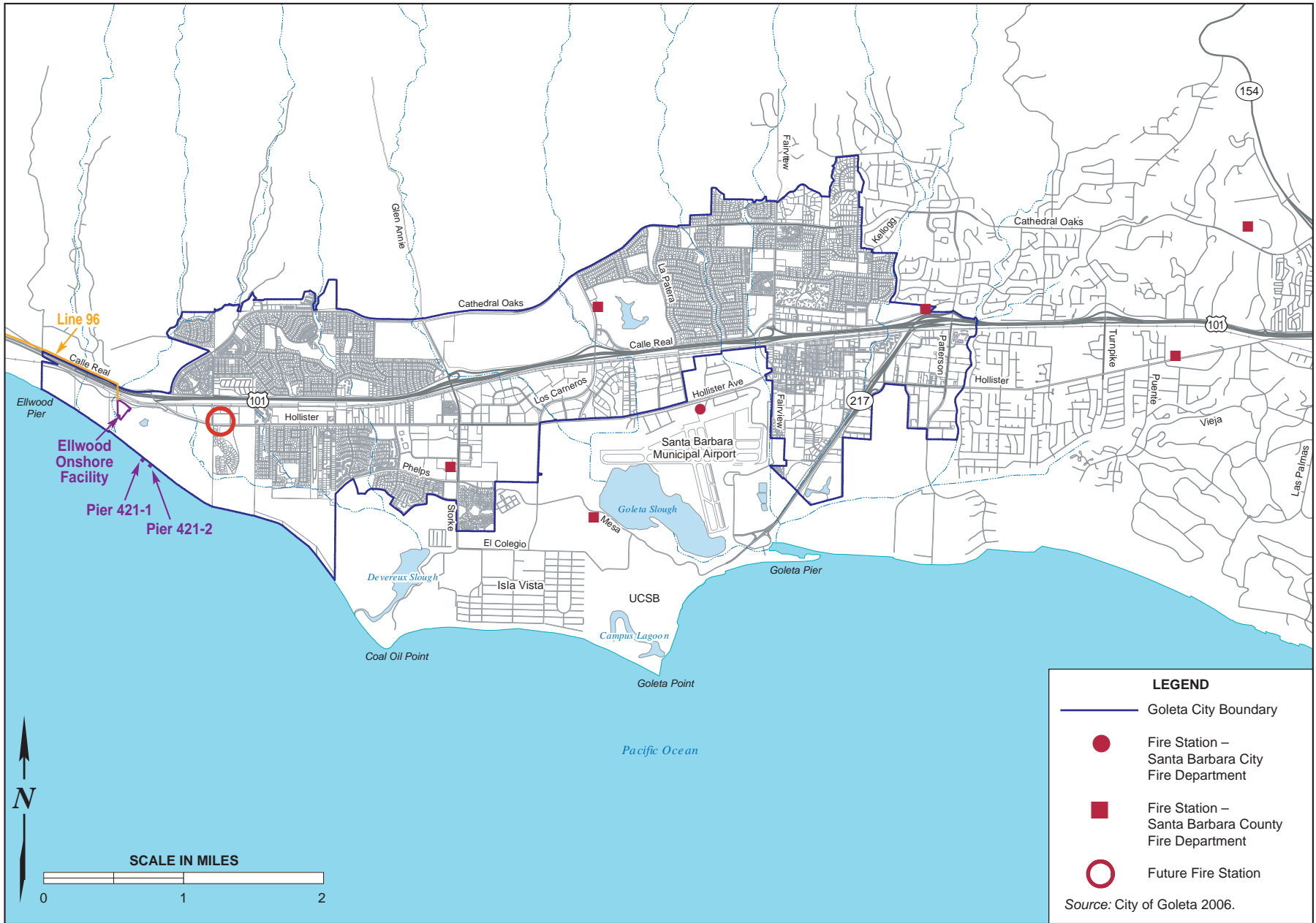
¹ Population estimated as of 2010 U.S. Census.

² Personnel on duty for each shift, plus one chief officer not assigned to a particular station.

³ P = pumper; T = ladder truck; RP = reserve pumper; WR = water rescue; US&R = urban search and rescue; BT = brush truck

⁴ Truck 11 and 3 additional firefighters serve as countywide emergency response and are not dedicated to serve solely station 11's district.

Source: US Census 2010, City of Goleta 2006.



Fire Protection Services in the Project Vicinity

FIGURE 4.9-1

- 1 2. **A ratio of one engine company with a four-person crew per 16,000 in**
 2 **population.** The National Fire Protection Association (NFPA) guidelines state
 3 that engine companies shall be staffed with a minimum of four on-duty personnel.
 4 Currently all three fire stations within the Goleta city limits are staffed with only
 5 three-person crews (refer to Table 4.9-1).
- 6 3. **A 5-minute response time in urban areas.** Most of Goleta falls within the
 7 5-minute response time from existing fire stations; however, the western city
 8 edge and some northern neighborhoods may experience longer response times
 9 (City of Goleta 2006). Fire station response times to PRC 421 are shown in
 10 Table 4.9-2.

Table 4.9-2. Goleta Fire Station Response Times to PRC 421

Station Number	Location/Address	Distance to PRC 421 (miles)	Response Time to PRC 421
11	6901 Frey Way (Storke Rd. south of Hollister Ave.)	3.5	8-10 minutes
12	5330 Calle Real	4.0	12-14 minutes
14	320 Los Carneros	5.5	10-12 minutes

Source: SBCFD 2006.

11 The OEM was once a division of the SBCFD but currently acts under direction from the
 12 County Executive Offices.

13 In addition, a fire station at Santa Barbara Municipal Airport is staffed by Santa Barbara
 14 city firefighter personnel and responds only to fires in the Airport Operating Area (AOA),
 15 the area located within the security fence that surrounds the airport consisting primarily
 16 of runways and taxiways. These firefighters and their specialized equipment are
 17 prohibited by Federal Aviation Administration (FAA) regulations from leaving the AOA.
 18 County firefighters are called upon to supplement Santa Barbara city fire staff in the
 19 event of an airport emergency. Fire Station 17, located on the UCSB campus, provides
 20 service to University of California, Santa Barbara (UCSB) and most of Isla Vista. Engine
 21 17 is a county fire engine and, if available, may be called upon for assistance when
 22 needed. The ambulance and station are owned and operated by UCSB. Fire Station 18,
 23 located on the Gaviota Coast west of Las Flores Canyon (LFC), provides service to this
 24 rural area and would respond to emergencies occurring along Line 96.

25 The SBCFD has determined that the most under-served area in the City of Goleta is the
 26 extreme western portion, which encompasses the Project location.

27 **Fire Protection and Emergency Response at PRC 421**

28 According to Venoco’s South Ellwood Field EAP, Venoco will call 911 to notify the
 29 SBCFD, the Santa Barbara County Sheriff, Santa Barbara County OEM, Santa Barbara

1 County Energy Division, and the City of Goleta for all emergencies. In addition to Santa
 2 Barbara County's publicly provided fire protection and emergency response equipment,
 3 oil facilities are required by Federal and State regulations to have onsite firefighting
 4 equipment as well as materials to control oil spills or other hazardous materials
 5 releases. Venoco has fire fighting and emergency response capabilities for its South
 6 Ellwood Field facilities in accordance with these regulations. Table 4.9-3 lists fire
 7 protection and control equipment available at the EOF and Ellwood Pier.

Table 4.9-3. Venoco Fire Protection and Control Equipment

Facility	Equipment
EOF	Extinguishers, hoses, fire foam and fire monitors, hydrants, fire blankets, fire alarm, smoke detectors, and combustible gas detector
Ellwood Pier	Extinguishers, fire water tank, and fire hose reels

Source: Venoco 2011.

8 Venoco Emergency Management System

9 All emergency incidents that occur on Venoco property or facilities are managed using
 10 an Incident Command System (ICS) consistent with standard Federal and State
 11 emergency command structure guidelines. This system provides the capability and
 12 flexibility to respond to a wide range of emergency incidents, allows for complete
 13 integration with all government agency emergency response organizations, and ensures
 14 the proper and efficient response to all emergency incidents.

15 The Venoco Emergency Management System is a two-tier organization consisting of a
 16 corporate sustained incident response team (SIRT) and a facility-based initial incident
 17 response team (IIRT). Personnel assigned specific positions on the SIRT and IIRT are
 18 required to be thoroughly familiar with their roles and responsibilities and to participate
 19 in specified training programs and exercises simulating emergency events. Emergency
 20 response contractors and Oil Spill Response Organizations are also integrated into this
 21 emergency management system. The Venoco Emergency Management System is
 22 described in detail in the South Ellwood Field EAP (Venoco 2011).

23 *Initial Incident Response Team*

24 In the event of an emergency incident, the IIRT would be activated immediately and
 25 would provide Venoco's initial response. The IIRT consists of all facility personnel on
 26 site at the time of an incident and all other facility personnel who may be available for
 27 immediate return (Venoco 2003).

28 PRC 421 would not be staffed with on-site personnel, however all operational systems
 29 and safety systems from Well 421-2 would be monitored on a real-time basis at the
 30 EOF. Venoco's onsite response techniques, including those for PRC 421, are built upon
 31 the equipment and manpower resources available at the EOF, Platform Holly, and from

1 Clean Seas, an oil-spill-response cooperative to which Venoco is a member. Facility
2 staff at the EOF, consisting of two to three people at night and as many as 10-12 people
3 during the day, would be the first to be alerted of an incident at PRC 421, and would be
4 the first in-time to respond to such an incident.

5 The IIRT Incident Commander, which would be the facility supervisor or the operator-in-
6 charge, would work with local agency emergency response organization incident
7 commanders within a unified command structure. The unified command formulates
8 tactical and strategic decisions to ensure efficient and effective response to the
9 emergency. Depending on the size and complexity of the incident, the IIRT Incident
10 Commander may expand the response organization to include members of the SIRT as
11 necessary. At any time during the incident, the IIRT Incident Commander may request
12 transfer of command to the SIRT, or the SIRT Incident Commander may formally take
13 command of the incident.

14 *Sustained Incident Response Team*

15 Venoco's SIRT is designed and organized to respond to a major onsite incident or major
16 incident with onsite and offsite consequences. The SIRT is designed to augment and/or
17 expand the capabilities of the IIRT as needed. The degree to which the SIRT is
18 activated is dependent on the nature and size of the incident. The SIRT Command Post
19 is designated as the Clean Seas Support Yard in Carpinteria, California (Venoco
20 2011a).

21 The SIRT is organized into five functional sections: Command, Operations, Planning,
22 Logistics, and Finance. The Command Section is responsible for overall management
23 of the response and includes certain staff functions required to support command
24 function. The Operations Section is responsible for directing and coordinating all
25 offshore, shoreline, and land operations responses to an incident. The Planning Section
26 is responsible for the collection, evaluation, and dissemination of tactical information
27 about the incident. The Logistics Section is responsible for providing all support needs
28 to the response efforts. The Finance Section is responsible for providing financial
29 services (Venoco 2003).

30 When activated by the SIRT Incident Commander, representatives from the five
31 functional sections of the SIRT will respond to the Command Post within 12 hours of the
32 onset of the event. Emergency response contractors and Oil Spill Response
33 Organizations will respond in accordance with Federal and State requirements and
34 Venoco emergency response plans (Venoco 2011a; 2011b).

35 **Fire Prevention and Preparedness Plan**

36 Venoco does not have a fire protection plan specific to PRC 421 facilities. Venoco has a
37 South Ellwood Facilities Fire Prevention and Preparedness Plan (Venoco 2003) that

1 defines the measures to be implemented and maintained by Venoco personnel in the
2 event of a fire. The plan contains safety and fire prevention, detection, and protection
3 systems for the EMT and the EOF. This plan is designed to be implemented in
4 conjunction with the South Ellwood Field EAP, Emergency Evacuation Plans, and
5 hydrogen sulfide (H₂S) Contingency Plans; however, the plan does not contain
6 measures specific to PRC 421.

7 **4.9.2 Regulatory Setting**

8 Fire protection systems detailed in fire protection plans must include systems and
9 designs that ensure compliance with a range of codes and standards. A number of
10 Federal, State, and local laws that regulate oil production and processing facilities, and
11 oil and gas transport pipelines also have implications for fire protection and emergency
12 response. Please refer to Section 4.2, Safety and Table 4.0-1, for a complete
13 description of these requirements, while the local regulatory setting is discussed below.

14 **Local**

15 Santa Barbara County and the City of Goleta have a number of requirements governing
16 fire protection and emergency response applicable to PRC 421.

- 17 • Santa Barbara County Code Chapter 15, Amendments to the 2001 California
18 Fire Code (CFC);
- 19 • SBCFD Standard 1, Private Road and Driveway Standards;
- 20 • SBCFD Standard 2, Fire Hydrant Spacing and Flow Rates;
- 21 • SBCFD Standard 3, Stored Water Fire Protection Systems Serving One and Two
22 Family Dwellings;
- 23 • SBCFD Standard 4, Automated Fire Sprinkling Systems;
- 24 • SBCFD Standard 5, Automatic Alarm System Standards.
- 25 • Santa Barbara County Permit Conditions, Various;
- 26 • Santa Barbara County Public Works Engineering Design Standards, Roadways;
- 27 • Santa Barbara County Ordinance 2919 [95-DP-024] (Venoco, Inc.'s Operating
28 Permit for the EOF and the EMT);
- 29 • City of Goleta GP/CLUP, Policy SE 8.3 requires annual safety audits of all new
30 and existing oil and gas production, processing, and storage facilities. The City,
31 or its agent, shall participate in these safety audits. All deficiencies noted in each
32 audit shall be addressed promptly, in timeframes as recommended by the audit's
33 conclusions;

- 1 • City of Goleta GP/CLUP, Policy SE 8.6 requires a Quantitative Risk Assessment
2 to be included as a component of any application for a new oil and gas
3 production and processing facility or for any proposed substantial alterations of
4 existing oil and gas production and processing facilities (required under MM S-
5 4e);
- 6 • City of Goleta GP/CLUP Policy SE 8.10 requires a Safety Inspection,
7 Maintenance, and Quality Assurance Program or similar mechanism to ensure
8 adequate ongoing inspection, maintenance, and other operating procedures.
9 This would apply to those areas of the Project within City jurisdiction;
- 10 • City of Goleta GP/CLUP Policy SE 8.14 requires that new or relocated oil and/or
11 gas pipelines be buried at an appropriate depth. The calculation of burial depth
12 should take into account depth reduction via erosion and other forms of earth
13 movement; and
- 14 • City of Goleta GP/CLUP Policy SE 8.15 requires that new or relocated oil and/or
15 gas pipelines be marked appropriately and be accompanied with adequate
16 warning information.

17 **Other Recognized Codes and Standards**

18 Other codes and standards are specified by the American National Standards Institute
19 (ANSI), American Petroleum Institute (API), Industrial Risk Insurers (IRI), NFPA, and
20 CFC (see Table 4.9-4).

21 **4.9.3 Significance Criteria**

22 Impacts to fire protection and emergency response services would be considered
23 significant if:

- 24 • Operation of the Project creates the need for one or more additional employees
25 in order to maintain the current level of fire protection and emergency response
26 services;
- 27 • The Project results in the need for new or physically altered governmental
28 facilities, the construction of which could cause significant environmental
29 impacts, to maintain the current level of fire protection and emergency response
30 services;
- 31 • The Project is located more than 10 miles or 15 minutes from an emergency
32 response location with fire fighting and spill response capabilities;
- 33 • Accessibility to the Project site is difficult or limited; or
- 34 • The Project does not have an approved fire protection or emergency response
35 plan.

Table 4.9-4. Applicable Standards and Codes

Code/Standard	Description
ANSI B31.4	Liquid Petroleum Transportation Piping Systems
API RP 500	Classification of Hazardous Areas in Petroleum Pipeline Facilities
API Pub 2004	Inspection for Fire Protection
API 14C	Recommended Practice for Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms
API 1104	Standard for Welding of Pipelines and Related Facilities
IRI IM.2.5.2	Plant Layout and Spacing for Oil and Chemical Plants
IRI IM 17.3.3	Guiding Principles For Loss Prevention and Protection of Crude Oil and Petroleum Products Pumping Stations
IRI IM 17.3.4	Guiding Principles For Loss Prevention and Protection of Crude Oil and Petroleum Products Storage Terminals
NFPA 11	Low Expansion Foam and Combined Agent Systems
NFPA 12	A&B Halogenated Extinguishing Agent Systems
NFPA 15	Water Spray Fixed Systems
NFPA 20	Centrifugal Fire Pumps;
NFPA 22	Water Tanks for Private Fire Protection
NFPA 24	Installation of Private Fire Service Mains and Their Appurtenances
NFPA 25	Inspection, Testing and Maintenance of Water-Based Fire Protection Systems
NFPA 30	Flammable and Combustible Liquids Code
NFPA 70	National Electric Code
CFC Article 02, Division II	Special Procedures
CFC Article 04	Permitting
CFC Article 09	Definitions and Abbreviations
CFC Article 10	Fire Protection
CFC Article 11	General Precautions Against Fire
CFC Article 12	Maintenance of Exits and Occupant Load Control
CFC Article 13	Smoking
CFC Article 14	Fire Alarm Systems
CFC Article 49	Welding and Cutting
CFC Article 79	Flammable and Combustible Liquids
CFC Article 80	Hazardous Materials
CFC Article 85	Electrical Systems

ANSI - American National Standards Institute

API - American Petroleum Institute

CFC - California Fire Code

IM - Instructional Memorandum

IRI - Industrial Risk Insurers

NFPA - National Fire Protection Association

1 **4.9.4 Impact Analysis and Mitigation**

2 Construction of the Project would not substantially increase ongoing demand for Public
3 Services. However, PRC 421 is located in an area that is identified as being under-
4 served by fire protection services available by the SBCFD. The EOF and PRC 421 piers
5 and wells are outside of the standard safe response time of 5 minutes, but within the
6 significance threshold of 15 minutes, and the firefighter ratio does not meet standard
7 requirements. Recommissioning PRC 421 would not create the need for additional
8 SBCFD firefighters or for a new fire station in Goleta, but would (1) incrementally
9 contribute to demand for fire inspection and protection services in an area that is
10 currently under-serviced; and (2) require additional fire inspection and protection
11 services in an area on the beach that has difficult and limited accessibility.

12 Table 4.9-5, located at the end of this section, provides a summary of these impacts
13 and recommended MMs to address these impacts

14 **Impact PS-1: Adequacy of Fire Response**

15 **The incremental increase for fire protection services caused by reactivating oil**
16 **production in an area which is currently under-serviced with difficult and limited**
17 **accessibility contributes to the need for new and/or expanded fire inspection and**
18 **protection services in western Goleta (Significant and Unavoidable).**

19 **Impact Discussion**

20 The SBCFD has determined that the most under-served area in Goleta is the western
21 part of the City, including the Project area, due to both response times and the
22 population to firefighter ratio. Annual inspections, emergency response, and planning
23 activities at the EOF and PRC 421 associated with the Project would incrementally add
24 to the demand for fire protection services. The PRC 421 piers and associated pipelines
25 are located along the beach in an area that is difficult to access with limited accessibility
26 on a Sandpiper Golf Course gravel and dirt access road, making fire inspection and fire
27 protection challenging. Because the Project area is currently underserved in terms of
28 both an acceptable ratio of firefighter-to-population ratio and in terms of the fire service
29 response time, potential impacts to fire protection and emergency response services
30 would be considered significant for the Project, but can be partially mitigated with the
31 implementation of MM PS-1a. The mitigation measure was developed in consultation
32 with SBCFD (SBCFD letter to CSLC, dated March 18, 2014). However, because the
33 mitigation measure does not directly increase the firefighter-to-population ratio nor does
34 not improve the fire service response time, this impact would remain significant and
35 unavoidable.

1 Mitigation Measure

2 **MM PS-1. Impact Development Fee.** Venoco shall provide an impact development
 3 fee payment to the City of Goleta that would be directed toward fire response
 4 improvements. The fee would be determined based on the County of Santa
 5 Barbara's Development Fee Ordinance (County Ordinance 4745), which
 6 assesses a fee of \$1,007.00 per 1,000 sf for non-retail commercial
 7 development in Fiscal Year 2013-2014. For the purposes of determining the
 8 fee, the Project area would consist of the PRC 421 piers, pipeline corridor, and
 9 roadbed, which has a total cost of \$26,168. Fire response upgrades, which
 10 may include maintenance of a 12-foot-wide all-weather access road and
 11 installation of portable fire extinguishers, shall be implemented per Santa
 12 Barbara County Fire Department (SBCFD) requirements. Venoco shall also
 13 obtain a hot-work permit from SBCFD before any hot-work.

14 Rationale for Mitigation

15 The City of Goleta currently charges fees to address fire service impacts in Goleta. MM
 16 PS-1 would provide a one-time fee of \$26,168 to contribute towards a new fire facility.
 17 The mitigation measure will also provide fire response upgrades to the piers.

18 Residual Impact

19 Although providing the fire response upgrades and accepting a one-time payment fee
 20 would offset the costs of responding to potential emergencies at Project facilities, this
 21 impact remains significant due to the uncertainty of fire response adequacy in western
 22 Goleta.

23 **Impact PS-2: Operation without an Approved Fire Prevention Plan**

24 **Operating PRC 421 without an approved fire protection plan could result in an**
 25 **unsafe situation if an emergency requiring response by Venoco or by the Santa**
 26 **Barbara County Fire Department (SBCFD) were to occur (Less than Significant**
 27 **with Mitigation).**

28 Impact Discussion

29 As detailed above, PRC 421 must meet a number of Federal, State, and local
 30 requirements relating to fire protection and emergency response. The SBCFD and
 31 OEM, in addition to other agencies, conduct an annual operational and safety inspection
 32 of the PRC 421 facilities. Venoco has an emergency management system in place to
 33 facilitate management and response activities for emergency incidents occurring in the
 34 South Ellwood Field. However, Venoco does not have an approved fire protection plan
 35 for PRC 421. Operating PRC 421 without an approved fire protection plan could result
 36 in an unsafe situation if an emergency requiring response by Venoco or by the SBCFD

1 were to occur. With regard to fire protection and emergency response services, this
 2 impact would be less than significant with the implementation of MM PS-2.

3 **Mitigation Measure**

4 **MM PS-2. Prepare Fire Prevention Plan for PRC 421.** Prior to re-starting oil and
 5 gas production at PRC 421, Venoco shall prepare a fire prevention plan that
 6 includes fire prevention strategies for the Project area. The plan may either be
 7 in the form of a stand-alone plan for the PRC 421 facilities or included as an
 8 update to the South Ellwood Facilities Fire Prevention and Preparedness Plan.
 9 The Plan shall be submitted to the City of Goleta and the Santa Barbara
 10 County Fire Department (SBCFD) for review and approval prior to the issuance
 11 of the City's Land Use Permit.

12 **Rationale for Mitigation**

13 A fire prevention plan is required for the operation of PRC 421. Preparation of this plan
 14 will meet requirements and will reduce the significance of Impact PS-2. Full
 15 implementation of this measure would reduce Impact PS-2 to less than significant.

Table 4.9-5 Summary of Public Services Impacts and Mitigation Measures

Impact	Mitigation Measures
PS-1: Adequacy of Fire Response	PS-1. Impact Development Fee.
PS-2: Operation without an Approved Fire Prevention Plan	PS-2. Prepare Fire Prevention Plan for PRC 421.

16 **4.9.5 Cumulative Impacts Analysis**

17 Increased oil and gas, residential, and commercial development in the Project area has
 18 cumulatively affected the SBCFD. Currently the maximum acceptable ratio of firefighter-
 19 to-population is exceeded in the Goleta area. Additionally, the western Goleta area is
 20 underserved in terms of response time. As other regional projects are developed, the
 21 firefighters-to-population ratio will worsen as will fire response time. The Project would
 22 add incrementally to the demand for publicly provided fire protection and emergency
 23 response services in this under-serviced area. Therefore, the Project would cause a
 24 significant cumulative impact to publicly provided fire protection and emergency
 25 services.

1 **4.10 TRANSPORTATION AND CIRCULATION**

2 This section describes both onshore and offshore transportation systems in the Project
 3 vicinity and the impacts of the Project on both roadway and marine transportation and
 4 circulation. The analysis focuses on area roadways most likely to be affected by
 5 construction and operation of Project components, and transportation of oil via onshore
 6 pipeline. The analysis in this section is based on and incorporates by reference
 7 conclusions from the Ellwood Marine Terminal (EMT) Lease Renewal Environmental
 8 Impact Report (EIR) (California State Lands Commission [CSLC] 2009) and Line 96
 9 Modification Project EIR (Santa Barbara County 2011). This analysis also includes a
 10 review of data from the City of Goleta's 2006 General Plan/Coastal Land Use Plan
 11 (GP/CLUP), associated EIR, and local and regional maps; incorporates data from Santa
 12 Barbara County (01-ND-34) on pier fortification and road stabilization activities that
 13 occurred in 2001; and includes information from contacts with appropriate agencies.

14 **4.10.1 Environmental Setting**

15 **Study Area Location and Description**

16 The primary Project study area comprises Ellwood and areas of west Goleta that could
 17 be impacted by Project-generated traffic, extending roughly from Storke Road to the
 18 western City limit. Because pipeline operations do not generate substantial traffic
 19 volume, there is no secondary Project study area for transportation-related issues.

20 **Transportation**

21 *Roadway Classification*

22 Roadway conditions are typically described in terms of Level of Service (LOS), with
 23 LOS A indicating free traffic flow conditions and LOS F indicating stop-and-go traffic.
 24 LOS A, B, and C are typically considered satisfactory with generally free flowing
 25 conditions, while LOS D, E, and F are often considered unacceptable because they
 26 represent increased congestion and delays. LOS D is typified by increasing congestion,
 27 stable flows, where speed and freedom to maneuver severely restricted, and the driver
 28 experiences a poor level of comfort. At LOS E, roadways are near capacity and operate
 29 with significant delays and low average speeds. LOS F is defined by forced or
 30 breakdown flow and roadways operate at extremely low speeds.

31 *Existing Transportation System*

32 Major transportation corridors in the Project vicinity include Highway 101, Hollister
 33 Avenue, and Storke Road. The Project is located at 7979 Hollister Avenue at the far
 34 west end of the urbanized area of the City of Goleta, California. Access to the Project
 35 site is provided off of Hollister Avenue via Bacara Access Road to the Ellwood Onshore

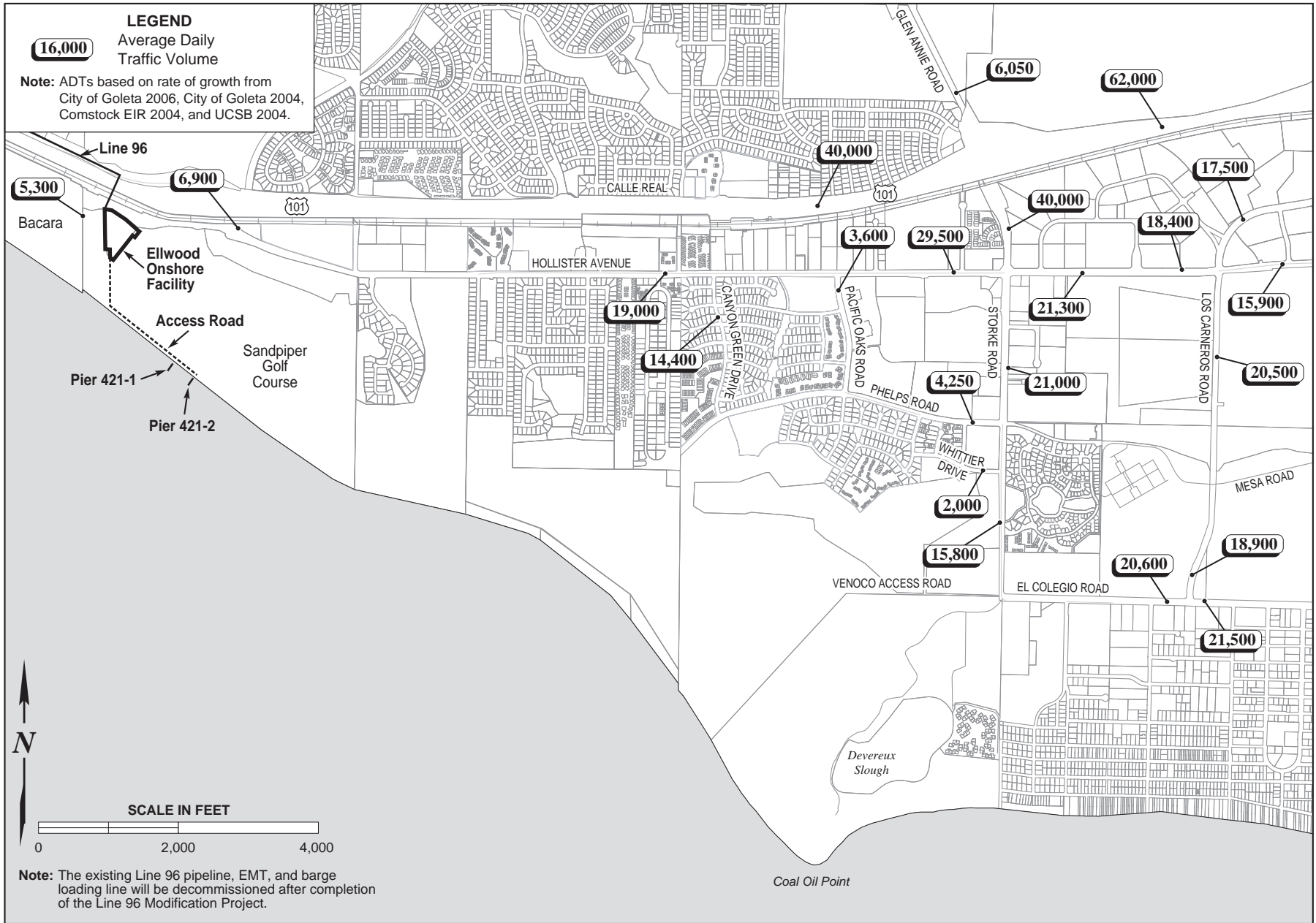
1 Facility (EOF) driveway. A dirt road runs south from the EOF across Sandpiper Golf
2 Course and links to the beachfront dirt road which runs along the toe of the bluff to PRC
3 421. In the Project vicinity, access to Hollister Avenue is provided by two freeway exits,
4 Winchester Canyon Road or Storke Road, approximately 0.5 mile west and 2.3 miles
5 east of the EOF driveway, respectively. Descriptions of the major roadways in the
6 Project vicinity are detailed below (CSLC 2009):

7 Highway 101: Highway 101 extends along the Pacific Coast between Los Angeles and
8 San Francisco. Within Santa Barbara County, the 101 operates as a four- to six-lane
9 highway and provides the principal route between Goleta and the cities of Santa Barbara,
10 Carpinteria, and Ventura to the south, and Buellton and Santa Maria to the north.
11 Highway 101 generally operates at an acceptable LOS in the Project vicinity, but
12 experiences increasing congestion east of its interchange with Highway 217.

13 Hollister Avenue: Hollister Avenue is primarily a four-lane arterial roadway that is the
14 main east/west surface street in Goleta. Hollister Avenue extends easterly from its
15 terminus at the new Hollister Avenue Interchange (formerly Winchester
16 Canyon/Highway 101 interchange) through the City of Goleta and the unincorporated
17 Goleta Valley where it connects to State Street in the City of Santa Barbara. Hollister
18 Avenue generally operates at an acceptable LOS in the Project vicinity, except west of
19 its intersection with Storke Road where congestion increases (Figure 4.10-1). Hollister
20 Avenue is a main transit corridor in Goleta and supports the trans-Goleta Valley bus line
21 11 and bus line 25 between Sandpiper Golf Course and University of California Santa
22 Barbara (UCSB). Hollister is striped with a Class II bike path its entire length.

23 Storke Road: Storke Road extends from Highway 101 in the north, approximately 1.2
24 miles south to El Colegio Road. Between Highway 101 and Phelps road, Storke is a
25 four-lane arterial roadway, but narrows to three lanes south of Phelps Road. Storke
26 Road provides the primary freeway in western Goleta via the Storke Road/Highway 101
27 interchange. Storke Road is signalized at the Highway 101 interchange northbound and
28 southbound ramps, and at Hollister Avenue, Marketplace Drive, Phelps Road, and El
29 Colegio Road. Storke Road generally operates at an acceptable LOS in the Project
30 vicinity, except south of its intersection with Highway 101 where congestion increases
31 (Figure 4.10-1). Storke Road also serves as a main transit route, and provides transit to
32 access UCSB and the Camino Real shopping center via lines 6, 10, 12, 23, 24, 25, and
33 27. Storke Road is also striped with a Class II bike path along its entire reach.

34 Bacara Access Road: This two-lane road provides access to Sandpiper Golf Course,
35 Bacara Resort, the EOF, and the Project site from Hollister Avenue. Its intersection with
36 Hollister Avenue is controlled by a stop sign. Access to the EOF is controlled by a locked
37 gate. Line of sight from this entrance driveway is more than 300 feet to the east and west.



Transportation Network and Average Daily Traffic Volumes in the Project Vicinity

FIGURE 4.10-1

1 Existing and Future Roadway Conditions

2 Existing and future roadway conditions were derived based upon data from the EMT
 3 Lease Renewal EIR as well as that from the EIR on the City of Goleta’s adopted
 4 GP/CLUP. Because the EMT Lease Renewal EIR appears to rely upon older data
 5 (2004), more recent data from the city’s GP/CLUP EIR were also reviewed and used
 6 where applicable. That EIR, however, only assessed the impacts of full development of
 7 Goleta’s GP/CLUP over the next 15 to 20 years and therefore these more recent data
 8 would exceed the scope of required cumulative analysis for an individual project. As a
 9 result, this EIR relies primarily upon the older data and analysis contained in the EMT
 10 Lease Renewal EIR. Estimated current and future roadway and intersection conditions
 11 in the Project vicinity are summarized in Tables 4.10-1 and 4.10-2.

Table 4.10-1. Roadway Traffic in the Project Vicinity

Roadway	Classification	Existing		Future*	
		ADT	LOS	ADT	LOS
Hollister Ave. at intersection with Storke Rd.	4-lane Arterial	29,500	C	31,900	D
Hollister Ave. at northern ramp of Highway 101**	2-lane Arterial	6,900	A	7,700	A
Hollister Ave. (without Pacific Oaks)	2-lane Arterial	11,400	A	13,000	B
Hollister Ave. without Canyon Green Dr.	4-lane Arterial	19,000	A	21,000	A
Storke Rd. (Highway 101 ramp—Hollister Ave.)	4-lane Arterial	40,000	F	41,900	F
Storke Rd. (Hollister Ave —Phelps Rd.)	4-lane Arterial	21,000	A	24,100	B
Storke Rd. (Phelps Rd.—El Colegio)	3-lane Arterial	15,800	A	16,200	A

* Includes the proposed projects in the vicinity. LOS = level of service; ADT = average daily traffic.

** Note: New traffic counts for the realigned Hollister Avenue Interchanges with Highway 101 are not available.

Source: CSLC 2009; City of Goleta 2006a.

12
13
14

Table 4.10-2. Intersection Traffic in the Project Vicinity

Roadway	Control	Existing		Future*	
		V/C Ratio or Delay	LOS	V/C Ratio or Delay	LOS
Hollister Ave./Highway 101 southbound Ramps**	Stop-Sign	10.3 sec.	B	11.4	B
Hollister Ave./Ellwood School	Signal	0.36	A	0.40	A
Hollister Ave./Santa Barbara Shores Drive	Stop-Sign	8.5 sec.	A	8.7 sec.	A
Storke Rd./Hollister Ave. ¹	Signal	0.76	C	0.97	E
Storke Rd./Highway 101 northbound Ramps	Signal	0.59	A	0.61	B
Storke Rd./Highway 101 southbound Ramps	Signal	0.49	A	0.52	A

* Includes the proposed projects in Goleta. LOS = level of service; ADT = average daily traffic.

¹ The EMT Lease Renewal EIR identifies this intersection as operating at LOS D; more recent data from the Goleta Community Plan EIR identify this intersection as operating at LOS C as shown in this table.

** Note: New traffic counts for the realigned Hollister Avenue Interchanges with Highway 101 are not available.

Source: CSLC 2009; City of Goleta 2006a.

1 As can be seen from the information in these tables, most roads and intersections in the
2 Project vicinity operate at an acceptable LOS (LOS A-C) and would continue to do so
3 even with the addition of substantial traffic associated with development of pending
4 projects. However, the section of Storke Road south of Highway 101 currently operates
5 at LOS F and the segment of Hollister west of Storke Road is projected to operate at
6 LOS D with cumulative traffic. Currently, the intersection of Hollister Avenue and Storke
7 Road operates at LOS C and is projected to decline to LOS F with the addition of
8 cumulative traffic.

9 **Offshore Traffic**

10 The Project would not directly affect offshore vessel traffic, which in the immediate
11 project vicinity consists primarily of recreational boating. Marine traffic is typically
12 described in numbers of port calls per vessel category, e.g., tankers, container vessels,
13 and the number of vessels that traverse a given waterway. Offshore waters in high
14 traffic areas can be designated as safety fairways to prohibit the placement of surface
15 structures such as oil platforms in the area. The U.S. Army Corps of Engineers
16 (USACE) is prohibited from issuing permits for surface structures within safety fairways,
17 which are frequently located between a port and the entry into a Traffic Separation
18 Scheme (TSS) (CSLC 2009).

19 **4.10.2 Regulatory Setting**

20 The Federal government passes the responsibilities of maintaining and regulating
21 highways and roadways to the State and local levels; therefore, there are no Federal
22 agencies or regulations related to this resource area. A summary of the regulatory
23 setting at the State level is provided in Table 4.0-1 and the local level is provided below.

24 **Local**

25 The Santa Barbara County Association of Governments (SBCAG) has responsibility for
26 all regional transportation planning and programming activities.

27 The Project would be subject to the provisions of the City of Goleta GP/CLUP
28 Transportation Element and the Santa Barbara County Congestion Management
29 Program (CMP). The CMP is a comprehensive program designed to reduce auto-
30 related congestion and designates major highway and road segments within the Project
31 vicinity. The CMP requires an assessment of the Project's potential impacts on the
32 designated roadways, which include Hollister Avenue and Highway 101.

33 The Goleta GP/CLUP Transportation Element contains general goals and policies to
34 improve overall circulation in Goleta and ensure that future development is supported by
35 appropriate transportation facilities.

1 **4.10.3 Significance Criteria**

2 Thresholds of significance were derived from the State CEQA Guidelines, County of
 3 Santa Barbara Environmental Thresholds and Guidelines Manual, and City of Goleta.
 4 Traffic impacts would be considered significant if any of the following apply:

- 5 • The addition of project traffic to an intersection increases the volume to capacity
 6 ratio (V/C) by the value provided in Table 4.10-3, or adds at least 5, 10, or 15
 7 trips to intersections operating at LOS F, E, and D, respectively.

Table 4.10-3. City of Goleta LOS Significance Thresholds

LOS (including Project) ¹	Increase in V/C Greater Than
A	0.20
B	0.15
C	0.10
	Or the addition of:
D	15 trips ²
E	10 trips ²
F	5 trips ²

¹ The adopted standard for city roadways and intersections is LOS C; with the exception of the intersection of Hollister Avenue/Storke Road, which has been built to its planned capacity, and thus under GP/CLUP policy subsection TE 4.2 has a standard of LOS D.

² For purposes of analysis of the 2030 buildout, it was conservatively assumed that any increase in V/C projected over existing conditions reflects an increase of at least the threshold number of trips defined in this table, indicating a significant impact.

Source: City of Goleta 2006b.

- 8 • Project access to a major road or arterial road would require a driveway that
 9 would create an unsafe situation or a new traffic signal or major revisions to an
 10 existing traffic signal.
- 11 • Project adds traffic to a roadway that has design features (e.g., narrow width,
 12 roadside ditches, sharp curves, poor sight distance, inadequate pavement
 13 structure) or receives use which would be incompatible with substantial increases
 14 in traffic (e.g., rural roads with use by farm equipment, livestock, horseback
 15 riding, or residential roads with heavy pedestrian or recreational use) that will
 16 become potential safety problems with the addition of Project or cumulative
 17 traffic. Exceedance of the roadway's designated Transportation Element
 18 Capacity may indicate the potential for the occurrence of the above impacts.
- 19 • Project traffic would use a substantial portion of an intersection's capacity where
 20 the intersection is currently operating at acceptable LOS (A through C) but with
 21 cumulative traffic would degrade to or approach LOS D (V/C 0.80) or lower.
 22 Substantial is defined as a minimum change of 0.03 V/C for intersections that
 23 would operate from 0.80 to 0.85 V/C and a change of 0.02 V/C for intersections

1 that would operate from 0.86 to 0.90 V/C, and 0.01 V/C for intersections
2 operating at anything higher than 0.90 V/C.

- 3 • Project traffic or construction must use an access road that is already at or
4 exceeds LOS E or brings a roadway down to LOS E.
- 5 • Project results in a roadway being degraded to a lower LOS.
- 6 • Project results in a substantial safety hazard to motorists, bicyclists, or
7 pedestrians.
- 8 • Project results in insufficient parking.
- 9 • Project restricts one or more lanes of a primary or secondary arterial roadway
10 during peak hour traffic, thereby reducing its capacity and creating congestion.
- 11 • Project results in a noticeable deterioration of pavement or roadway surfaces.
- 12 • Project activities would reduce the existing level of safety for navigating vessels.

13 4.10.4 Impact Analysis and Mitigation

14 There is currently very limited regular daily traffic associated with PRC 421, as it is
15 currently not under production. Existing traffic is limited to daily security patrols, which
16 also provide security to the EOF. Future traffic generation associated with Project
17 implementation would consist of construction- and limited operation-related traffic. Table
18 4.10-4, located at the end of this section, provides a summary of Project impacts and
19 recommended MMs to address these impacts.

20 **Impact TR-1: Construction-Generated Traffic**

21 **Traffic generated from construction activities would have a short-term, less than**
22 **significant impact on local transportation and circulation (Less than Significant**
23 **with Mitigation).**

24 **Impact Discussion**

25 Traffic generated from construction activities would consist of daily trips from employees
26 and periodic trips associated with delivery of equipment and construction materials and
27 hauling of debris. Additionally, during the decommissioning and removal of Pier 421-1,
28 expected to occur approximately 1 year following recommissioning of Pier 421-2,
29 construction traffic would include traffic from similar activities, as well as regular hauling
30 trips to remove debris. Venoco estimates that Project construction would require 90
31 working days; depending upon weather and other factors this may not be continuous
32 and may extend over 3 or more months. Therefore, any potential impacts associated
33 with traffic generated from construction activities would be of a short duration. The
34 decommissioning and removal of Pier 421-1 is expected to have a 30-day construction
35 schedule, so it would also be short in duration.

1 Project construction would generate additional vehicular movement along roads in the
2 Project vicinity, including Highway 101, Winchester Canyon and Storke Road
3 interchanges, Hollister Avenue, and the Bacara Access Road. Venoco has not prepared
4 a traffic management plan and precise estimates of construction-related traffic are
5 unavailable. However, this EIR uses data for similar recent repair projects at PRC 421
6 to provide a reasonable worst case estimate of Project-related short-term traffic likely to
7 be generated from construction activities. In 2004, caisson repair and stabilization
8 efforts at Pier 421-1 required approximately 60 tractor trailer one-way trips
9 entering/leaving the EOF and 88 round trips across the easement road between the
10 EOF and PRC 421 access road. Repair of the caisson walls at Pier 421-2 would be the
11 primary Project component generating construction traffic; installation of new cables and
12 piping would have a limited traffic impact because there would be no import or export of
13 excavated material. Therefore, the following estimates are consistent with construction
14 traffic that would be generated by the Project.

15 Up to an estimated 90 tractor trailer one-way trips entering/leaving the EOF and 90
16 round trips across the easement road between the EOF and PRC 421 (an estimate of
17 an average of two per day over the estimated 90-day construction period) associated
18 with construction equipment and material deliveries would be required for other Project
19 elements such as power cable installation and Pier 421-2 repairs and improvements. In
20 addition, during periods of peak construction such as pipeline and power cable
21 installation or use of the workover rig at Pier 421-2, up to 12 construction workers would
22 be onsite, generating approximately 12 morning and afternoon peak hour trips to the
23 site (24 total). When added to material and construction equipment deliveries,
24 construction traffic could average approximately 15 peak hour trips per day, peaking at
25 up to 40 to 60 average daily trips per day during the most intensive construction
26 activities. Construction traffic is anticipated to add 15 trips per day during a “normal”
27 construction period and 40 to 60 trips during an “intensive” construction period. Over an
28 8-hour work day, approximately two trips an hour would take place during “normal”
29 construction and at most eight trips an hour during “intensive” construction. Trips
30 associated with “normal” construction would not exceed significance criteria according
31 to City of Goleta and Santa Barbara County for one roadway categorized with an LOS
32 of F (Storke Road between Hollister Road and the Highway 101 on-ramp) but under
33 “intensive” construction (eight trips per hour) these criteria may be exceeded. However,
34 this impact would be temporary, lasting an estimated 90 days; therefore, this impact
35 would be less than significant.

36 Construction trips associated with decommissioning and removal of Pier 421-1 would be
37 similar to Project construction in terms of daily traffic loads; however, the duration of this
38 activity would be shorter (30 days). Roughly 40 haul trips would be required to remove
39 debris (an average of under three per day over the estimated 30-day construction
40 period). Trips associated with “normal” construction would not exceed significance
41 criteria according to City of Goleta and Santa Barbara County for one roadway

1 categorized with an LOS of F but under “intensive” construction these criteria may be
2 exceeded. However, decommissioning and removal activity would be temporary, and
3 impacts would therefore be less than significant.

4 The short-term, construction-related traffic would not be expected to adversely affect
5 long-term area roadway or intersection operations. In addition, Venoco has proposed
6 scheduling construction activities and associated traffic to begin at 7:00 a.m. and end at
7 7:00 p.m. to avoid the morning and afternoon peak hour. Trucks would use the
8 northbound and southbound Winchester Canyon exits to access the EOF, which operate
9 at LOS A, meaning free flowing traffic conditions. Although Project construction would
10 span a short duration of time, increased truck volume resulting from the Project could
11 incrementally contribute to delays at already congested facilities such as Storke Road
12 south of Highway 101; however, this is not anticipated to be frequent or significant.
13 Hollister Avenue has adequate capacity to handle increased traffic resulting from this
14 Project. Should any traffic be diverted to the Storke Road/Highway 101 exits, impacts
15 would also be less than significant due to majority of construction-generated truck trips
16 taking place during off-peak hours.

17 Parking would be provided at an existing easement area immediately adjacent to the
18 EOF west fence line. There are two staging areas at the EOF and a 30- by 30-foot
19 helipad at the south end of the EOF could also be used as an additional staging area for
20 vehicles and material should the need arise. Therefore, no parking would obstruct
21 Hollister Avenue.

22 Further, implementation of the Project would not restrict access to or from private
23 property or adjacent land uses like the beach, restrict movements of emergency
24 vehicles with no reasonable alternative access routes, impede pedestrian movements
25 or bike trails, with no suitable alternative routes, but could result in noticeable
26 deterioration of pavement or roadway surfaces. Therefore, construction-generated
27 traffic impacts associated with the Project would be less than significant with mitigation.

28 **Mitigation Measures**

29 The following recommended measures would ensure that construction-related traffic
30 impacts are less than significant.

31 **MM TR-1a. Route Construction Traffic to Avoid Congested Intersections.** To
32 minimize the potential for adverse impacts, Venoco shall direct Project
33 construction traffic, particularly heavy trucks, during non-emergency trips, to
34 avoid congested areas at Storke Road and use the Winchester Canyon
35 Overpass to access the Project site. Venoco shall prepare and implement a
36 Construction Traffic Control Plan that would apply to all construction activities,
37 including but not limited to recommissioning and decommissioning activities,
38 for review and approval by the City of Goleta.

1 **MM TR-1b. Repair/Upgrade Any Damage to Access Road.** To minimize the
2 potential for adverse impacts, Venoco shall repair/upgrade the access road if it
3 receives damage or degradation as a result of construction-related traffic. The
4 access road shall be inspected and photographed before and after the Project,
5 and a determination will be made regarding any needed repairs.

6 **Rationale for Mitigation**

7 When combined with the Applicant-proposed measure to schedule trips outside the
8 peak hour, MM TR-1a would ensure that the short-term Impact TR-1 would remain less
9 than significant with respect to transportation and circulation. Similarly, MM TR-1b
10 would ensure that short-term impacts would remain less than significant on the access
11 road.

12 **Impact TR-2: Operation-Generated Traffic**

13 **Traffic from operation of the Project would have a less than significant impact on**
14 **transportation and circulation (Less than Significant).**

15 **Impact Discussion**

16 On-road traffic generated by Project operations would be minimal. Venoco proposes
17 that all operational maintenance issues would be handled by existing staff at the EOF;
18 therefore, the facility would require only limited and periodic maintenance beyond that
19 provided by existing EOF staff. Daily security patrols are already ongoing. Traffic
20 associated with pipeline transportation to the Plains All American Pipeline L.P.
21 (PAAPLP) Coastal Pipeline would not increase as a result of the Project because the
22 additional throughput would not require additional personnel or facilities. As a result, the
23 Project would not generate any increase in ongoing operational average daily or peak
24 hour trips for the Project's duration.

25 **Mitigation Measures**

26 None required.

27 **Impact TR-3: Increased Potential for Traffic Accidents**

28 **Large trucks and construction equipment coming to and leaving from the Project**
29 **site could increase the potential for traffic accidents due to delays and backups**
30 **on Hollister Avenue and at the Winchester Canyon Road bridge over Highway 101**
31 **(Less than Significant).**

32 **Impact Discussion**

33 The intersection of the Bacara access road with Hollister Avenue has been recently
34 realigned as part of the relocation of the Winchester Canyon/ Hollister Avenue

1 interchange with U.S. Highway 101. This new intersection consists of a standard "T"
 2 alignment, with Hollister Avenue forming the east leg, the Bacara Access Road the west
 3 approach and the Winchester Canyon Road bridge over Highway 101 the north leg. All
 4 approaches are controlled by stop signs and line of sight and visibility are excellent.
 5 While the addition of large heavy trucks from the Project to this interchange could
 6 incrementally increase delays at this intersection, these impacts would be short-term
 7 and intermittent and are considered insignificant.

8 **Mitigation Measures**

9 None required.

Table 4.10-4. Summary of Transportation and Circulation Impacts and Mitigation Measures

Impact	Mitigation Measures
TR-1: Construction-Generated Traffic	TR-1a. Route Construction Traffic to Avoid Congested Intersections. TR-1b. Repair/Upgrade Any Damage to Access Road.
TR-2: Operation-Generated Traffic	None required.
TR-3: Increased Potential for Traffic Accidents	None required.

10 **4.10.5 Cumulative Impacts Analysis**

11 Other projects proposed in the Project area would contribute to transportation
 12 congestion; however, because the Project would have no long-term transportation
 13 impacts, it would not have a cumulative impact on transportation and circulation in the
 14 Project vicinity.

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1 4.11 NOISE

2 This section describes the noise environment in the Project vicinity and potential
3 impacts to the noise environment associated with Project implementation. This
4 document incorporates by reference the conclusions of the Ellwood Marine Terminal
5 (EMT) Lease Renewal Environmental Impact Report (EIR) (California State Lands
6 Commission [CSLC] 2009) and Line 96 Modification Project EIR (Santa Barbara County
7 2011) regarding baseline noise environment conditions. Where this document relies
8 upon mitigation measures (MMs) contained in those EIRs to address Project impacts,
9 these are summarized to permit report reviewers to understand their relationship to the
10 Project.

11 4.11.1 Environmental Setting

12 Study Area Location and Description

13 The primary Project study area comprises the Ellwood area immediately surrounding
14 and adjacent to PRC 421 that could be impacted by Project-generated noise, extending
15 roughly from the Ellwood Mesa on the east to Bacara Resort to the west. Because
16 pipeline operations do not generate substantial noise, there is no secondary Project
17 study area for noise-related issues.

18 Definitions

19 Noise is defined as unwanted sound that is heard by people or wildlife and that
20 interferes with normal activities or otherwise diminishes the quality of the environment.
21 Noise is usually measured as sound level on a logarithmic decibel (dB) scale, with the
22 frequency spectrum adjusted by the A-weighting network. The dB is a unit division on a
23 logarithmic scale that represents the intensity of sound relative to a reference intensity
24 near the threshold of normal human hearing. The A-weighting network is a filter that
25 approximates the response of the human ear at moderate sound levels. The resulting
26 unit of measure is the A-weighted decibel, or dBA.

27 To analyze the overall noisiness of an area, noise events are combined for an
28 instantaneous value or averaged over a specific time period, e.g., one hour, multiple
29 hours, 24 hours. The time-weighted measure is referred to as Equivalent Sound Level
30 and represented by L_{eq} . The equivalent sound level is defined as the same amount of
31 sound energy averaged over a given time period. The percentage of time that a given
32 sound level is exceeded can also be represented. For example, L_{10} is a sound level that
33 is exceeded 10 percent of the time over a specified period.

1 **Effects on Wildlife**

2 Wildlife response to noise is dependent not only on the magnitude, but also the
3 characteristic of the sound, or the sound frequency distribution. Wildlife is affected by a
4 broader range of sound frequencies than humans. Determining the effects of noise on
5 wildlife is complicated because responses vary between species and individuals of a
6 population. However, noise is known to affect an animal's physiology and behavior, and
7 chronic noise-induced stress is deleterious to an animal's energy budget, reproductive
8 success, and long-term survival (Radle 2001). Noise impacts to marine wildlife are
9 detailed in Section 4.6, Marine Biological Resources.

10 **Effects on Humans**

11 Human response to noise is dependent not only on the magnitude but also on the
12 characteristic of the sound, or the sound frequency distribution. Generally, the human
13 ear is more susceptible to higher frequency sounds than lower frequency sounds.
14 Human response to noise is also dependent on the time of day and expectations based
15 on location and other factors. For example, a person sleeping at home might react
16 differently to the sound of a car horn than to the same sound while driving during the
17 day. The regulatory process has attempted to account for these factors by developing
18 overall noise ratings such as Community Noise Equivalent Level (CNEL) and the Day-
19 Night Average Noise Level (L_{dn}) which incorporate penalties for noise occurring at night.
20 The L_{dn} rating is an average of noise over a 24-hour period in which noises occurring
21 between 10:00 p.m. and 7:00 a.m. are increased by 10 dBA. The CNEL is similar but
22 also adds a weighting of 3 dBA to noises that occur between 7:00 p.m. and 10:00 p.m.
23 Average noise levels over daytime hours only (7:00 a.m. to 7:00 p.m.) are represented
24 as L_d and nighttime noises as L_n . Figure 4.11-1 is a scale showing typical noise levels
25 encountered in common daily activities.

26 The effects of noise are considered in two ways: how a proposed project may increase
27 existing noise levels and affect surrounding land uses and how a proposed land use
28 may be affected by existing surrounding land uses. The Goleta General Plan/Coastal
29 Land Use Plan (GP/CLUP) Noise Element focuses on particular types of land uses
30 (sensitive receptors) when measuring the effects of noise. These "sensitive receptors"
31 include residences, transient lodging, such as hotels and motels, hospitals, nursing
32 homes, convalescent hospitals, schools, libraries, houses of worship, and public
33 assembly places.

34 When a new noise source is introduced, most people begin to notice a change in noise
35 levels at approximately 5 dBA. Typically, average changes in noise levels of less than 5
36 dBA cannot be definitely considered as producing an adverse impact. For changes in
37 levels above 5 dBA, it is difficult to quantify the impact beyond recognizing that greater
38 noise level changes would result in greater impacts (CSLC 2009).

Common Outdoor Noise Levels	Noise Level (dBA)	Common Indoor Noise Levels
Chain Saw	110	Rock Band
Jet takeoff at 2 miles	—	
Ambulance siren at 100 feet	100	
Gas Lawnmower at 3 feet	—	Food Blender at 3 feet
Diesel Truck at 50 feet	90	Garbage Disposal at 3 feet
	—	Shouting at 3 feet
Gas Lawnmower at 100 feet	80	
	—	Vacuum Cleaner at 10 feet
Commercial Area	70	Normal Conversation at 5 feet
Small plane landing at ¼ miles	60	Air Conditioner Large Business Office Dishwasher Next Room
Quiet Urban Daytime Light Traffic at 100 feet	50	Distant Birds
Quiet Urban Nighttime	40	Library
Quiet Suburban Nighttime	30	Soft Whisper, Bedroom at Night
Quiet Rural Nighttime	20	Broadcast and Recording Studio
	10	
	0	Threshold of Hearing

FIGURE 4.11-1. COMMON ENVIRONMENTAL NOISE LEVELS

Source: Adapted from FAA 2005.

1 In community noise impact analysis, long-term noise increases of 5 to 10 dBA are
 2 considered to have “some impact.” Noise level increases of more than 10 dBA are
 3 generally considered severe. In the case of short-term noise increases, such as those
 4 from construction activities, the 10 dBA threshold between “some” and “severe” is
 5 replaced with a criterion of 15 dBA. These noise-averaged thresholds shall be lowered
 6 when the noise level fluctuates, when the noise has an irritating character such as
 7 considerable high frequency energy, or if it is accompanied by subsonic vibration. In
 8 these cases the impact must be individually estimated.

9 Project Area Overview

10 Major noise sources in the Project vicinity include breaking waves along the beach,
 11 occasional aircraft overflights (the Santa Barbara Airport is approximately 6 miles from
 12 PRC 421), the Ellwood Onshore Facility (EOF), and on-road traffic. The piers are
 13 located on State tide and submerged lands below the bluffs marking the southern limit
 14 of the Sandpiper Golf Course. On the north and east sides, the PRC 421 piers are
 15 surrounded by public beach area and the Sandpiper Golf Course. To the northwest of
 16 the piers is the Bacara Resort (approximately 0.75 mile from PRC 421). South of the
 17 piers is the Pacific Ocean. The Sandpiper Golf Course is the nearest noise receptor to
 18 the Project area.

19 Two noise studies were conducted for a previous EIR to collect baseline noise levels in
 20 the Project vicinity (CSLC 2009). Noise measurements were collected on May 24, 2005,
 21 during the day and in the evening at the sensitive receptors in the Project vicinity, and
 22 during the day on July 21, 2005. The data collected included L_{eq} , maximum levels, and
 23 minimum levels. Noise levels associated with the maximum reading were generally
 24 produced by the ocean surf for locations near the beach, or by traffic on nearby local
 25 roads for other areas. Noise from aircraft overflights associated with the Santa Barbara
 26 Airport could be heard from all locations (CSLC 2009). Background noise levels
 27 measured in the study area and their distance to PRC 421 are shown in Table 4.11-1.

Table 4.11-1. Baseline Noise Levels in the Project Vicinity

Location/Sensitive Receptor	Distance from PRC 421	Major Noise Sources	L_{eq} , dBA			
			Day	Eve.	Night	CNEL
1. Ellwood Mesa pedestrian and biking trail	8,509 feet	Trucks, noise from EMT, aircraft	49.6	56.3	51.3	58.6
2. Public walking trails on ocean bluff	8,714 feet	Ocean	63.8	63.0	58.0	66.4
3. Public beach area east of the piers	9,008 feet	Ocean	63.2	59.7	54.7	64.0
4. Vicinity of Bacara Resort and Sandpiper Golf Course		Cars, Ocean	60-63	NM	NM	NM

NM = not measured; Source: CSLC 2009.

1 A third noise monitoring study was conducted August 9, 2005, near the Line 96 tie-in at
2 the EOF, in the vicinity of the Bacara Resort, Sandpiper Golf Course, and residences on
3 the north side of Highway 101. This study examined only daytime ambient noise levels
4 and determined that day background L_{eq} noise levels in this location were between 60
5 and 63 dBA. Figure 4.11-2 shows a map of the background-noise-monitoring locations.

6 **4.11.2 Regulatory Setting**

7 Noise is regulated at the Federal, State, and local levels through regulations, policies,
8 and/or local ordinances. Local policies are commonly adaptations of Federal and State
9 guidelines, based on prevailing local conditions or special requirements. These
10 guidelines have been developed at the Federal level by the U.S. Environmental
11 Protection Agency (EPA) and at the State level by the now-defunct California Office of
12 Noise Control. A summary of the regulatory setting for noise at the Federal and State
13 level is provided in Table 4.0-1 and the local level is provided below.

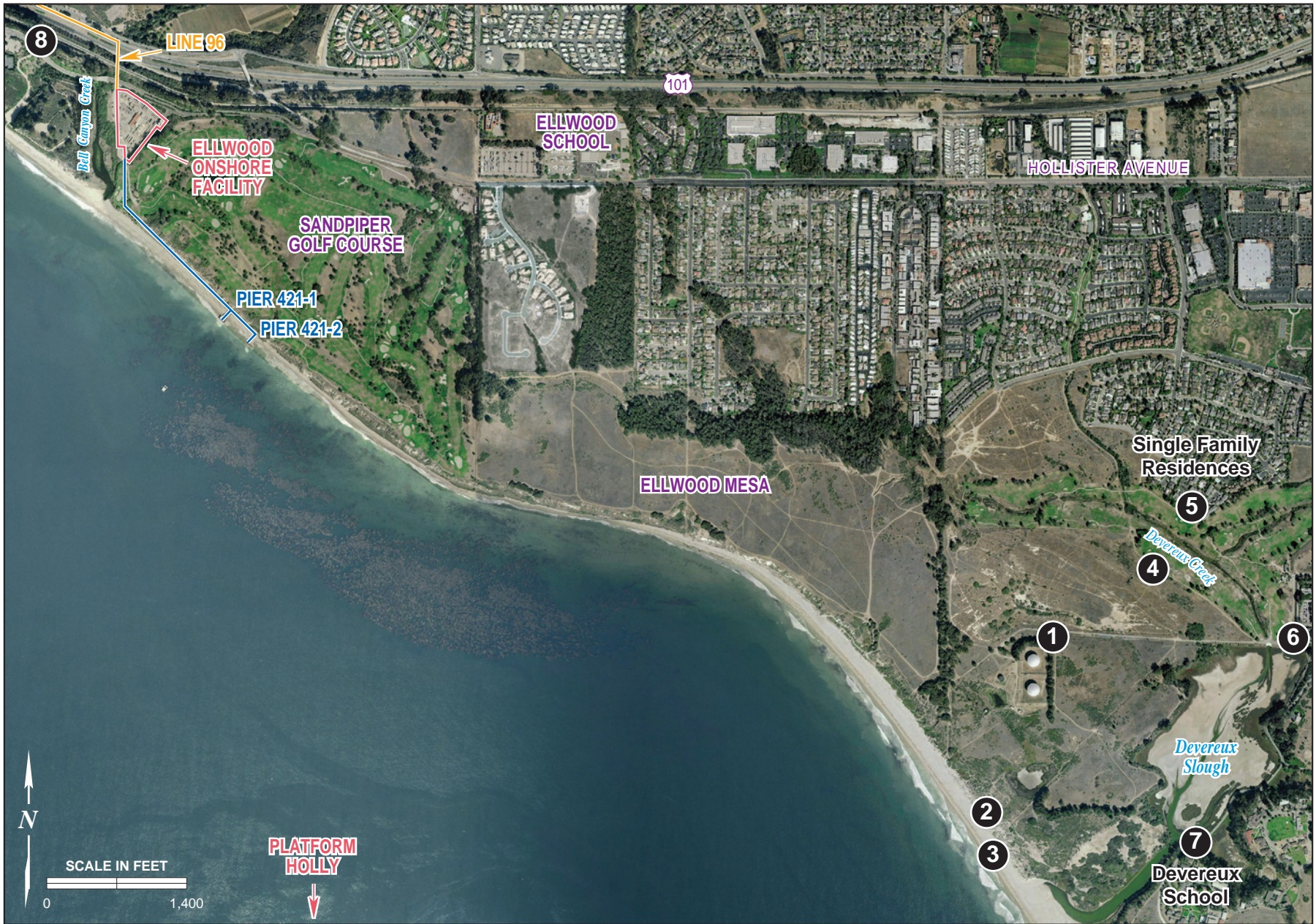
14 **Local**

15 *City of Goleta GP/CLUP*

16 The intent of the Noise Element (NE) contained within the City of Goleta GP/CLUP is to
17 limit exposure of residents, workers, and visitors to excessive noise levels, while
18 allowing future development consistent with the Land Use Element and other plan
19 elements. The Noise Element also contains policies that serve to achieve certain
20 resource protection objectives of the Open Space and Conservation Elements.

21 The Goleta GP/CLUP NE 1.1 protects noise sensitive interior uses by minimizing noise
22 impacts:

23 *The City shall use the standards and criteria of Table 9-2 [within the Noise*
24 *Element] to establish compatibility of land use and noise exposure. The City shall*
25 *require appropriate mitigation, if feasible, or prohibit development that would*
26 *subject proposed or existing land uses to noise levels that exceed acceptable*
27 *levels as indicated in this table. Proposals for new development that would cause*
28 *standards to be exceeded shall only be approved if the project would provide a*
29 *substantial benefit to the City (including but not limited to provision of affordable*
30 *housing units or as part of a redevelopment project), and if adequate mitigation*
31 *measures are employed to reduce interior noise levels to acceptable levels.*



Noise Monitoring Locations

FIGURE 4.11-2

1 NE 1.4 outlines the makeup of acoustical studies:

2 *An acoustical study that includes field measurement of noise levels may be*
3 *required for any proposed project that would: a) locate a potentially intrusive*
4 *noise source near an existing sensitive receptor, or b) locate a noise-sensitive*
5 *land use near an existing known or potentially intrusive noise source such as a*
6 *freeway, arterial roadway, railroad, industrial facility, or airport traffic pattern.*
7 *Acoustical studies should identify noise sources, magnitudes, and potential noise*
8 *mitigation measures and describe existing and future noise exposure. The*
9 *acoustical study shall be funded by the applicant and conducted by a qualified*
10 *person or firm that is experienced in the fields of environmental noise*
11 *assessment and architectural acoustics. The determination of applicability of this*
12 *requirement shall be made by the Planning and Environmental Services*
13 *Department by applying the standards and criteria outlined within the standards*
14 *and criteria of Table 9-2 [of the Noise Element].*

15 NE 5.1 addresses new, expanded, or upgraded stationary noise sources:

16 *The City shall require proposals for new stationary sources or expansions or*
17 *alterations of use for an existing stationary source to include appropriate noise*
18 *mitigation measures. Retrofits and facility upgrades under the permitting*
19 *jurisdiction of the City should ensure that noise levels are reduced, particularly for*
20 *sources that impact adjacent sensitive receivers.*

21 NE 5.2 discusses equipment maintenance:

22 *The City shall require that new and existing heating, ventilation, and air*
23 *conditioning equipment and other commercial/industrial equipment be adequately*
24 *maintained in proper working order so that noise levels emitted by such*
25 *equipment remain minimal. The City shall also require noise shielding or*
26 *insulation for such equipment if operation of the equipment results in*
27 *objectionable noise levels at adjacent properties.*

28 NE 5.4 promotes the use of noise barriers for industrial or heavy commercial uses:

29 *Absorptive types of noise barriers or walls should be used to reduce noise levels*
30 *generated by industrial and certain heavy commercial uses. To be considered*
31 *effective, the noise barrier should provide at least a 5-dBA-CNEL noise*
32 *reduction.*

33 The Goleta GP/CLUP NE 6.4 places restrictions on construction hours. The policy
34 states:

35 *Noise-generating construction activities for projects near or adjacent to*
36 *residential buildings and neighborhoods or other sensitive receptors shall be*
37 *limited to Monday through Friday, 8:00 a.m. to 5:00 p.m. Construction in*
38 *nonresidential areas away from sensitive receivers shall be limited to Monday*
39 *through Friday, 7:00 a.m. to 4:00 p.m. Construction shall generally not be*
40 *allowed on weekends and State holidays.... All construction sites subject to such*

1 *restrictions shall post the allowed hours of operation near the entrance to the*
2 *site, so that workers are aware of this limitation.*

3 The NE provides Noise and Land Use Compatibility Criteria for various land uses. One
4 criterion identifies noise levels of 50-70 dBA as “Normally Acceptable” levels at golf
5 courses, riding stables, water recreation, and cemeteries. Levels between 70 and 80
6 dBA are classified as “Normally Unacceptable” and levels above 80 dBA are classified
7 as “Clearly Unacceptable.”

8 NE 6.5 states:

9 *The following measures shall be incorporated into grading and building plan*
10 *specifications to reduce the impact of construction noise:*

11 *a. All construction equipment shall have properly maintained sound-control*
12 *devices, and no equipment shall have an unmuffled exhaust system.*

13 *b. Contractors shall implement appropriate additional noise mitigation measures*
14 *including, but not limited to, changing the location of stationary construction*
15 *equipment, shutting off idling equipment, and installing acoustic barriers around*
16 *significant sources of stationary construction noise.*

17 *c. To the extent practicable, adequate buffers shall be maintained between*
18 *noise-generating machinery or equipment and any sensitive receptors. The*
19 *buffer shall ensure that noise at the receiver site does not exceed 65 dBA CNEL.*
20 *For equipment that produces a noise level of 95 dBA at 50 feet, a buffer of 1,600*
21 *feet is required for attenuation of sound levels to 65 dBA (City of Goleta 2006).*

22 NE 7.1 necessitates the control of noise at the source:

23 *The City shall require that primary emphasis on the control of noise be*
24 *accomplished at the source by reducing the intensity of the noise generated or*
25 *through appropriate placement of noisy components of a project or use.*
26 *Secondary emphasis should be through site design of receiver sites and noise*
27 *attenuation and insulation measures.*

28 **4.11.3 Significance Criteria**

29 A noise impact is considered significant if noise levels from Project operations exceed
30 the local policies and noise standards. Thus, the noise policies of the Santa Barbara
31 County and the City of Goleta shall be adhered to. Impacts of the Project would
32 therefore be considered significant if:

- 33 • A noise level of greater than 65 dBA resulted from grading and construction
34 activity proposed within 1,600 feet of sensitive receptors, including schools,
35 residential development, commercial lodging facilities, hospitals or care facilities
36 (City of Goleta 2006);

- 1 • Noise levels at neighborhood parks increased above 70 dBA, or levels at golf
2 courses and riding stables increased above 70 dBA (City of Goleta 2006);
- 3 • Outdoor living areas of noise sensitive uses that are subject to noise levels in
4 excess of 65 dBA CNEL would generally be presumed to be significantly
5 impacted by ambient noise. A significant impact would also generally occur
6 where interior noise levels cannot be reduced to 45 dBA CNEL or less (Santa
7 Barbara County 2002); or
- 8 • A project will generally have a significant effect on the environment if it will
9 increase substantially the ambient noise levels for noise-sensitive receptors
10 adjoining areas. This may generally be presumed when ambient noise levels
11 affecting sensitive receptors are increased to 65 dBA CNEL or more. However, a
12 significant effect may also occur when ambient noise levels affecting sensitive
13 receptors increase substantially but remain less than 65 dBA CNEL, as
14 determined on a case-by-case level (Santa Barbara County 2002).

15 **4.11.4 Impact Analysis and Mitigation**

16 The nearest sensitive human receptor, as defined by the Goleta GP/CLUP, is the
17 Bacara Resort, which is approximately 3,800 feet west of the Project area. The nearest
18 residences to the Project site are approximately 2,500 feet east of the Project area.
19 However, noise-sensitive recreational uses occur on the beach surrounding the project
20 site and on the adjacent Sandpiper Golf Course. Current daytime background L_{eq} noise
21 levels in the Project vicinity, the Sandpiper Golf Course, and the adjacent beach area
22 are in the range of 60 to 63 dBA, as determined by the noise study performed on
23 August 9, 2005, for the EMT Lease Renewal EIR. The primary noise source in the
24 beach area is breaking waves. Noise impacts to biological resources are discussed in
25 Sections 4.6 and 4.7, Marine Biological Resources and Terrestrial Biological Resources,
26 respectively.

27 The Project has the potential to create both short-term construction-related and long-
28 term operational noise impacts. Elevated noise levels from construction and grading
29 activities would not occur within 1,600 feet of any residential or commercial human
30 sensitive receptors and would not conflict with the significance threshold (under 65 dBA)
31 for these distant locations. However, as discussed below, operation of construction
32 equipment would generate short-term periodic high noise levels (e.g., 90 dBA at 50 feet)
33 on the beach surrounding PRC 421 and to a lesser extent on limited portions of the
34 adjacent Sandpiper Golf Course.

35 Noise associated with the Project would generally not exceed existing noise levels. The
36 use of a downhole electric submersible pump (ESP) would eliminate the need for
37 surface pumping equipment and noise associated with such equipment. The ESP would
38 be installed at such a depth within the well that noise levels at the surface would be

1 negligible. Therefore, Project implementation would temporarily and minimally increase
2 noise levels of outdoor or interior living areas during periods of construction, and create
3 very limited long-term changes in ambient noise levels from operation of the ESP and
4 other infrastructure at Pier 421-2. No noise impacts to residences or human sensitive
5 receptors would occur.

6 Table 4.11-2, located at the end of this section, provides a summary of Project-related
7 noise impacts and recommended MMs to address these impacts.

8 **Impact NZ-1: Construction Impacts to Beach Users and Golfers**

9 **Short-term noise levels would increase during Project construction potentially**
10 **affecting a public beach and the Sandpiper Golf Course (Less than Significant).**

11 **Impact Discussion**

12 Noise levels from construction machinery were modeled using documented noise levels
13 (EPA 1971). The loudest piece of construction equipment that would be used during the
14 Project would be diesel trucks and heavy equipment. Noise at 50 feet from diesel-
15 powered equipment would not exceed 90 dBA L_{eq} ; however, at 1,000 feet, L_{eq} would be
16 64 dBA. Such increases in noise are anticipated to be periodic during the Project's
17 proposed 90 days of construction. The public beach area adjacent to the Project site is
18 a relatively low-use beach area due to its distance from nearby access points
19 (approximately 0.5 mile west of access from Ellwood Mesa and 0.5 mile east of access
20 from the Bacara Resort). However, ambient noise levels at the beach area adjacent to
21 the piers would increase noticeably during re-commissioning of Well 421-2 and
22 decommissioning and removal of Well 421-1 and the associated infrastructure. Beach
23 areas which are more heavily used by the public are approximately 0.5 mile in each
24 direction from the Project site and ambient noise levels at these more distant beaches
25 would not be significantly increased during construction activities at PRC 421. Because
26 of the short-term periodic nature of construction-related increases in noise and the
27 limited number of affected beach goers, noise impacts to beach users, while periodically
28 exceeding the threshold for the beach area directly adjacent to the Project site, would
29 be considered an adverse but less than significant impact.

30 Wells 421-1 and 421-2 are approximately 200 feet from the southern edge of Sandpiper
31 Golf Course, where construction-related L_{eq} could reach 78 dBA for brief periods, which
32 is above the 70 dBA threshold identified by the Goleta GP/CLUP Noise Element. The
33 access road and proposed pipeline replacements are adjacent to the 12th green at
34 Sandpiper Golf Course, where L_{eq} would be even greater during construction. The
35 Applicant anticipates that construction activities along the access road and pipeline area
36 will take 1 day; however, these activities could take up to 1 week. All other construction
37 activities are anticipated to last for approximately 90 days. However, the City GP/CLUP
38 policy states that noise in the vicinity of golf course and other recreational facilities be

1 reduced *to the extent practicable* and does not specify construction noise. Therefore,
2 this policy would be more applicable to long-term operational noise which would be
3 below the 70 dBA threshold. Further, standard noise reduction best management
4 practices (BMPs) should be employed during construction including installing noise
5 mufflers on all construction equipment and erecting temporary barriers between
6 construction activities and Sandpiper Golf Course. In addition, in compliance with the
7 City GP/CLUP Noise Element policy NE 6.4, construction activities would occur
8 between 8:00 a.m. and 5:00 p.m. Monday through Friday. Construction would generally
9 not be allowed on weekends and state holidays. Exceptions to these restrictions may be
10 made in extenuating circumstances (e.g., in the event of an emergency) on a case-by-
11 case basis at the discretion of the City of Goleta's Director of Planning and
12 Environmental Services. Because high construction noise levels would be episodic
13 during a limited 90-day construction period and would affect golfers only on a limited
14 segment (e.g., two holes) of the Sandpiper Golf Course, noise impacts to recreational
15 golfers would be short-term and less than significant.

16 **Mitigation Measures**

17 Although this impact would be less than significant, the following measures would be
18 incorporated into grading and building plan specifications as required by City of Goleta
19 ordinances to reduce the impact of construction noise:

20 **MM NZ-1a. Sound-Control Devices.** All construction equipment shall have properly
21 maintained sound-control devices, and no equipment should have an
22 unmuffled exhaust system.

23 **MM NZ-1b. Additional Best Management Practices (BMPs).** Contractors shall
24 implement appropriate BMPs to avoid impacting the public including but not
25 limited to changing the location of stationary construction equipment, shutting
26 off idling equipment, and installing acoustic barriers around significant sources
27 of stationary construction noise, so that the noise at sensitive receptors such
28 as golf courses, water recreation areas, and riding stables does not exceed 70
29 A-weighted decibels (dBA) California Noise Equivalent Level (CNEL).

30 **MM NZ-1c. Buffers.** To the maximum extent feasible, adequate distance buffers
31 shall be maintained between noise-generating machinery or equipment and
32 any sensitive receptors. The buffer shall be of a width that will ensure that
33 noise at the receiver site such as a residence does not exceed 65 A-weighted
34 decibels (dBA) California Noise Equivalent Level (CNEL), and at receptors
35 such as golf courses, water recreation areas, and riding stables, the noise does
36 not exceed 70 dBA CNEL. For equipment that produces a noise level of 95
37 dBA at 50 feet, a buffer of 1,600 feet is required for attenuation of sound levels
38 to 65 dBA.

1 Rationale for Mitigation

2 While there would be no significant impacts, the above MMs (NZ-1a through NZ-1c) are
3 required by the City of Goleta and would further reduce noise generated from the
4 Project.

5 **Impact NZ-2: Operational Impacts to Beach Users and Golfers**

6 **Noise levels associated with the long-term operation of the Project potentially**
7 **affecting a public beach and the Sandpiper Golf Course (Less than Significant).**

8 Impact Discussion

9 The use of a downhole ESP would eliminate the need for surface pumping equipment
10 and the noise associated with the above-ground oil pumping equipment. Therefore,
11 upon Project implementation, less than significant long-term noise impacts to recreational
12 users would occur.

13 Mitigation Measures

14 None required.

Table 4.11-2. Summary of Noise Impacts and Mitigation Measures

Impact	Mitigation Measures
NZ-1: Construction Impacts to Beach Users and Golfers	NZ-1a. Sound-Control Devices. NZ-1b. Additional Best Management Practices. NZ-1c. Buffers.
NZ-2: Operational Impacts to Beach Users and Golfers	None required.

15 4.11.5 Cumulative Impacts Analysis

16 A number of projects are located near the Project site. As stated above, no noise
17 impacts would occur during operation of PRC 421; therefore, cumulative noise impacts
18 would be limited to temporary construction noise. For the purposes of this analysis,
19 cumulative impacts are only considered significant for projects with the potential to be
20 under construction during the same time period as PRC 421. These could include minor
21 ongoing habitat restoration and well decommissioning on the Ellwood Mesa. In the
22 event that these projects are implemented concurrently with the Project, the Project
23 would contribute to cumulative noise impacts. However, impacts would be temporary
24 (last only the duration of construction) and all projects would be required to comply with
25 City of Goleta noise standards.

1 **4.12 AESTHETIC/VISUAL RESOURCES**

2 This section describes the onshore and offshore visual environments in the Ellwood
3 area and addresses the potential for the Project to impact the visual resources in the
4 Project vicinity and its regional context. Potential impacts to visual resources created by
5 the Project are based on a change from existing conditions.

6 The analysis in this section is based on field surveys of the Project study area and
7 surrounding area and also incorporates by reference the conclusions of the Ellwood
8 Marine Terminal (EMT) Lease Renewal Environmental Impact Report (EIR) (California
9 State Lands Commission [CSLC] 2009) and Line 96 Modification Project EIR (Santa
10 Barbara County 2011) regarding area visual resources and the potential impact on such
11 resources associated with oil development projects, and summarizes these where
12 appropriate. Where this document relies upon mitigation measures (MMs) contained in
13 those EIRs to address Project impacts, these are summarized to allow report reviewers
14 to understand the relationship of the MMs to the Project. This document also
15 incorporates data from Santa Barbara County 01-ND-34 and City of Goleta 06-ND-001.

16 **4.12.1 Analysis of Visual Impacts**

17 Impacts to aesthetics and visual resources are determined by identifying the visual
18 sensitivity and visual character of an environment. Visual impacts are then evaluated in
19 the context of the character of these views.

20 **Visual Sensitivity**

21 Visual sensitivity is defined as the public attitudes about specific views, or interrelated
22 views, and is a key factor in assessing how important a visual impact may be and
23 whether or not it represents a significant impact. Visual sensitivity has three defined
24 levels (see also Table 4.12-1):

25 High Sensitivity. High sensitivity suggests that at least some part of the public is likely to
26 react strongly to a threat to visual quality. Concern is expected to be great because the
27 affected views are rare, unique, or in other ways are special to the region or locale. A
28 highly concerned public is assumed to be more aware of any given level of adverse
29 change and less tolerant than a public that has little concern. A small modification of the
30 existing landscape may be visually distracting to a highly sensitive public and represent
31 a substantial reduction in visual quality.

Table 4.12-1. Indicators of Visual Sensitivity

High Sensitivity
<ul style="list-style-type: none"> ▪ Views of and from areas the aesthetic values of which are protected in laws, public regulations and policies, and public planning documents; ▪ Views of and from designated areas of aesthetic, recreational, cultural, or scientific interest, including national, State, county, and community parks, reserves, memorials, scenic roads, trails, interpretive sites of scientific value, scenic overlooks, recreation areas, and historic structures, sites, and districts; ▪ Views of and from areas or sites of cultural/religious importance to Native Americans; ▪ Views from national- or State-designated scenic highways or roads, or designated scenic highways or roads of regional importance; ▪ Views from resort areas; ▪ Views from urban residential subdivisions; and ▪ Views from segments of travel routes, such as roads, rail lines, pedestrian and equestrian trails, and bicycle paths near designated areas of aesthetic, recreational, cultural, or scientific interest leading directly to them. Views seen while approaching an area of interest may be closely related to the appreciation of the aesthetic, cultural, scientific, or recreational significance of that destination.
Moderate Sensitivity
<ul style="list-style-type: none"> ▪ Views from segments of travel routes near highly sensitive use areas of interest, serving as a secondary access route to those areas; ▪ Views from rural residential areas and segments of roads near them which serve as their primary access route; ▪ Views of and from undesignated but protected or popularly used or appreciated areas of aesthetic, recreational, cultural, or scientific significance at the local, county, or State level; ▪ Views from highways or roads locally designated as scenic routes and of importance only to the local population, or informally designated as such in literature, road maps, and road atlases; ▪ Views from travel routes, such as roads, trails, bicycle paths, and equestrian trails leading directly to protected or popularly used undesignated areas important for their aesthetic, recreational, cultural, or scientific interest; and ▪ Views of and from religious facilities and cemeteries.
Low Sensitivity
<ul style="list-style-type: none"> ▪ Views from travel routes serving as secondary access to moderately sensitive areas; ▪ Views from farmsteads, or groupings of fewer than four residences; and ▪ Views from industrial research/development, commercial, and agricultural use areas.

1 Moderate Sensitivity. Moderate sensitivity suggests that the public would probably voice
 2 some concern over substantial visual impacts. Often the affected views are secondary
 3 in importance or are similar to others commonly available to the public. Noticeably
 4 adverse changes would probably be tolerated if the essential character of the views
 5 remains dominant.

6 Low Sensitivity. Low sensitivity is considered to prevail where the public is expected to
 7 have little or no concern about changes in the landscape. This may be because the
 8 affected views are not “public” (not accessible to the public) or because there are no
 9 indications that the affected views are valued by the public. For instance, little public

1 concern for aesthetics is assumed to pertain to views from industrial, commercial, and
 2 purely agricultural areas. There are exceptions: some agricultural areas are prized for
 3 their open space value, and views of such are highly sensitive. Visual sensitivity is low
 4 for views from all sites, areas, travel routes, and sections of travel routes not identified
 5 as moderate or high in sensitivity.

6 **Visual Character**

7 The visual character of a landscape is typically described in terms of its land forms,
 8 vegetation, water features, and the “built” features of the environment. There are three
 9 objectives in assessing visual character. One is to identify the types of features
 10 considered to be inherent to the area, those features that are expressive of the
 11 prevailing land uses or of the ecological processes in the natural landscape. The
 12 second objective is to identify patterns or distribution of features characteristic of the
 13 affected setting. The third objective is to describe the existing quality of the visual
 14 resources, which varies inversely with how noticeable incongruous features may be
 15 within public views. The current visual quality of the physical environment is described
 16 as its existing visual condition, which is defined in terms of four Visual Modification
 17 Classes (VMC), noted in Table 4.12-2.

Table 4.12-2. Visual Modification Class (VMC) Definitions

VMC	Definition
1	<p>Not noticeable</p> <p>Changes in the landscape are within the field of view but generally would be overlooked by all but the most concerned and interested viewers; they generally would not be noticed unless pointed out (inconspicuous because of such factors as distance, screening, low contrast with context, or other features in view, including the adverse impacts of past activities).</p>
2	<p>Noticeable, visually subordinate</p> <p>Changes in the landscape would not be overlooked (noticeable to most without being pointed out); they may attract some attention but do not compete for it with other features in the field of view, including the adverse impacts of past activities. Such changes often are perceived as being in the background.</p>
3	<p>Distracting, visually co-dominant</p> <p>Changes in the landscape compete for attention with other features in view, including the adverse impacts of past activities (attention is drawn to the change about as frequently as to other features in the landscape).</p>
4	<p>Visually dominant, demands attention</p> <p>Changes in the landscape are the focus of attention and tend to become the subject of the view; such changes often cause a lasting impression on the affected landscape.</p>

18 **4.12.2 Environmental Setting**

19 **Study Area Location and Description**

20 The primary Project study area comprises the beach in the immediate Project vicinity
 21 that could be impacted by Project-related visual changes as well as beaches and bluff

1 tops the Ellwood area extending roughly from Coal Oil Point west to Bacara Resort. A
2 secondary study area includes creeks and beaches along the Gaviota Coast that have a
3 low potential to be impacted by an oil spill from the Line 96 pipeline as described in the
4 EIR for that project (Santa Barbara County 2011).

5 **Onshore Visual Environment**

6 The primary Project area is located on the beach within the Ellwood Coast, an area
7 widely recognized for its scenic beauty. The natural environment of the Project area
8 consists of open sandy beach and dune vegetation interspersed with urban
9 development. Significant visual resources include views of open water, bluffs, and an
10 area of wetland at Bell Creek. The Project area is used for both passive (beach walks,
11 bird watching) and active recreation (Sandpiper Golf Course). Public beach access is
12 provided near the Project site at Bacara Resort/Haskell's Beach approximately 0.5 mile
13 west of Pier 421-1. Beach access in this area is constrained during periods of high tide
14 and by the flow of water from Bell Canyon Creek. Figure 4.12-1 shows existing beach
15 access under the existing piers during low tide.



FIGURE 4.12-1. CURRENT VIEW OF PIER 421-2 FROM THE BEACH SHOWING PEDESTRIAN BEACH ACCESS

1 Bell Creek is an Environmentally Sensitive Habitat vegetated with native and non-native
2 plant species. It serves as a nesting habitat for avian species, as well as a number of
3 State and federally listed species (e.g., tidewater goby). For beachgoers and
4 birdwatchers, Bell Canyon Creek is a significant visual feature. Development in the area
5 includes the Sandpiper Golf Course, the Ellwood Onshore Facility (EOF), Piers 421-1
6 and 421-2, the EMT, "Bird Island" (the converted platforms of the old State Lease 421
7 pier extension, which lies offshore the Project area), and facilities associated with the
8 Bacara Resort such as tennis courts, public restrooms, and pedestrian access from a
9 public parking lot at Haskell's Beach. The Sandpiper Golf Course, a public golf course,
10 is located on a bluff just north of and adjacent to the Project area, but at a higher
11 elevation that makes Piers 421-1 and 421-2 only partially visible to golfers. Although dirt
12 access roads serving the EOF and piers exist, there are no public trails from the golf
13 course to the beach. The beach provides the only public access to the Project site. The
14 EOF is the last oil and gas processing plant located in the City of Goleta. Once
15 considered to be located in a remote area, the EOF now lies between Sandpiper Golf
16 Course and the Bacara Resort (see Figure 2-2). Piers 421-1 and 421-2 have been part
17 of the visual setting for over 75 years, or since the mid-1920s. A man-made access road
18 and rock revetment leading to Pier 421-1 and Pier 421-2 runs alongside the toe of a
19 bluff that extends to the end of the State Lease boundary.

20 Existing prominent oil and gas facilities may detract from the open views of the water,
21 bluffs and wetland vegetation. Other manmade facilities exist within the viewshed,
22 including the rock revetment, access roads, the EOF, and Sandpiper Golf Course;
23 however, the pier structures are more prominent than these other facilities.

24 **Offshore Visual Environment**

25 The offshore visual environment associated with the Project is frequently enjoyed by
26 commercial and recreational fishermen, surfers, swimmers, and boaters. Views of Piers
27 421-1 and 421-2 from the ocean are unobscured and the piers stand out on the sand. In
28 a regional context, however, the piers blend in with the development in the region,
29 including the Ellwood Pier, the EOF, Sandpiper Golf Course, Platform Holly, and the
30 EMT (Figure 4.12-2).

31 **Visual Sensitivity and Classification of the Ellwood Coast**

32 The visual sensitivity of the Ellwood Coast is determined to be high due to the presence
33 of scenic bluffs, wide sandy beaches, dunes and wetlands. The visual sensitivity of the
34 Project area is determined to be moderate, as defined in Table 4.12-1, due to existing
35 development such as the PRC 421 piers, caissons and seawall, which suggests that the
36 public would voice some concern over substantial visual impacts. However, noticeable
37 changes would probably be tolerated if the essential open space character of the views



FIGURE 4.12-2. HISTORIC VIEW OF PROJECT SITE FROM OFFSHORE SHOWING EXISTING ACCESS ROAD, ROCK REVETMENT, AND SANDPIPER GOLF COURSE

1 remains dominant. Changes to the current visual quality of the physical environment
2 would be classified as VMC 2: Noticeable, visually subordinate.

3 Changes in the landscape would not be overlooked (noticeable to most without being
4 pointed out); they may attract some attention but do not compete for it with other
5 features in the field of view, including the adverse impacts of past activities. Such
6 changes often are perceived as being in the background.

7 **4.12.3 Regulatory Setting**

8 There are no Federal regulations, authorities, or administering agencies that regulate
9 aesthetic or visual resources that are specifically applicable to the Project. State laws,
10 regulations, and policies regarding visual resources are discussed in Table 4.0-1, while
11 local laws, regulations, and policies are discussed below.

12 **Local**

13 *City of Goleta General Plan/Coastal Land Use Plan (GP/CLUP) Visual and Historic*
14 *Resources Element*

1 The Goleta GP/CLUP Visual and Historic Resources Element policies VH1.1, VH1.2,
 2 and VH1.5 apply to the Project. Policy VH1.1 states that Goleta shall support the
 3 protection and preservation of the Pacific shoreline, including beaches, dunes, lagoons,
 4 coastal bluffs, and open coastal mesas. Policy VH1.2 refers to a Scenic Resources Map
 5 which identifies the coastline and Hollister Avenue as public vantage points for viewing
 6 scenic resources. Policy VH1.5 states that views of open space from public areas shall
 7 be preserved. To minimize impacts to scenic resources, the following standard
 8 regulatory conditions would be applied to the Project, where appropriate, as part of the
 9 City of Goleta Development Plan permit.

- 10 • Limitations on the height and size of structures;
- 11 • Downcast, fully shielded, full cut off lighting of the minimum intensity needed for
 12 the purpose;
- 13 • Use of landscaping for screening purposes and /or minimizing view blockage as
 14 appropriate; and
- 15 • Selection of color and materials that harmonize with the surrounding landscape.

16 *Santa Barbara County Local Coastal Program (LCP)*

17 The Santa Barbara County LCP recognizes that industrial and energy facilities,
 18 particularly when sited within view corridors, may represent major impacts on scenic
 19 and visual resources. The Santa Barbara County Comprehensive Plan Land Use
 20 Element Visual Resources Policy 1 states that “All commercial, industrial, planned
 21 development shall be required to submit a landscaping plan to the county for approval.”

22 Similarly, Local Coastal Policy 6-2 states that a plan for eliminating or substantially
 23 mitigating adverse impacts on scenic resources due to siting, construction, or operation
 24 of facilities shall accompany a Development Plan filed with the Petroleum Administrator.

25 **4.12.4 Significance Criteria**

26 Visual impacts are considered significant if one or a combination of the following apply:

- 27 • The project is inconsistent with or in violation of public policies, goals, plans,
 28 laws, regulations or other directives concerning visual resources;
- 29 • Routine operations and maintenance visually contrast with or degrade the
 30 character of the viewshed;
- 31 • The project results in a perceptible reduction of visual quality, lasting for more
 32 than one year that is seen from moderately to highly sensitive viewing positions.
 33 A perceptible reduction of visual quality occurs when, for a highly sensitive view,
 34 the visual condition is lowered by at least one Visual Modification Class (VMC);
 35 or for a moderately sensitive view, the condition is lowered by at least two VMCs;

- 1 • Night lighting would result in glare conditions affecting nearby residences; or
- 2 • Because of the time factor involved in oil dispersion, visual impacts from spills
- 3 are considered to be significant (i.e., a significant impact that remains significant
- 4 after mitigation) if first response efforts would not contain or clean up the spill,
- 5 resulting in residual impacts that would be visible to the general public on
- 6 shoreline or water areas.

7 **4.12.5 Impact Analysis and Mitigation**

8 The visual resources assessment focuses on identifying potentially significant impacts,
9 with the analysis directed toward public views in which the Project would be most
10 visible. Critical views are partly defined as those that are moderately to highly sensitive.
11 The public is considered to have a substantial concern over adverse changes in the
12 quality of such views. Critical views also are defined as being those public views that
13 would be most affected by the subject action, e.g., the greatest intensity of impact due
14 to viewer proximity to the Project and duration of the affected view. Critical views in the
15 Project area were identified as those from the beach and bluffs toward the onshore and
16 offshore portions of the Project located at the Ellwood Coast (Piers 421-1 and 421-2).

17 Table 4.12-3, located at the end of this section, provides a summary of Project-related
18 aesthetic/visual impacts and recommended MMs to address these impacts.

19 **Impact VR-1: Visual Effects from Construction Activities at PRC 421**

20 **Construction activities would create negative visual impacts (Less than**
21 **Significant with Mitigation).**

22 **Impact Discussion**

23 Construction activities associated with Project implementation would have potentially
24 significant short-term impacts to the visual quality of the Project area. The visual
25 environment would be disturbed by construction equipment (particularly the large
26 workover rig), construction fencing, construction materials, and occasional stockpiling of
27 debris on the upper reaches of the beach overnight for pick up and removal the next
28 day for the duration of the 90-day construction schedule. Given that the visual
29 environment at PRC 421 is enjoyed daily by beach goers, golfers, boaters, fishermen,
30 and surfers, views in the Project area would be significantly degraded on a daily basis
31 for the duration of the construction activities; however, these impacts would be
32 temporary and no permanent changes to the visual character of the area would occur
33 as a result of the Project. Night lighting would likely be used infrequently and for short
34 periods of time during Project construction since, by necessity, work on the Project
35 would need to be performed during low tide, which occurs late in the day during the fall
36 and early winter months when natural lighting is low. Per City of Goleta GP/CLUP Policy
37 NE 6.4, work would stop by 5:00 p.m., substantially reducing potential night lighting

1 needs. However, as the Applicant has stated that construction hours would need to
2 extend until 7:00 p.m., this impact would remain potentially significant.

3 **Mitigation Measures**

4 **MM VR-1a. Use Laydown Areas for Overnight Storage of Equipment.** Equipment
5 placed on the beach shall be returned to the laydown areas at the end of each
6 workday, both for public safety and for aesthetic considerations.

7 **MM VR-1b. Caution Tape around Materials Placed on Beach.** Materials
8 temporarily placed on the upper reaches of the beach shall be roped-off with
9 caution tape and removed within 24 hours in most cases.

10 **MM VR-1c. Material Removal at Construction Completion.** All materials,
11 equipment, and debris shall be removed from the site upon completion of the
12 Project construction. Venoco shall revegetate all areas subject to ground
13 disturbance associated with project construction with species that are
14 biologically and visually compatible with the surroundings in accordance with a
15 Restoration Plan approved by the City of Goleta as identified in MM TBIO-1c
16 Restoration Plan/Restoration.

17 **MM VR-1d. Minimal Night Lighting.** Lighting shall use the minimum number of
18 fixtures and intensity needed for construction activities. Fixtures shall be fully
19 shielded and have full cut-off lights to minimize visibility from public viewing
20 areas, wildlife habitats, migration routes, and other sensitive environs. Venoco
21 shall prepare and implement a Night Lighting Plan to ensure that night lighting
22 is minimal and directed away from sensitive habitats to the maximum extent
23 feasible, for review and approval by the City of Goleta.

24 **MM VR-1e. No Night Lighting After 5:00 p.m.** Night lighting and work shall not
25 occur past the 5:00 p.m. work stoppage deadline.

26 **Rationale for Mitigation**

27 The above MMs would reduce the amount of time construction equipment would be
28 visible from the beach and minimize the use of night lighting, thereby reducing visual
29 impacts from construction activities. Full implementation of these measures would
30 reduce Impact VR-1 to less than significant.

31 **Impact VR-2: Visual Effects from Accidental Oil Spills**

32 **Project implementation would incrementally increase the likelihood of oil spill**
33 **from primary or secondary Project components, including Pier 421-2, associated**
34 **pipelines, and the Line 96 pipeline (Significant and Unavoidable).**

35 **Impact Discussion**

36 A large spill from the Project could cause visual impacts ranging from oil sheens to
37 heavy oiling including floating lumps of tar. Heavy crude oil may disappear over the

1 duration of several days, with remaining heavy fractions floating at or near the surface in
2 the form of mousse, tarballs, or mats, and lasting from several weeks to several months.
3 Therefore, the presence of oil on the water would change the color and, in heavier
4 oiling, textural appearance of the water surface. Oil on shoreline surfaces or near shore
5 marsh areas would cover these surfaces with a brownish-blackish, gooey substance.
6 However, direct releases of oil onto Goleta area beaches are projected to be limited to
7 approximately 1.75 barrels of oil, a relatively modest amount; however, the Project
8 would incrementally contribute to larger spills from Line 96 upcoast into Gaviota area
9 streams, with a low potential for spills as large as 60 barrels of oil, a portion of which
10 could find its way to the shoreline and potentially onto downcoast Goleta area beaches.

11 Although the potential for spills is low and volumes would not be large, such oiling would
12 result in a negative impression of the highly sensitive viewshed. The public would likely
13 react negatively to the visual effects. Without rapid containment by immediate booming
14 and cleanup, the visual effects of even a small spill can leave residual impacts, and can
15 be significant.

16 The impact of a spill could last for a long period of time, depending on the level of
17 physical impact and effectiveness of clean up. Even in events where light oiling would
18 disperse rapidly, significant impacts are expected. In events where medium to heavy
19 oiling occurs over a widespread area, and where first response cleanup efforts are not
20 effective, leaving residual effects of oiling, significant impacts would be expected. The
21 physical efforts associated with cleanup efforts would also contribute to a negative
22 impression of the environment and the visual impact, particularly in the primary study
23 area along the Ellwood Coast which receives substantial recreational use of beaches
24 and trails. It is impossible to predict with any certainty the potential visual consequences
25 of spills; therefore visual impacts are considered significant.

26 **Mitigation Measures**

27 Implementation of those measures identified in Sections 4.2, Safety; 4.3, Hazardous
28 Materials; 4.5 Hydrology, Water Resources, and Water Quality, 4.6, Marine Biological
29 Resources; and 4.7 Terrestrial Biological Resources for contingency planning and spill
30 response shall be required.

31 **Rationale for Mitigation**

32 Even with implementation of the measures presented in the above-mentioned sections,
33 which provide improved oil spill capabilities, spill containment measures, and protection
34 of resources, the risk to the visual environment may be significant, even for small spills.

1 **Residual Impacts**

2 Even with successful implementation of MMs for oil spill impacts, visual resources may
3 be affected by spills and impacts would remain potentially significant.

4 **Impact VR-3: Visual Improvements due to Removal of Pier 421-1**

5 **Removal of Pier 421-1 would restore the natural appearance along this section of**
6 **the beach (Beneficial).**

7 **Impact Discussion**

8 Decommissioning and removal of Pier 421-1 and restoration of the beach along this
9 stretch would restore the aesthetic value of this stretch of coastline. Removal of the pier
10 would allow a greater view of the Pacific Ocean and other sensitive view sheds of the
11 Ellwood-Devereux Coast (Figure 4.12-3). Additionally, views from the ocean toward the
12 beach would no longer include this structure. Therefore, the Project would produce
13 beneficial impacts to aesthetic and visual resources of the area.



14 **FIGURE 4.12-3. VIEW OF PIER 421-2 FROM THE BEACH WITH REMOVAL OF**
15 **PIER 421-1**

16 **Mitigation Measures**

17 No mitigation required.

1 **Impact VR-4: Visual Changes to Pier 421-2**
 2 **Modifications to Pier 421-2 would change the appearance of this structure (Less**
 3 **than Significant).**

4 **Impact Discussion**

5 Recommissioning of Pier 421-2 would include installation of new caisson walls on the
 6 non-seaward-facing sides, new handrails, and new decking. Pier 421-2 has been part of
 7 the visual setting since the mid-1920s, but has been substantially changed over time.
 8 Further, these changes would constitute improvements to the aesthetics of the pier,
 9 which has suffered the effects of corrosion and weathering from environmental
 10 exposure. Therefore, impacts would be less than significant.

11 **Mitigation Measures**

12 No mitigation required.

Table 4.12-3. Summary of Aesthetics/Visual Resources Impacts and Mitigation Measures

Impact	Mitigation Measures
VR-1: Visual Effects from Construction Activities at PRC 421	VR-1a. Use Laydown Areas for Overnight Storage of Equipment. VR-1b. Caution Tape around Materials Placed on Beach. VR-1c. Material Removal at Construction Completion. VR-1d. Minimal Night Lighting. VR-1e. No Night Lighting After 5:00 p.m.
VR-2: Visual Effects from Accidental Oil Spills	Implementation of those measures identified in Sections 4.2, Safety; 4.3, <u>Hazardous Materials</u> ; 4.5 Hydrology, Water Resources, and Water Quality, 4.6, Marine Biological Resources; and 4.7 Terrestrial Biological Resources.
VR-3: Visual Improvements due to Removal of Pier 421-1	None required.
VR-4: Visual Changes to Pier 421-2	None required.

13 **4.12.6 Cumulative Impacts Analysis**

14 Cumulative impacts associated with the Project include the continued urbanization of
 15 the Ellwood area, including the proposed expansion of the Bacara Resort,
 16 improvements to Sandpiper Golf Course, and the partially completed construction of 62
 17 homes by Comstock Homes. The Project would remove one existing pier, a beneficial
 18 contribution to the cumulative impacts from historic oil development in the area.
 19 However, development activity at PRC 421 would increase the public's awareness of oil
 20 production occurring in the region. Depending on the viewers' personal and cultural
 21 interpretations of oil production, this awareness would affect their coastal experience.

1 **4.13 CULTURAL, HISTORICAL, AND PALEONTOLOGICAL RESOURCES**

2 This section identifies cultural, historical, and paleontological resources in the Project
3 area, including PRC 421 itself, and evaluates impacts to such resources that would
4 potentially result from Project development. This document incorporates by reference
5 the conclusions of the Ellwood Marine Terminal (EMT) Lease Renewal Environmental
6 Impact Report (EIR) (California State Lands Commission [CSLC] 2009) and Line 96
7 Modification Project EIR (Santa Barbara County 2011) regarding cultural, historical, and
8 paleontological resources and summarizes these conclusions where appropriate.
9 Where this document relies upon mitigation measures (MMs) contained in those EIRs to
10 address Project impacts, these are summarized to permit report reviewers to
11 understand their relationship to the Project. This document also incorporates data from
12 Santa Barbara County 01-ND-34 and City of Goleta 06-MND-01 which included
13 assessment of cultural resources in the Project vicinity.

14 **4.13.1 Environmental Setting**

15 **Study Area Location and Description**

16 The primary Project study area comprises the immediate vicinity of PRC 421 that would
17 be subject to direct impacts as a result of Project implementation. This area includes
18 existing PRC 421 facilities, access road, and the pipeline route along the access road,
19 coastal bluff, golf course easement, and tie-in at the existing Ellwood Onshore Facility
20 (EOF). Impacts related to construction of the Line 96 Pipeline project were addressed in
21 the EIR for that project, but a secondary Project study area is associated with the Line
22 96 pipeline alignment due to the potential for spill effects on Cultural, Historical, and
23 Paleontological Resources.

24 **Cultural Resources**

25 Evidence exists for the presence of humans in the Santa Barbara coastal area for more
26 than ten thousand years. While some researchers (e.g., Orr 1968) have suggested that
27 the Santa Barbara Channel area may have been settled as early as 40,000 years ago,
28 only limited evidence for occupation much earlier than 9,500 years has been
29 discovered. Even so, human prehistory along the Santa Barbara channel area coast
30 may extend back as much as 12,000 years (Erlandson et al. 1987; Erlandson et al.
31 1996). Due to the rich food resources found on land and in the sea, Native American
32 populations grew over time and their organization became more complex. The area's
33 various sources of fresh water, including Tecolote and Winchester Canyon creeks to the
34 west and Glen Annie Creek and the Goleta Slough to the east, were ideal locations for
35 permanent and semi-permanent village settlements that provided abundant fish, birds,
36 and plants for hunting and gathering.

1 Current models of cultural evolution along the Santa Barbara Channel recognize that
2 over time, prehistoric peoples became increasingly dependent upon marine resources
3 though they required greater energy to procure. Populations also became less
4 dependent upon terrestrial resources such as large game animals due to reduced
5 numbers of game. The need for more sophisticated subsistence technologies and group
6 cooperation resulted in increasingly complex cultural interactions, culminating in the
7 Chumash culture and complex social organization encountered by the Spanish in the
8 1500s (Arnold et al. 1997; Glassow et al. 1990; Wilcoxon et al. 1982). Climatic change
9 during the transition from the Middle to Late Period around A.D. 1150 to 1300 may have
10 played an important role in this process (Raab and Larson 1997), although others
11 consider that pressures from increased population were also involved (Arnold et al.
12 1997).

13 A Sacred Lands File search conducted for the Project area failed to indicate presence of
14 Native American traditional cultural places (Native American Heritage Commission
15 2013). Within the Project vicinity, cultural resources include six documented sites within
16 the Bacara Resort property. Among these is Site SBa-71, which covers two-thirds of the
17 East Terrace at the Bacara Resort and was an area of permanent habitation by the
18 Chumash and “is designated highly sensitive because of its relatively undisturbed
19 nature, dense deposits, and extensive burials” (California Coastal Commission 2013).

20 There is a potential for offshore cultural resources in the Project vicinity, however none
21 are known from within 1 mile of shore. Refer to the Line 96 Modification Project EIR
22 (Santa Barbara County 2011) for detailed description of offshore cultural resources
23 along the coastline.

24 **Historical Resources**

25 Oil exploration began in Santa Barbara County when significant discoveries of oil were
26 successfully tapped in the Santa Maria Valley, 45 miles northwest of the current Project
27 area, during the 1880s. During the 1890s, the first offshore oil drilling piers were built in
28 the waters off Summerland, 17 miles east of the Project area. Other significant
29 discoveries followed in the early 1900s at the Orcutt and Cat Canyon fields. One well in
30 the Orcutt field struck an oil reservoir in 1904 that produced one million barrels of oil in
31 its first 100 days of operation, causing a sensation in the rest of the country which
32 proclaimed it to be “the greatest gusher in the world” (Santa Barbara County 2006).

33 World War I marked increased demand for oil that lasted through the 1920s. Even after
34 the disastrous stock market collapse of 1929, foreign demand for U.S. oil in the 1930s
35 spurred further oil development in Santa Barbara County. Oil production in the Orcutt
36 Hills hit an all-time high during World War I and then declined temporarily until rising
37 domestic automobile use in the 1920s necessitated more production.

1 Following the peak of World War II oil demands, oil and gas production in Santa
2 Barbara County declined. Beginning in the late 1950s, oil companies began to explore
3 for oil in State tidelands. The first offshore drilling platform off the Santa Barbara County
4 coast was installed in 1958 near Carpinteria. Eight other platforms and other facilities
5 were installed in State tidelands off of Santa Barbara County between 1956 and 1966.
6 On January 28, 1969, Union Oil's Platform A suffered a blowout in the Dos Cuadras
7 field installation that lasted eight days. The resulting spill of 90,000 barrels of crude oil
8 affected over 40 miles of coastline. Several environmental laws were passed at the
9 Federal and State levels following the incident, including the National Environmental
10 Policy Act (NEPA) and California Environmental Quality Act (CEQA).

11 The Ellwood Oil Field was discovered in 1928. PRC 421 was also built and
12 commissioned in 1928 and Piers 421-1 and 421-2 are historic structures, though they
13 are without historic or cultural significance to the community, State or nation. Although
14 they are the last remaining surf zone wells in California, they have been modified
15 significantly since the 1930s and do not maintain historic integrity (Figure 4.13-1; the red
16 arrow points to Pier 421-2). Further, based on review of historical photographs the Piers
17 were changed from the historic configuration sometime between 1979 and 1987;
18 therefore, making most of the structures less than 40 years old.

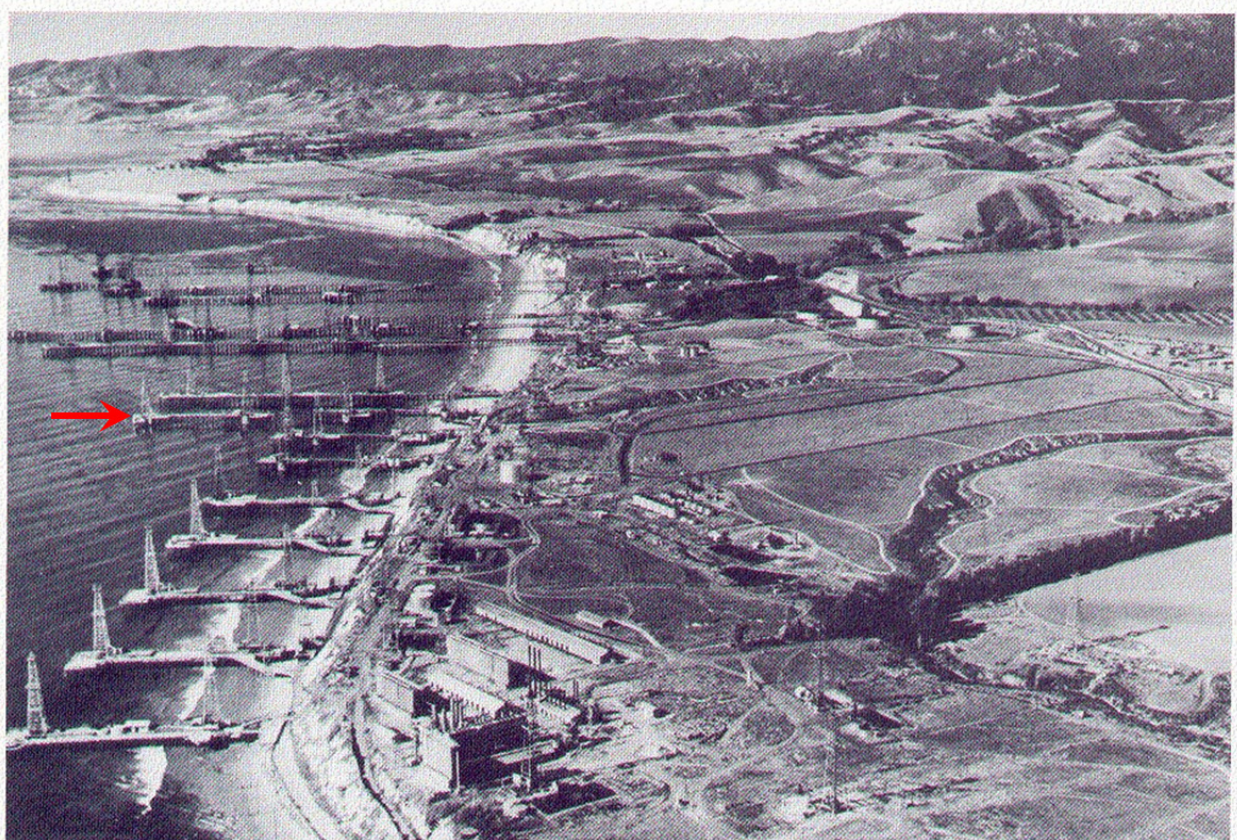


FIGURE 4.13-1. 1938 PHOTO OF ELLWOOD OIL PIERS

1 Known historic resources near the Project site consist of a landmark site at the
2 northeast corner of the Sandpiper Golf course, located approximately 0.52 mile away.

3 **Paleontological Resources**

4 The Project area is situated on Pleistocene older alluvium deposits, consisting primarily
5 of relatively unconsolidated silt, sand, and gravel. These alluvial deposits overlie the
6 Miocene Sisquoc Formation, which is exposed in the coastal bluff northwest of the
7 Project area and consists of silty, diatomaceous, clay shale (Dibblee 1987).

8 Paleontological resources are commonly found in sedimentary rock units. The
9 boundaries of a sedimentary rock unit generally define the limits of paleontological
10 sensitivity in a given region. Paleontological sites are normally discovered in cliffs,
11 ledges, steep gullies, or along wave-cut terraces where vertical rock sections are
12 exposed. Fossil material may be exposed by a trench, ditch, or channel created by
13 construction.

14 Paleontologists examine invertebrate fossil sites differently than vertebrate fossil sites.
15 Invertebrate fossils in microscopic form such as diatoms, foraminifera, and radiolarians
16 can be so prolific as to constitute major rock material in some areas. Invertebrate fossils
17 are normally of marine origin and are widespread, abundant, fairly well preserved, and
18 predictable as to fossil sites. Therefore, the same or similar fossils can be located at any
19 number of sites throughout central California.

20 Vertebrate fossil sites are usually found in non-marine or continental deposits.
21 Vertebrate fossils of continental material are usually rare, sporadic, and localized.
22 Scattered vertebrate remains (mammoth, mastodon, horse, ground sloth, camel, and
23 rodents) have been identified from the Pleistocene non-marine continental terrace
24 deposits on Vandenberg Air Force Base, but these resources would not be expected in
25 the Project site and vicinity (Gray 2003).

26 The invertebrate fossils that would be expected to exist within Project site geologic rock
27 units are widespread and abundant in many areas throughout the Pacific Coastline
28 including the Santa Barbara County (Gray 2003). The overwhelming bulk of invertebrate
29 fossil material in these rocks is due to the deposition of sediment in marine basins. Very
30 seldom are vertebrate marine fossils such as whale, porpoise, seal, or sea lion found in
31 marine rock units such as the Miocene Monterey Formation and the Pliocene Sisquoc
32 Formations located within the PRC 421 Project area and vicinity. Therefore, the
33 sensitivity for encountering important paleontological resources within the PRC 421
34 Project area and vicinity is considered low (CSLC 2009).

1 **4.13.2 Regulatory Setting**

2 There are several Federal regulations related to cultural resources and paleontological
3 resources. Both cultural and paleontological resources are regulated at the State level.
4 Federal and State laws, regulations, and policies related to cultural and paleontological
5 resources are discussed in Table 4.0-1, while the local regulatory setting is discussed
6 below.

7 **Local**

8 *Cultural Resources*

9 The Santa Barbara County Coastal Plan has several policies that address the
10 preservation of significant cultural resources. Policy 10-1 states that all available
11 measures must be explored to avoid development on significant historic, prehistoric,
12 archaeological and other classes of cultural sites. Policy 10-2 states that project design
13 shall be required to avoid impacts on archaeological or other cultural sites if possible.
14 Policy 10-3 states that where avoidance of construction impacts is not possible,
15 adequate mitigation shall be required in accordance with State Office of Historic
16 Preservation and Native American Heritage Commission guidance. Policy 10-4 states
17 that indirect activities including off-road vehicle use, unauthorized artifact collection or
18 similar actions capable of destroying or damaging archaeological or cultural sites is
19 prohibited. Policy 10-5 states that Native Americans shall be consulted when
20 development is proposed that would potentially impact significant archaeological or
21 cultural sites. Santa Barbara County Cultural Resource Guidelines provide direction to
22 archaeologists on what types of research topics and research questions are appropriate
23 to determine the significance of an archaeological site.

24 The City of Goleta's General Plan/Coastal Land Use Plan (GP/CLUP) contains several
25 policies in the Open Space and Visual and Historic Resources Elements pertaining to
26 cultural resources. One of the main goals in the Open Space Element is to ensure the
27 protection of areas associated with Native American culture, including burial sites,
28 religious and ceremonial sites, archaeological or historical sites, and other cultural sites.
29 Policy OS 7.1 contains a measure to protect the places, features, and objects
30 associated with Native American cemeteries, religious or ceremonial sites,
31 archaeological or historical sites, or other cultural sites. Policy OS 8 contains several
32 measures by which to identify and protect prehistoric and historic cultural sites and
33 resources from destruction or harmful alteration. Policies VH 2.2 and 2.3 both call for
34 the preservation and protection of historic structures and/or sites. The most relevant
35 policy is Policy VH 5, the Protection of Native American and Paleontological Resources,
36 the objective of which is to identify, protect, and encourage preservation of significant
37 architectural, historic, and prehistoric sites, structures, and properties that comprise
38 Goleta's heritage. Table 6.1 of the Visual and Historic Resources Element lists historic

1 resources in Goleta, none of which are located at or near the Project site. Lastly, Policy
2 VH 6 seeks to identify, preserve, protect, and enhance significant historic landscaping,
3 gardens, and open spaces which contribute to the setting or context of Goleta.

4 *Paleontological Resources*

5 Policy VH 5, discussed above, addresses potential impacts to paleontological
6 resources.

7 **4.13.3 Significance Criteria**

8 **Cultural Resources**

9 The State CEQA Guidelines section 15064.5 defines a significant cultural resource,
10 either prehistoric or historic, as a “historical resource.” Public Resources Code section
11 5020.1 subdivision (j) defines a historical resource as:

12 *“Historical resource” includes, but is not limited to, any object, building, structure,*
13 *site, area, place, record, or manuscript which is historically or archaeologically*
14 *significant, or is significant in the architectural, engineering, scientific, economic,*
15 *agricultural, educational, social, political, military, or cultural annals of California.*

16 A resource included in a local register of historical resources, as defined in Public
17 Resources Code section 5020.1, subdivision (k) or identified as significant in an
18 historical resource survey meeting the requirements of section 5024.1, subdivision (g),
19 shall be presumed to be historically or culturally significant. Public agencies must treat
20 any such resource as significant unless the preponderance of evidence demonstrates
21 that it is not historically or culturally significant. *Generally, a resource shall be*
22 *considered by the lead agency to be “historically significant” if the resource meets the*
23 *criteria for listing on the California Register of Historical Resources (Pub. Resources*
24 *Code, § 5024.1 and Cal. Code Regs. tit. 14, § 4852), including the following:*

25 (A) *Is associated with events that have made a significant contribution to the*
26 *broad patterns of California’s history and cultural heritage;*

27 (B) *Is associated with the lives of persons important in our past;*

28 (C) *Embodies the distinctive characteristics of a type, period, region, or method of*
29 *construction, or represents the work of an important creative individual, or*
30 *possesses high artistic values; or*

31 (D) *Has yielded, or may be likely to yield, information important in prehistory or*
32 *history.*

33 The fact that a resource is not listed in, or determined to be eligible for listing in the
34 California Register of Historical Resources, not included in a local register of historical
35 resources (pursuant to Pub. Resources Code, § 5020.1, subd. (k)), or identified in an

1 historical resources survey (meeting the criteria in § 5024.1, subd. (g)) does not
2 preclude a lead agency from determining that the resource may be a historical resource
3 as defined in sections 5020.1, subdivision (j), or 5024.1.

4 The State CEQA Guidelines section 15064.5, subdivision (b) provides significance
5 threshold criteria for determining a substantial adverse change to the significance of a
6 cultural resource:

- 7 1. *Substantial adverse change in the significance of an historical resource means*
8 *physical demolition, destruction, relocation, or alteration of the resource or its*
9 *immediate surroundings such that the significance of an historical resource would*
10 *be materially impaired.*
- 11 2. *The significance of an historical resource is materially impaired when a project:*
 - 12 (A) *Demolishes or materially alters in an adverse manner those physical*
13 *characteristics of an historical resource that convey its historical significance*
14 *and that justify its inclusion in, or eligibility for, inclusion in the California*
15 *Register of Historical Resources; or*
 - 16 (B) *Demolishes or materially alters in an adverse manner those physical*
17 *characteristics that account for its inclusion in a local register of historical*
18 *resources pursuant to section 5020.1(k) of the Public Resources Code or its*
19 *identification in an historical resources survey meeting the requirements of*
20 *section 5024.1(g) of the Public Resources Code, unless the public agency*
21 *reviewing the effects of the project establishes by a preponderance of*
22 *evidence that the resource is not historically or culturally significant; or*
 - 23 (C) *Demolishes or materially alters in an adverse manner those physical*
24 *characteristics of a historical resource that convey its historical significance*
25 *and that justify its eligibility for inclusion in the California Register of*
26 *Historical Resources as determined by a lead agency for purposes of*
27 *CEQA.*

28 **Paleontological Resources**

29 The State CEQA Guidelines Appendix G, which includes an Environmental Checklist
30 Form, provides a suggested significance threshold for impacts to paleontological
31 resources:

- 32 • Would directly or indirectly destroy a unique paleontological resource or site or
33 unique geologic feature.

34 **4.13.4 Impact Analysis and Mitigation**

35 Impacts to cultural resources can occur by direct or indirect impacts. Direct impacts
36 result from ground disturbances directly and indirectly caused by facility construction,

1 decommissioning, operation or maintenance. Indirect impacts result from increased
2 access to archaeological sites, i.e., construction or facility employees participating in
3 unauthorized artifact collecting.

4 Table 4.13-1, located at the end of this section, provides a summary of Project-related
5 cultural resources impacts and recommended MMs to address these impacts.

6 **Impact CR-1: Potential Impacts to Previously Undiscovered Cultural Resources**
7 **During Construction**

8 **Although no cultural resources are known to be present within the Project area**
9 **and Project activities would generally occur in previously disturbed areas,**
10 **excavations around the EOF and along the Project access road could exceed**
11 **previous depths and disturb previously undiscovered cultural resources (Less**
12 **than Significant with Mitigation).**

13 **Impact Discussion**

14 Potential for impacts to subsurface cultural resources is limited due to the fact that
15 construction and decommissioning for the Project would take place on artificial fill along
16 the seawall access road, on previously graded and developed areas and on existing
17 piers. Previous reviews of cultural resources in the area to be affected by the project
18 have not identified significant cultural resources (Santa Barbara County 2001; City of
19 Goleta, 2006; Santa Barbara County 2011). The seaward portion of the EOF, the
20 access road, and PRC 421 pier area consists of relatively loose beach sand that is
21 prone to erosion and scour (i.e., the removal of sand due to wave action along the
22 oceanfront, sometimes to shale bedrock). Due to the open exposure, the oceanfront is
23 generally not considered suitable for occupation by prehistoric peoples. Additionally,
24 due to the movement of sand on a seasonal basis (i.e., sand is generally scoured off the
25 beach during the winter months as a result of high surf activity, but is generally
26 deposited during the summer months of gentle surf), intact prehistoric cultural material
27 is generally not found along the oceanfront. Therefore, there is no archaeological
28 sensitivity within most of the Project site, and little to no potential for impacts. As
29 described above, the sensitivity for encountering important paleontological resources
30 within the Project area and vicinity is considered low. However, there remains a
31 potential that Project-related ground disturbance would exceed previous depths and
32 affect heretofore undiscovered cultural resources, such as along the access road or
33 within the EOF. Therefore, this impact would be less than significant with mitigation.

34 **Mitigation Measures**

35 **MM CR-1. Cultural Resources Monitor.** A qualified cultural resources expert shall
36 act as a construction monitor during all ground-disturbing work. The expert
37 shall be retained by the City of Goleta and paid for by Venoco. The Cultural
38 Resources Monitor shall prepare a Cultural Resources Monitoring Plan,

1 outlining the approach to monitoring, involvement of the affected Native
2 American nation, and detailing pre-construction workshops for construction
3 personnel for review approval by the City of Goleta and paid for by Venoco. In
4 the event archaeological resources are encountered during grading, as
5 observed by the cultural resources monitor or their designee, work shall be
6 stopped immediately or redirected until the City-approved archaeologist and
7 local Chumash observer can evaluate the significance of the find pursuant to
8 Phase 2 investigation standards set forth in the City Archaeological Guidelines.
9 The Phase 2 shall be funded by Venoco. If resources are found to be
10 significant, they shall be subject to a Phase 3 mitigation program consistent
11 with City Archaeological Guidelines. The Phase 3 shall be funded by the
12 permittee. This requirement shall be printed on all plans submitted for any City
13 of Goleta Land Use Permit, building, grading, or demolition permits.

14 **Rationale for Mitigation**

15 Although the potential for encountering cultural resources in previously disturbed areas
16 and on the wave-cut beach is considered extremely low, the above MM would ensure
17 that any cultural resources inadvertently exposed during construction would be
18 protected and properly documented. Full implementation of this measure would reduce
19 Impact CR-1 to less than significant.

20 **Impact CR-2: Potential Impacts to Cultural Resources Due to Oil Spill and** 21 **Cleanup Activities**

22 **A potential oil spill from PRC 421 facilities or from Project-related oil transported**
23 **in the Line 96 pipeline could result in primary impacts to undiscovered cultural**
24 **resources from contamination, or secondary impacts related to spill cleanup**
25 **activities (Less than Significant).**

26 **Impact Discussion**

27 Although no cultural resources have been identified within the primary Project area,
28 there is a potential for undiscovered cultural resources outside previously disturbed
29 portions of the site. In the event of a spill from Pier 421-2 or the flowline, those cultural
30 resources could become contaminated and damaged during clean-up activities. Further,
31 efforts to remediate contaminated soils may require additional ground disturbance. For
32 Line 96, the primary concern would be spills in areas adjacent to coastal drainages that
33 have a high sensitivity for prehistoric archaeological resources. Refer to Impact CR-5 in
34 the Line 96 Modification Project Final EIR (Santa Barbara County 2011). There are also
35 no known shipwrecks near the Project area that would be vulnerable to Project-related
36 oil spills (Santa Barbara County 2011). Given the production levels at PRC 421, the
37 Project presents a low risk of a spill that would require extensive ground disturbance
38 and subsequent damage to undiscovered cultural resources. As described in Section
39 4.2 Safety, spills from PRC 421 facilities are estimated to be limited to 1.7 barrels.

1 Potential spills from Line 96 would involve larger volumes, but procedures are already in
2 place to reduce those potential impacts to undiscovered cultural resources. Therefore, it
3 is a less than significant impact.

4 **Mitigation Measures**

5 None required. However, MM CR-1b from the Line 96 Modification Project EIR (see
6 Appendix H) would apply and would reduce potential oil spills impacts from oil
7 transportation to less than significant. Further, any ground disturbing work related to oil
8 spill cleanup within the Project area would be subject to the requirements of MM CR-1
9 in this EIR, requiring a Cultural Resources Monitor to be present.

Table 4.13-1. Summary of Cultural, Historical, and Paleontological Resources Impacts and Mitigation Measures

Impact	Mitigation Measures
CR-1: Potential Impacts to Previously Undiscovered Cultural Resources During Construction	MM CR-1: Cultural Resources Monitor
CR-2: Potential Impacts to Cultural Resources Due to Oil Spill and Cleanup Activities	None required.

10 **4.13.5 Cumulative Impacts Analysis**

11 Historic archaeological sites are non-renewable resources that have been destroyed at
12 an alarming rate State-wide and locally. Thus, the assessment of potential cumulative
13 impacts on cultural resources within the Project area considers these past activities
14 resulting in loss of historic sites, along with other probable future projects in the vicinity.

15 The Project would have a less than significant contribution to cumulative impacts to
16 undiscovered cultural resources within the Project area.

1 **4.14 ENERGY AND MINERAL RESOURCES**

2 This section describes energy and mineral resources such as natural gas, oil, and sand
3 and gravel in the Project vicinity and evaluates the impacts that the Project may have on
4 these resources. The analysis provides an overview of energy consumption and energy
5 sources and focuses upon area energy and mineral resources that could be affected by
6 the construction and operation, and/or decommissioning, of primary Project
7 components, such as the construction and operation of Well 421-2 and
8 decommissioning and removal of Pier 421-1. This analysis also briefly discusses area
9 resources that could be affected by the operation of secondary Project components
10 (existing facilities not proposed for modification) such as the Ellwood Onshore Facility
11 (EOF) and Line 96 pipeline. For a full discussion of such resources, see the Ellwood
12 Marine Terminal (EMT) Lease Renewal Environmental Impact Report (EIR) (California
13 State Lands Commission [CSLC] 2009) and Line 96 Modification Project EIR (Santa
14 Barbara County 2011).

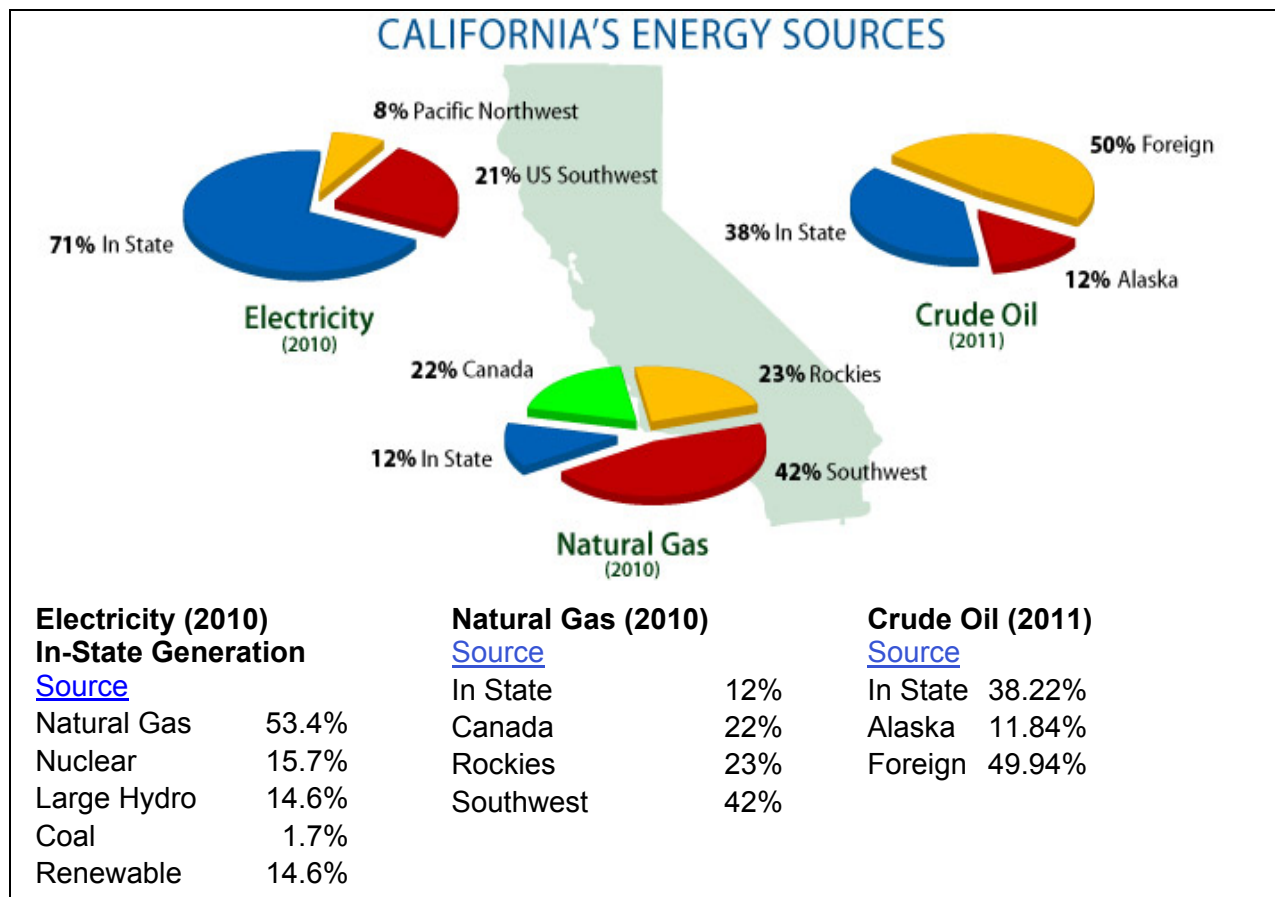
15 Potential impacts to energy and mineral resources created by the Project are based on
16 a change from existing conditions. Significance criteria are used to assess the
17 significance of the impacts, and whether mitigation measures (MMs) can be applied to
18 reduce the level of significance.

19 This document uses information from the U.S. Energy Information Administration
20 (USEIA), California Energy Commission (CEC) 2011 Integrated Energy Policy Report
21 (IEPR) and 2012 IEPR Update, California Department of Conservation Division of Oil,
22 Gas, and Geothermal Resources (DOGGR) 2012 Preliminary Report of California Oil
23 and Gas Production Statistics, City of Goleta 2006 MND (06-MND-001), and Santa
24 Barbara County 2001 MND (01-ND-34) and incorporates by reference the conclusions
25 of the Line 96 Modification Project EIR and EMT Lease Renewal EIR regarding area
26 mineral and energy resources and the potential impacts on such resources associated
27 with operation of area oil facilities, and summarizes these where appropriate.

28 **4.14.1 Environmental Setting**

29 **State Overview**

30 California largely relies on electricity, natural gas, and petroleum-based fuels for its
31 energy (Figure 4.14-1). Due to high energy demand, California imports more energy
32 than any other state (USEIA 2013). The following information provides a summary of
33 the State's energy sources, including energy production and consumption in California.



Source: http://energyalmanac.ca.gov/overview/energy_sources.html

FIGURE 4.14-1. CALIFORNIA'S ENERGY SOURCES (2010-2011)

1 *Electricity*

2 According to the CEC 2012 IEPR Update, Californians consumed 273,103 gigawatt
 3 hours (GWh) of electricity in 2010 with consumption projected to increase to between
 4 308,677 and 333,838 GWh annually by 2022. This reflects an annual average growth
 5 rate of between 1.03 and 1.69 percent. Natural gas-fired power plants account for about
 6 one-half of State electricity generation followed by nuclear power, hydropower, and
 7 renewable energy; California leads the nation in electricity generation from non-
 8 ~~hydroelectire~~ hydroelectric renewable energy sources, including wind, geothermal,
 9 solar, fuel wood, and municipal solid waste/landfill gas resources (USEIA 2013).

10 *Natural Gas and Petroleum*

11 According to the CEC (2013), Californians consumed 12,774 million (MM) therms
 12 (1,277 billion cubic feet) of natural gas in 2010, not including gas used in natural gas-
 13 fired power plants (which provided more than 40 percent of California's electricity in
 14 2010). By 2022, projected annual customer demand is estimated range from 13,688 to

1 14,075 MMtherms, an estimated growth rate of between 0.58 and 0.81 percent. In 2011,
 2 according to the USEIA (2013; www.eia.gov/state/data.cfm?sid=CA), Californians
 3 consumed 2,153 billion cubic feet of natural gas (including natural gas used for
 4 electricity) and 642.9 million barrels of petroleum.

5 California's demand for gas and oil exceeds in-State production. According to the
 6 USEIA (2013), California natural gas production typically accounts for less than 2
 7 percent of total U.S. production and satisfies less than one-fifth of State demand.
 8 Although California is currently the third-ranked oil-producing state in the nation (behind
 9 Texas and Alaska), California receives more crude oil from non-California sources (i.e.,
 10 Alaska, foreign countries) than from sources in California. In 2012, 222.4 billion cubic
 11 feet of natural gas and 197.5 million barrels of oil were produced in-State; crude oil
 12 production averaged 541,100 barrels per day (DOGGR 2013) (see Table 4.14-1).

Table 4.14-1. California Gas and Oil Production (2008-12)

	2012	2011	2010	2009	2008
Net Gas Production (billions of cubic feet)	222.4	244.4	255.4	245.2	265.5
Oil Production (millions of barrels): TOTAL	197.5	196.8	200.9*	207.2	214.6
• State Onshore	184.3	184.5	187.8	194.9	200.5
• State Offshore	13.2	12.3	13.0	13.3	14.1

* Rounded to significant figures; therefore, added totals may not agree with onshore/offshore subtotals.
 Source: DOGGR (2013; [ftp://ftp.consrv.ca.gov/pub/oil/annual_reports/2012/PR03_Preannual_2012.pdf](http://ftp.consrv.ca.gov/pub/oil/annual_reports/2012/PR03_Preannual_2012.pdf)).

13 *Renewable Energy Sources*

14 California, with its abundant natural resources, has a long history of support for
 15 renewable energy. According to the CEC's California Renewable Energy Overview and
 16 Programs website (www.energy.ca.gov/renewables/index.html), in 2009, 11.6 percent of
 17 all electricity came from renewable resources such as wind, solar, geothermal, biomass
 18 and small hydroelectric facilities; large hydroelectric plants generated another 9.2
 19 percent of State electricity generation.

20 In 2002, Senate Bill (SB) 1078 established California's Renewables Portfolio Standard
 21 (RPS) Program, with the goal of increasing the percentage of renewable energy in the
 22 State's electricity mix to 20 percent of retail sales by 2017. In 2003, the CEC, California
 23 Public Utilities Commission (CPUC), and the now defunct Consumer Power and
 24 Conservation Financing Authority (CPA) jointly adopted the State Energy Action Plan
 25 (Energy Action Plan I), which described a "loading order" (a priority sequence for
 26 actions) to address increasing energy needs: (1) cost-effective energy efficiency and
 27 demand response; (2) renewable resources, including moving the 20 percent RPS
 28 target from 2017 to 2010; (3) distributed generation; (4) combined heat and power
 29 applications; and (5) clean and efficient fossil-fired generation.

1 The 2007 IEPR (CEC 2007) added policies and provided a comprehensive set of
2 recommended actions to enable California to meet its energy needs while achieving
3 Assembly Bill (AB) 32 greenhouse gas (GHG) reduction goals. In 2011, Governor
4 Brown signed SBX1 2, which requires one-third of California’s electricity to come from
5 renewable sources (the legislation increased California’s RPS target from 20 percent to
6 33 percent) by December 31, 2020. The CEC’s 2012 IEPR Update (CEC 2012) focuses
7 on, and identifies five strategies and specific actions related to, the renewable resources
8 component of the loading order in the Energy Action Plan. The five strategies are: (1)
9 Identify Preferred Geographic Areas for Renewable Development; (2) Maximize Value
10 Through Appropriate Assessment of Benefits and Costs; (3) Minimize Interconnection
11 and Integration Costs and Requirements; (4) Economic Development With Renewable
12 Energy; and (5) Research and Development and Financing.

13 **Regional Overview**

14 Santa Barbara County has been an oil and gas producing region, including oil and gas
15 produced off its coast, since the late-1880s, following the discovery of the Summerland
16 oil field. Oil production in Santa Barbara County, including offshore production landed in
17 the County, reached an all-time high of 68,798,091 barrels in 1995, while natural gas
18 production reached an all-time high of 99,425,269 thousand cubic feet in 1967; in recent
19 years, the predominant focus in production has shifted from onshore and near-shore
20 fields to fields underlying federal waters more than 3 nautical miles from shore
21 (www.sbcountyplanning.org/energy/information/oilGasProduction.asp).

22 Historically, minerals produced in Santa Barbara County have included “asphalt and
23 bituminous rock, clay, diatomaceous earth, gypsum, limestone, sandstone, oil, shale,
24 miscellaneous stone products, mineral water, copper, chromite, gold, silver, quicksilver,
25 and petroleum and natural gas” (California Division of Mines 1949). Other than
26 oil/petroleum and natural gas, however, there are no known mineral resources in the
27 Project area (City of Goleta 2004; Santa Barbara County 2004).

28 **4.14.2 Regulatory Setting**

29 **Local**

30 The City of Goleta regulates energy sector development through its General Plan and
31 Coastal Land Use Plan. In the coastal zone, priority is given to coastal-dependent
32 projects, including oil and gas projects that involve offshore oil and gas resources and
33 facilities. In addition, priority is also given to efficient harnessing of energy through
34 recommendations provided in the Energy Element of the Santa Barbara Comprehensive
35 Plan. Section 13 of the City of Goleta’s Conservation Element contains policies for the
36 conservation of energy. Its main objective is to promote energy efficiency in future land
37 use and development within Goleta, encourage the use of renewable energy sources,
38 and reduce reliance upon fossil fuels. Policy CE 13.2, in particular, addresses industrial

1 development with measures intended to reduce energy consumption in existing and
2 new [commercial and] industrial buildings.

3 **4.14.3 Significance Criteria**

4 Impacts to energy and mineral resources would be considered significant if the Project
5 would:

- 6 • Result in the loss of availability of a known energy or mineral resource (i.e., oil)
7 that would be of value to the region and the residents of the State;
- 8 • Conflict with the adopted California energy conservation plans;
- 9 • Use non-renewable energy resources in a wasteful and inefficient manner;
- 10 • Result in a substantial increase in demand upon existing power or natural gas
11 utilities; or
- 12 • Result in a need for new systems or supplies or substantial alterations to the
13 existing power and natural gas utilities.

14 **4.14.4 Impact Analysis and Mitigation**

15 The Project would produce crude oil for delivery to markets in the San Francisco and
16 Los Angeles areas. As discussed in Section 2.4.1, production from PRC 421 is
17 expected to average no more than 150 barrels of oil per day (BOPD) over the
18 production life of the well; with average production of 150 BOPD for the first month,
19 converging to 50 BOPD after 2 years, and leveling off at 50 BOPD for the following 18
20 years. Based on these estimates and a linear rate of decline from 150 to 50 BOPD over
21 the first 2 years, if implemented, the Project is anticipated to produce a total of
22 approximately 402,000 barrels over the lifetime of the Project.

23 Operations at PRC 421 would use electricity to operate the oil and gas production
24 equipment and operational and safety controls. Electric power for the Project would be
25 obtained from the existing Southern California Edison (SCE) electric grid system, via
26 electricity lines that would be extended from the EOF. It is projected that the Project
27 would have an electric power consumption rate of 80 kilowatts (kW).

28 Implementation of the Project would increase direct fossil fuel consumption from
29 operation of construction equipment, and indirect fossil fuel consumption from
30 consumption of electricity for production and transportation of oil. Table 4.14-2, located
31 at the end of this section, provides a summary of Project-related impacts and
32 recommended MMs to address these impacts.

33 **Impact EMR-1: Increase in Electricity Use**

34 **The Project would increase electricity use (Less than Significant).**

1 Impact Discussion

2 The Project would increase electricity use in the area due to operation of electrical oil
 3 production equipment. The expected total electricity usage by the Project facilities is
 4 approximately 80 kW, or 0.701 GWh/year. These numbers are estimated assuming the
 5 equipment runs 24 hours a day and 365 days per year. This increase in electricity use is
 6 negligible compared to the 3,235 GWh/year consumed in Santa Barbara County or
 7 257,275 GWh/year consumed in California (CEC 2011). Therefore, the Project would
 8 have adverse, but less than significant, impacts on electrical energy resources.

9 Mitigation Measures

10 None required.

11 **Impact EMR-2: Conflict with State-Adopted Energy Conservation Plans**
 12 **The Project would not substantially conflict with energy conservation plans**
 13 **adopted by the State (Less than Significant).**

14 The Project would incrementally increase the availability of oil and natural gas, which
 15 could incrementally reduce the cost of these non-renewable resources. Such an
 16 increase would be very small, given that the annual production from PRC 421 would be
 17 less than 0.001 percent of Statewide consumption. Further any production from PRC
 18 421 would be expected to displace oil imported from distant locations, reducing the
 19 lifecycle energy expenditure by reducing transportation. Therefore, although the Project
 20 would include development and processing of non-renewable fuels, it would not
 21 substantially affect the market for renewable energy nor would it conflict with adopted
 22 State policies for energy conservation and development of renewable energy.

23 Mitigation Measures

24 None required.

Table 4.14-2. Summary of Energy and Mineral Resources Impacts and Mitigation Measures

Impact	Mitigation Measures
EMR-1: Increase in Electricity Use	None required.
EMR-2: Conflict with State-Adopted Energy Conservation Plans	None required.

25 4.14.5 Cumulative Impacts Analysis

26 The Project is part of the energy resource production chain (crude oil transportation to a
 27 location where fuels are produced), as it supplies energy to other projects that might be
 28 consumers of energy. Therefore, the Project’s cumulative energy impact would be
 29 beneficial, because it would help to partially offset increases in energy consumption.

1 **4.15 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE**

2 This section analyzes the distributional patterns of high-minority and low-income
3 populations on a regional basis and characterizes the distribution of such populations
4 adjacent to the Project. This analysis focuses on whether the Project has the potential
5 to adversely and disproportionately affect minority populations, low-income
6 communities, and industries, thus creating a conflict with the intent of the California
7 State Lands Commission’s (CSLC’s) Environmental Justice Policy.

8 This section relies on economic and population data from the U.S. Census Bureau and
9 incorporates by reference the conclusions of the Ellwood Marine Terminal (EMT) Lease
10 Renewal Environmental Impact Report (EIR) (CSLC 2009) and Line 96 Modification
11 Project EIR (Santa Barbara County 2011), and summarizes these conclusions where
12 applicable. However, the community of Isla Vista warrants an examination of the intent
13 of the policy in light of the community’s unique economic structure. This document also
14 incorporates data from Santa Barbara County 01-ND-34 and City of Goleta 06-MND-01.

15 **4.15.1 Background**

16 On February 11, 1994, President Clinton issued an “Executive Order on Federal Actions
17 to Address Environmental Justice in Minority Populations and Low-Income Populations”
18 designed to focus attention on environmental and human health conditions in areas of
19 high minority populations and low-income communities, and promote non-discrimination
20 in programs and projects substantially affecting human health and the environment
21 (White House 1994). The order requires Federal agencies (as well as State agencies
22 receiving Federal funds) to identify and address any disproportionately high and
23 adverse human health or environmental effects of their programs, policies, and activities
24 on minority and/or low-income populations.

25 **CSLC Policy**

26 The CSLC has developed and adopted an Environmental Justice Policy to ensure
27 equity and fairness in its own processes and procedures. The CSLC adopted and
28 amended the Environmental Justice Policy on October 1, 2002, to ensure consideration
29 of environmental justice as part of CSLC processes, decisions, and programs. The
30 policy stresses equitable treatment of all members of the public and commits to
31 consider environmental justice in its processes, decision-making, and regulatory affairs.
32 It is implemented, in part, through identification of, and communication with, relevant
33 populations that could be adversely and disproportionately affected by CSLC projects or
34 programs, and by ensuring that a range of reasonable alternatives is identified that
35 would minimize or eliminate environmental issues affecting such populations. This
36 discussion is provided in this document consistent with and in furtherance of the CSLC’s
37 Environmental Justice Policy.

1 **4.15.2 Environmental Setting**

2 **Project Study Area and Communities of Comparison**

3 According to U.S. Environmental Protection Agency (EPA) guidance, a minority or low-
 4 income community is disparately affected when the community would bear a
 5 disproportionate level of health and environmental effects when compared to the
 6 general population. Further, the guidelines recommend that the Communities of
 7 Comparison selected be the smallest governmental unit that encompasses the footprint
 8 for each resource. PRC 421 is located on State tide and submerged lands adjacent to
 9 the City of Goleta, in Santa Barbara County. Therefore, for the purposes of this
 10 environmental justice assessment, the Project study area includes the southwestern
 11 portion of the City of Goleta, south of Highway 101, west of Fairview Avenue, and east
 12 of the Bacara Resort. This area includes census tracts 29.15, 29.22, 29.24, 29.26,
 13 29.28 and 29.30 (Figure 4.15.1). U.S. Census data from 2010 for these census tracts
 14 were used to characterize the Project study area for this analysis.

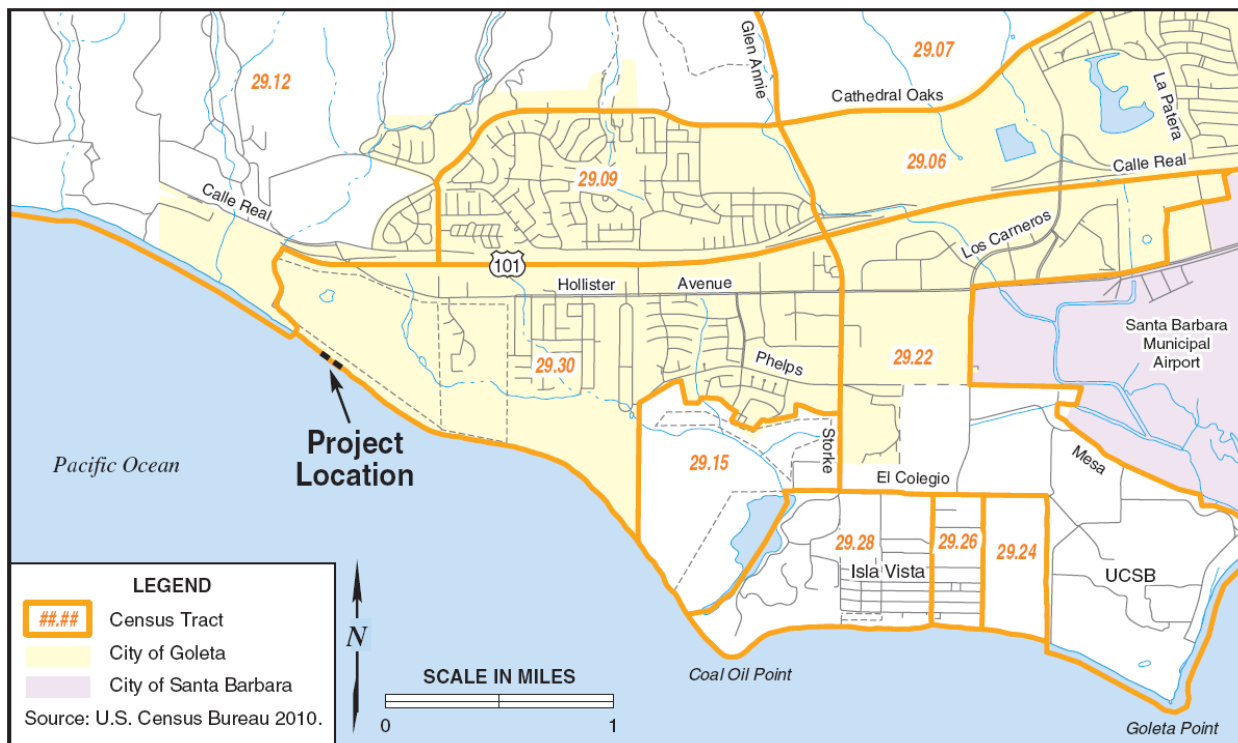


FIGURE 4.15-1. CENSUS TRACTS IN THE PROJECT VICINITY

15 The Line 96 pipeline crosses under U.S. Highway 101 near the Ellwood Onshore
 16 Facility (EOF) and runs parallel to the north side of the highway for approximately 8.5
 17 miles to Las Flores Canyon (LFC). At LFC, the pipeline runs a short distance up the
 18 canyon to the Plains All American Pipeline L.P. (PAAPLP) Coastal Pipeline pump

1 station that is located at the ExxonMobil Santa Ynez Unit (SYU) oil and gas processing
 2 facility. The Line 96 pipeline ties directly into the PAAPLP Coastal Pipeline and does not
 3 use any ExxonMobil SYU storage tanks. The pipeline was installed along Calle Real,
 4 parallel to and north of U.S. Highway 101. Since Calle Real does not run the entire
 5 length of the pipeline route, the pipeline also crosses a few stretches of private
 6 ranch/agricultural roads that parallel U.S. Highway 101. Because the Line 96 pipeline
 7 alignment is not in proximity to environmental justice populations and potential impacts
 8 related to the pipeline only extend a short distance from the pipeline, no conflict with the
 9 CSLC’s environmental justice policy occurs from usage of the Line 96 pipeline to the
 10 PAAPLP Coastal Pipeline, and census tracts along the pipeline route are not included in
 11 the study area.

12 **Study Area Demographics**

13 In 2010, the population of the City of Goleta was 29,888 and the population of Santa
 14 Barbara County was 423,895. The total population of all census tracts within the study
 15 area was 31,997 (U.S. Census Bureau 2010). Within the study area census tracts,
 16 minorities comprised 33.8 percent of the population in 2000, compared to 30.3 percent
 17 in the City of Goleta and 30.4 percent in Santa Barbara County (see Table 4.15-1). The
 18 minority composition of the study area (35.3 percent) may not be statistically significant
 19 from the minority composition of Santa Barbara County (30.4 percent), and therefore,
 20 likely does not comprise a disproportionately minority population.

Table 4.15-1. 2010 Ethnicity Data for the City of Goleta and Santa Barbara County

	Study Area		Goleta		Santa Barbara County	
	Population	Percentage	Population	Percentage	Population	Percentage
White	20,691	64.7	20,883	69.7	295,124	69.6
Minority	11,306	35.3	9,005	30.3	128,771	30.4
Black	774	2.4	469	1.6	8,513	2.0
Asian	4,501	14.1	2,728	9.1	20,665	4.9
Pacific Islander	53	0.2	26	0.1	806	0.2
Native American	178	0.6	283	0.9	5,485	1.3
Other	3,873	12.1	4,182	14.0	73,860	17.4
Two or More	1,927	6.0	1,367	4.6	19,442	4.6
Hispanic*	8,008	25.0	9,824	32.9	181,687	42.9

*May be counted in one or more of the other categories as well.

Source: U.S. Census Bureau 2010, 2010 Census Summary File 1.

21 Asians comprised the largest minority group within the study area (14.1 percent), while
 22 Pacific Islander and Native American groups comprised the smallest percentage of the
 23 population (0.2 percent combined). Hispanic or Latino write-in respondents could
 24 potentially be categorized under any of the classification groups designated by the U.S.
 25 Census Bureau, including “other,” in addition to the Hispanic classification. Hispanic is

1 considered an origin, not a race, by the U.S. Census Bureau. An origin can be viewed
 2 as the heritage, nationality group, lineage, or country of birth of the person or the
 3 person’s parents or ancestors before their arrival in the United States. Therefore, people
 4 who identify their origin as Spanish, Hispanic, or Latino may be of any race. Within the
 5 study area, Hispanic/Latino write-in respondents comprised 25.0 percent of the
 6 population, as compared to 42.9 percent of Santa Barbara County.

7 Census data were also analyzed to determine poverty status in the study area. As
 8 displayed in Table 4.15-2, approximately 38 percent of the individuals residing within the
 9 study area had income levels below the poverty level in 2010; however, these residents
 10 are typically students who may not be financially independent and would therefore not
 11 represent a disadvantaged population. In contrast, 9 percent of Goleta residents and 14
 12 percent of Santa Barbara County residents had income levels below the poverty level in
 13 2010.

Table 4.15-2. Poverty Status in 2010

	Project Study Area	Goleta	Santa Barbara County
Income in 2010 Below Poverty Level	9,842	2,629	57,463
Population for Whom Poverty Status was Determined	25,919	28,867	400,584
Percent with Income in 2010 Below Poverty Level	38.0	9.1	14.3

Source: U.S. Census Bureau 2010, 2006-2010 American Community Survey 5-Year Estimates, Poverty Status in the Past 12 Months.

14 Due to the wide discrepancy between the number of residents below the poverty level
 15 within the study area and the number in the surrounding communities, further analysis
 16 regarding the study area was conducted.

17 Census tracts 29.28, 29.26, and 29.24 are directly adjacent to the University of
 18 California Santa Barbara (UCSB), in the community of Isla Vista. UCSB has an average
 19 enrollment of 19,600 students, including approximately 2,600 graduate students, the
 20 vast majority of which live within the Isla Vista area (CSLC 2009) and may comprise 85
 21 to 90 percent of that community’s population. University students tend to be younger
 22 than the general population, which is represented by the fact that approximately 93
 23 percent of the population in Census Tract 29.24 is between the ages of 18 and 24. The
 24 median age in this census tract is 21.0 years. Likewise, census tracts 29.28, 29.26, and
 25 29.15 have approximately 80 percent, 85 percent, and 73 percent of their respective
 26 populations between the ages of 18 and 24. The median age in these census tracts is
 27 21.3, 21.1, and 28.4 years, respectively. In contrast, the percentage of Santa Barbara
 28 County residents between the ages of 18 and 24 is 14.9 percent and the median age is
 29 33.6 years while Goleta has approximately 12.7 percent of the population between the
 30 ages of 18 and 24, and the median age is 36.5 years (U.S. Census Bureau 2010).

1 In addition to being younger than the general population, university students tend to
2 have less income due to the time-consuming nature of their studies and are often not
3 economically independent. Therefore, in the census tracts with the highest percentage
4 of population between the ages of 18 and 24, the percentage of those who had income
5 in 2010 below the poverty level was also high. Approximately 38 percent of the
6 predominantly student population of Isla Vista was at or below the poverty level in 2010,
7 which is double the poverty level of many of the most impoverished counties in the
8 nation (U.S. Census Data 2005). However, this population is able to live in a desirable
9 Southern California beach community and afford to attend college. It should be noted
10 that the median annual parental income for the 2007 class of UCSB was reported as
11 \$79,000, which is substantially above the poverty level (UCSB 2008). Therefore, while
12 standard analyses of census data identified Isla Vista with an extremely large portion of
13 the population at or below poverty level, these analyses did not identify a truly
14 economically disadvantaged community as intended in the CSLC's Environmental
15 Justice Policy.

16 **4.15.3 Policy Issues**

17 A conflict with the CSLC's Environmental Justice Policy would occur if the Project
18 would:

- 19 • Have the potential to disproportionately affect minority and/or low-income
20 populations at levels exceeding the corresponding medians for the County in
21 which the Project is located; or
- 22 • Result in a substantial, disproportionate decrease in the employment and
23 economic base of minority and/or low-income populations residing in the County
24 and/or immediately surrounding cities.

25 **4.15.4 Policy Analysis and Conditions**

26 **Policy Discussion**

27 As discussed in Section 4.2, Safety, and Section 4.5, Hydrology, Water Resources, and
28 Water Quality, Project construction and operation would incrementally increase the risk
29 for a small crude oil spill which would expose people located in the Project vicinity to
30 potential health, safety, and economic effects. The Project is located 0.6 mile from the
31 nearest residence and 0.8 mile from the nearest school. People with the greatest
32 potential to be affected by the Project are users of Sandpiper Golf Course and
33 recreational beach users. The golf course is located approximately 200 feet away from
34 Piers 421-1 and 421-2 and at an elevation of about 50 feet higher. The 6-inch line
35 traverses the golf course near the 12th tee and leaks at that point represent the only real
36 hazard to golfers. The beach near PRC 421 is used much less often than other beaches
37 in the area as the adjacent beach is ephemeral with sand present only part of the year.

1 Further, the nearest beach access is approximately 0.5 mile in either direction, at the
2 Bacara Resort and beneath Ellwood Mesa. Potential users of the adjacent beach could
3 come from any ethnicity or income level. In contrast, users of Sandpiper Golf Course
4 are more likely to be comprised of upper-middle and upper-class income levels.

5 As discussed in Section 4.5, Hydrology, Water Resources, and Water Quality, a
6 potential spill from PRC 421 could travel east toward Devereux Slough. Devereux
7 Slough is located adjacent to Isla Vista, a community dominated by UCSB students. A
8 larger spill, such as a spill of up to 60 barrels from Line 96 along the Gaviota Coast
9 would potentially affect recreational opportunities and visual resources for the residents
10 of Isla Vista if the majority of this oil reached the ocean and drifted to Isla Vista.
11 However, this would be a low probability, all of this spilled oil would be unlikely to reach
12 the ocean and such a spill would be located more than 5 miles west of Isla Vista. In
13 addition, potential malodor and air quality effects would disproportionately affect the
14 coastal residents in this town compared to the general population of Goleta and Santa
15 Barbara County. However, the demographics of Isla Vista do not qualify the community
16 as a disadvantaged population within the CSLC's Environmental Justice Policy.
17 Therefore, Project construction and operation would not disproportionately affect
18 minority or low-income populations or result in a substantial disproportionate decrease
19 in the employment and economic base of minority and/or low-income populations in the
20 area.

21 **4.15.5 Cumulative Policy Analysis**

22 The projects identified in Section 3.0, Cumulative Impacts Methodology, primarily affect
23 residents of south Santa Barbara County and the City of Goleta. People from every
24 ethnicity and income level would be included in the potentially affected area. Some of
25 these projects may be found to have a disproportionate effect on a minority or low-
26 income population. Project effects associated with marine spills would affect resources
27 used by many different people, regardless of ethnicity or income, and would therefore
28 not have a disproportionate effect on a minority or low-income population. Therefore,
29 the Project would not conflict with the CSLC's Environmental Justice Policy.

5.0 PROJECT ALTERNATIVES ANALYSIS

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

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

18 5.1 SELECTION OF ALTERNATIVES

19 5.1.1 Guidance on Alternatives Development and Evaluation

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

- 25 • An EIR need not consider every conceivable alternative to a project. Rather, it
26 must consider a reasonable range of potentially feasible alternatives that will
27 foster informed decision-making and public participation. An EIR is not required
28 to consider alternatives which are infeasible. (Guidelines § 15126.6, subd. (a)).
- 29 • The discussion of alternatives shall focus on alternatives to the project or its
30 location which are capable of avoiding or substantially lessening any significant
31 effects of the project, even if these alternatives would impede to some degree the
32 attainment of the project objectives, or would be more costly. (Guidelines §
33 15126.6, subd. (b)).
- 34 • In selecting a range of potential reasonable alternatives to the proposed project,
35 the Lead Agency shall include those that could feasibly accomplish most of the
36 basic objectives of the project and could avoid or substantially lessen one or

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

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

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

17 **5.1.2 Alternatives Screening Methodology**

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

25 **Step 1:** Define the alternatives to allow comparative evaluation.

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

- 27 • The extent to which the alternative would accomplish most of the basic goals and
28 objectives of the Project (the Project objective is identified in Section 1.2);
- 29 • The potential feasibility of the alternative, taking into account site suitability,
30 economic viability, availability of infrastructure, General Plan consistency, and
31 consistency with other applicable plans and regulatory limitations;
- 32 • The extent to which the alternative would avoid or lessen one or more of the
33 identified significant environmental effects of the Project; and
- 34 • The requirement of the State CEQA Guidelines to consider a “no project”
35 alternative and to identify, under specific criteria, an “environmentally superior”
36 alternative. For example, pursuant to State CEQA Guidelines section 15126.6,

1 subdivision (e), “if the environmentally superior alternative is the ‘no project’
2 alternative, the EIR shall also identify an environmentally superior alternative
3 among the other alternatives.”

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

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

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

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

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

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

8 Information gathered during the original 2007 Draft EIR public comment period, the
 9 2013 Draft EIR public comment period, and following the CSLC’s consideration of the
 10 Final EIR in April 2014 led to further refinement of alternatives considered to the Project
 11 in this ~~Recirculated Draft~~ Final EIR.

12 **5.1.3 Summary of Screening Results**

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

Table 5-1. Summary of Alternatives Screening Results

	Alternatives Eliminated from Further Consideration	Alternatives Evaluated in this EIR
Drilling from the Ellwood Onshore Facility	X	
Drilling from Platform Holly	X	
Condensed Production Schedule	X	
Offshore Oil Processing on Platform Holly	X	
Transportation of Production By Truck	X	
Recommissioning Using Historic Production Methods	X	
No Production Alternative with Pressure Testing	X	
Alternative Energy Sources	X	
No Project Alternative		X
No Production/Quitclaim State Oil and Gas Lease PRC 421		X
Reinjection at Platform Holly		X
Processing PRC 421 Oil at Las Flores Canyon ¹		X

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.

1 **5.2 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION**

2 **5.2.1 Drilling from the EOF**

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

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

14 This alternative was determined to be infeasible from three aspects:

- 15 • no available space;
- 16 • system safety; and
- 17 • conflicts with City of Goleta codes.

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

28 **5.2.2 Drilling from Platform Holly**

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

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

6 This alternative was eliminated from further consideration because it is technically
7 infeasible and could increase the risk of an offshore oil spill. In order to produce the
8 Ellwood Oil Field, a well would need to be drilled to a vertical depth of 3,000 feet with a
9 12,600-foot horizontal displacement. This scenario is approaching the limits of current
10 drilling technology and additional geologic concerns are present that make it infeasible
11 to drill from Platform Holly. Specifically, the well would cross a long section of the
12 Sisquoc and Rincon formations and a very large thrust fault. Therefore, the well would
13 be susceptible to loss of circulation, structural instability, and loss of directional control.
14 This loss of directional control combined with the relatively small target and the distance
15 to the well render this option technically infeasible. Finally, many of the original wells on
16 the Ellwood Oil Field, which was first developed in 1929, were drilled without accurate
17 deviation surveys, meaning that the exact locations of those well bores are unknown,
18 and that new wells could hit one of the old wells. As a result, the Drilling from Platform
19 Holly Alternative was removed from further consideration due to the increased risk for
20 oil spills and the technical difficulties associated with producing from such a distance
21 and depth.

22 **5.2.3 Condensed Production Schedule**

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

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

34 **5.2.4 Offshore Oil Processing on Platform Holly**

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

1 Las Flores Canyon (LFC). Since there is no available pipeline to transport PRC 421 oil
2 to Platform Holly, construction of a new 4-inch pipeline would be required from a
3 location near the EOF to Platform Holly, a distance of approximately 15,000 feet.

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

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

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

32 Oil from PRC 421 does not require processing for hydrogen sulfide (H₂S) removal.
33 Under this alternative, however, PRC 421 oil would be commingled with Platform Holly
34 oil then transported to the EOF in the existing oil emulsion pipeline. Upon entering the
35 EOF, the oil stream would first be routed through existing heat exchangers to help warm
36 the oil for processing, then through one or more existing heater treaters for removal of
37 any residual water. Water removed would be impounded and disposed of through an
38 existing high-pressure injection pump and disposal well WD-1. Oil would then be routed

1 through the existing H₂S stripper towers to remove H₂S before entering into the new
2 Line 96 Pipeline for transport to the west of LFC.

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

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

13 **5.2.5 Transportation of Production by Truck**

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

23 For example, an alternative of trucking oil from PRC 421 to the Rincon Onshore
24 Separation Facility (ROSF), located just east of Carpinteria, would initially involve up to
25 five tandem trucks (each carrying approximately 160 barrels of oil) traveling about 32
26 miles one way per day, declining to three trucks per day during years 3 through 5 and
27 one to two trucks per day during the later years of Project production. From the ROSF,
28 the crude oil would be commingled with production from the ROSF and shipped via an
29 existing 22-inch pipeline to the Shell and Conoco Phillips (TOSCO) terminal in Ventura
30 Harbor. From Ventura, Project-related crude oil would be transported via several
31 existing common carrier pipelines that connect to Los Angeles area refineries. Such
32 increases in trucking between PRC 421 and ROSF, or other receiving facility, would
33 incrementally contribute to potential safety impacts on area roadways with potential for
34 accidents and oil spills, associated impacts to hydrology, water quality and terrestrial
35 and marine biology, along with increased emissions when compared to transport via the
36 new Line 96 pipeline. Thus, this alternative could create incrementally more severe
37 environmental impacts than transport via pipeline under the proposed Project.

1 In addition, Venoco had previously submitted a Temporary Trucking Application to the
2 City of Goleta (City Case No. 06-186) and an application for a Limited Exception
3 Determination (LED) which would exempt Venoco from the provisions of the City's
4 nonconforming use requirements under the Goleta Municipal Code, section 35-160 et
5 seq. The City determined that because additional infrastructure would be required to
6 accommodate loading of oil onto trucks, trucking of oil was inconsistent with several of
7 the criteria that must be satisfied for approval of an LED, as it would result in an
8 expansion or increase in overall intensity of use beyond the existing permitted use.
9 Following the City of Goleta's initial rejection of the trucking proposal, Venoco elected to
10 withdraw its application for City permits. Therefore, this alternative was eliminated from
11 further consideration because of demonstrated inconsistency with the City of Goleta's
12 Municipal Code, Venoco's withdrawal of the application for permits, and because this
13 alternative has no environmental benefits over the proposed Project.

14 **5.2.6 Recommissioning Using Historic Production Methods**

15 Under this alternative, production would resume at PRC 421 using essentially the
16 configuration that was in place at the time the wells were shut-in in 1994. In contrast,
17 the No Project Alternative would incorporate new technologies to comply with current
18 industrial and environmental standards. Historic operations at this facility involved using
19 a natural gas-fired internal combustion engine to power the pump at Pier 421-2.
20 Produced oil and water emulsion was then separated using a Free Water Knockout
21 (FWKO) system, and produced oil and insignificant quantities of gas bypassed the EOF
22 and were delivered to market directly via the existing 6-inch line to the old Line 96
23 segment for delivery to the Ellwood Marine Terminal (EMT). Produced water was stored
24 in a tank on Pier 421-1 and periodically reinjected into the underlying formation via Well
25 421-1.

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

- 28 • Installation and operation of a new gas-fired internal combustion engine and an
29 above-ground pump in Pier 421-2; and
- 30 • Installation of a FWKO unit, storage tank, and pump for water reinjection on Pier
31 421-1.

32 Unlike the proposed Project, Pier 421-1 and Well 421-1 would not be decommissioned
33 until after production stops. Future decommissioning of the remaining facilities at PRC
34 421 would be governed by an Abandonment and Restoration Plan to be prepared by
35 Venoco and approved by the CSLC, CCC, and City of Goleta.

36 Because this alternative would still include modification and reactivation of surf zone oil
37 production facilities, oil processing at the PRC 421 piers, and pipeline transportation of
38 produced oil, the impacts associated with the proposed Project would still apply. In

1 addition, the installation of the storage tank would substantially increase aesthetic
2 impacts, and the operation of a gas-fired internal combustion engine on Pier 421-2
3 would substantially increase air quality impacts as compared to the proposed Project.
4 Therefore, this alternative has no environmental benefits over the proposed Project or
5 the No Project Alternative and was eliminated from further consideration.

6 **5.2.7 No Production Alternative with Pressure Testing**

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

11 **5.2.8 Alternative Energy Sources**

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

22 **5.3 ALTERNATIVES EVALUATED IN THIS EIR**

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

Table 5-2. Summary of Major Project Components for the Proposed Project and Build Alternatives

Location/Major Project Component	Proposed Project	Project Alternatives		
		No Project Alternative	Reinjection at Platform Holly	Processing PRC 421 Oil at LFC
New railing/wood decking	Pier 421-2 only	Pier 421-2 and 421-1	Pier 421-2 only	Pier 421-2 only ^a
Well and Pier 421-1	Decommissioned	Used for water injection	Decommissioned	Decommissioned ^a
Well 421-2	ESP	ESP	ESP	ESP
Pier 421-2	No major infrastructure required	GLCS and LLCS	GLCS and LLCS	<ul style="list-style-type: none"> - Four (4) 55- to 350-gallon chemical tanks with 100 % leak containment - 10-gallon isokinetic sampler/oil storage bottle If tightlining ^b is not feasible: <ul style="list-style-type: none"> - 1,000-1,500 bbl tank with cone roof vented to a VRU control device with a flare to remove excess gas - Dedicated oil shipping pump
Oil processing	Existing EOF	LLCS on Pier 421-2	LLCS on Pier 421-2	New construction at LFC: <ul style="list-style-type: none"> - Oil dehydration plant - Two 5,000 bbl tanks (oil and water) - Class II Underground Injection well^a
Gas processing	Existing EOF	GLCS on Pier 421-2	GLCS on Pier 421-2	Existing LFC facility
Oil flowline	3" to EOF (0.45 mi.)	2" to Line 96 (0.45 mi.)	2" to Line 96 (0.45 mi.)	None
Water/gas flowline	None	2" to Well 421-1	2" to the 4" utility line to Platform Holly	None ^a
Oil pipeline	Existing Line 96 to PAAPLP	Same as proposed	Same as proposed	New construction: 10.2-mile, 3-phase (oil/gas/water) high pressure pipeline to LFC facility
Oil pipeline leak detection system	Volumetric-based and low pressure switches	Same as proposed	Same as proposed	Low pressure switches only (much less accurate system than Line 96)
Power cable	EOF to Pier 421-2	Same as proposed	Same as proposed	Same as proposed
Communication system	EOF to Pier 421-2	Same as proposed	Same as proposed	Same as proposed

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

^a 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.

^b Tightlining is the ability to operate the 3-phase pipeline without flow breakage, i.e., tanking production and providing a dedicated oil shipping pump.

1 Sections 5.3.1 through 5.3.4 describe and analyze each of these four alternatives and
2 their associated impacts in relation to the proposed Project. Analysis of the Processing
3 PRC 421 Oil at Las Flores Canyon Alternative includes relevant impacts assessed in
4 the 2011 Ellwood Pipeline Company Line 96 Modification Project EIR (Line 96 EIR) and
5 the 1984 Final EIR for Santa Ynez Unit/Las Flores Canyon Development and
6 Production Plan (SYU/LFC EIR). Relevant impacts and mitigation measures (MMs) from
7 these documents are incorporated by reference as part of this analysis (per State CEQA
8 Guidelines § 15152), and are summarized in this EIR and included in their entirety in
9 Appendix I. Section 6.4 compares the impacts of the proposed Project and alternatives
10 (see Tables 6-2 and 6-3) and identifies the Environmentally Superior Alternative.

11 **5.3.1 No Project Alternative**

12 **Description**

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

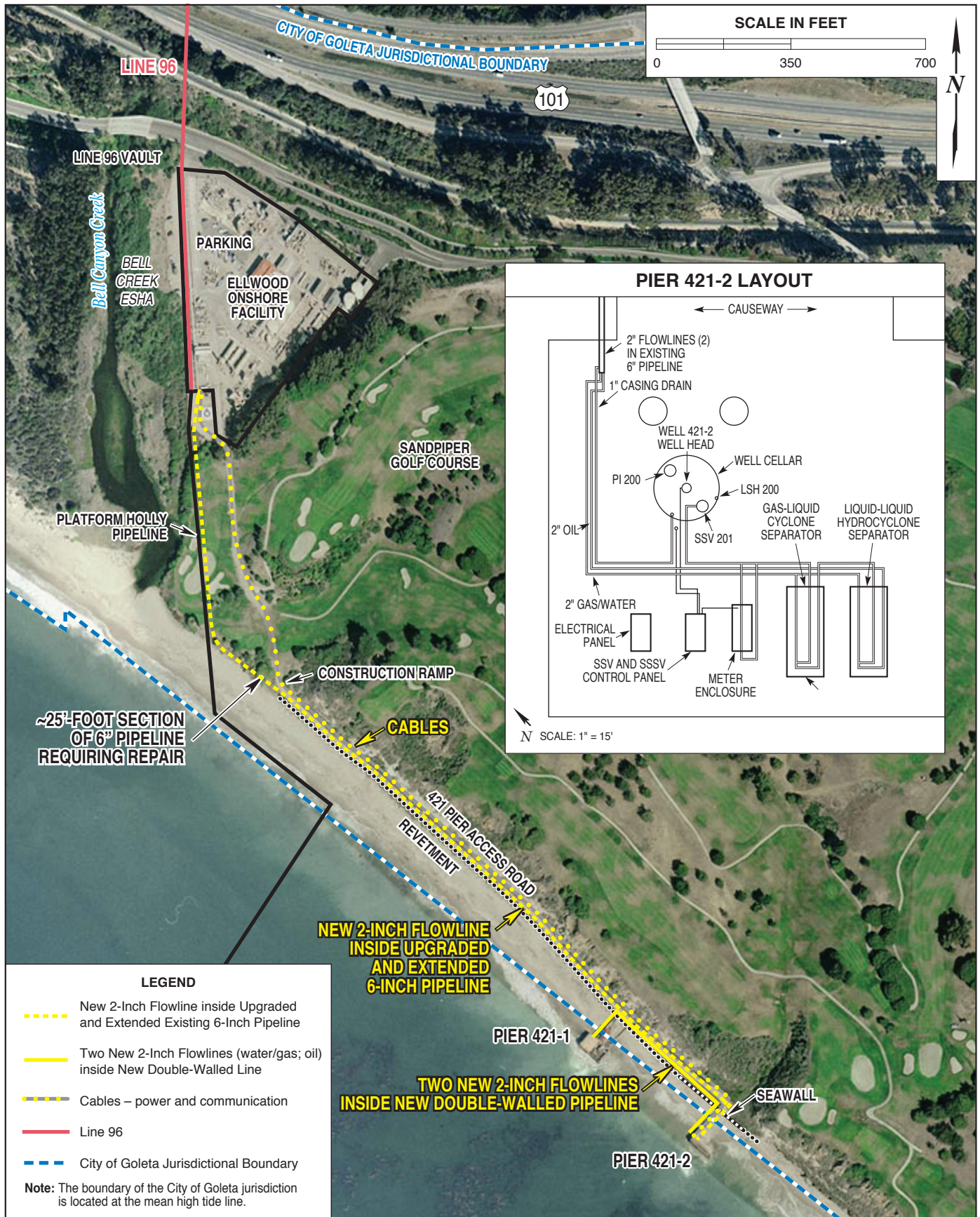
- 20 • The Commission assigned the PRC 421 lease to Venoco in July 1997, which
21 provides Venoco the legal right to produce the lease (lease originally issued in
22 1929; see Table 2-1 for lease history) and
- 23 • When the Commission determines that adequate corrective measures have been
24 taken and operations may be resumed, Venoco may produce PRC 421 by
25 processing oil on Pier 421-2 and using Well 421-1 on Pier 421-1 for produced
26 water disposal.

27 Venoco's restart of production on the lease would include incorporating modern
28 production and safety technologies to comply with current industrial and environmental
29 standards. Venoco would install a new Gas-Liquid Cyclone Separator (GLCS) and a
30 new Liquid-Liquid Cyclone Separator (LLCS) at Pier 421-2 to separate produced gas
31 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.



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

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

22 Resumption of production under this alternative would include the following:

- 23 • Installation of new decking and railings on Piers 421-1 and 421-2;
- 24 • Installation of a downhole ESP, stainless steel equipment enclosures, and new
25 oil separation equipment (GLCS and LLCS) on Pier 421-2;
- 26 • Return of Well 421-1 to service as a water and gas injection well;
- 27 • Installation of a new double-walled line between Wells 421-2 and 421-1, and
28 installation of two new 2-inch flowlines (one for water and gas, one for oil) inside
29 the new double-walled line;
- 30 • Installation of one new 2-inch oil flowline (inside the upgraded existing 6-inch
31 line) connecting PRC 421 to Line 96;
- 32 • Upgrades to the existing 6-inch line from Pier 421-1 to Line 96;
- 33 • Installation and operation of buried power cables to Pier 421-2 to operate the well
34 and associated control systems;
- 35 • Installation of a communication system between PRC 421-2 and the EOF;
- 36 • Installation of a surveillance camera on Pier 421-2 that would monitor the piers
37 and would provide live video feed displayed in the EOF Control Room;

- 1 • Installation of a Lease Automatic Custody Transfer (LACT) system for Well 421
2 oil before introduction to Line 96; and
- 3 • Reactivation of the oil well on Pier 421-2, with projected production as indicated
4 for the Project in Section 2.4.1, Volumes and Throughput.

5 As part of this alternative, the existing 6-inch line would be hydrotested to 100 psig and
6 internally lined with a new plastic coating. The 6-inch line would be protected against
7 external corrosion by enhancing the impressed current cathodic protection system on
8 the Platform Holly pipelines to include the PRC 421 6-inch shipping line. After the
9 upgrades to the 6-inch pipeline preparation are complete, a new 2-inch steel coiled or
10 non-metallic (e.g., fiberglass) flowline would be inserted inside the existing 6-inch line to
11 transport oil to Line 96. Additionally, a double-walled line would replace an existing 2-
12 inch flowline between Well 421-2 and Well 421-1. Two new 2-inch flowlines (one for
13 water and gas, one for oil) would be installed inside the new double-walled line.
14 Electricity would be provided to Pier 421-2 via two cables buried within a 30-inch-deep,
15 12-inch-wide, 2,500-foot-long trench located within the easement through Sandpiper
16 Golf Course and down the dirt access road.

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

25 **Environmental Impact Analysis**

26 The impacts and MMs from the No Project Alternative are similar to the proposed
27 Project, with the exception of those impacts associated with processing oil on Pier 421-
28 2 and returning Pier and Well 421-1 to use as an injection well. Table 5-3 provides a
29 summary of the impact and mitigation measure differences between the two
30 alternatives. As part of the No Project Alternative, there are 12 project impact
31 differences and 14 MMs that would be modified, in response to the production and
32 processing of oil on Pier 421-2 and the disposal of waste water and gas on Pier 421-1,
33 in comparison to the proposed Project. All other project impacts and MMs not identified
34 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

Impacts of Proposed Project	No Project Alternative	
	Impact Differences	Mitigation Measure (MM) Modifications
Impact GEO-1	Impact includes Pier 421-1 and associated infrastructure	MM GEO-1a MM GEO-1b MM GEO-1c MM GEO-1d MMs modified to include Pier421-1
Impact GEO-3 Impact GEO-4 Impact S-2 Impact S-4	Impacts include Pier 421-1	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
Impact S-5	Impact modified for connection to Line 96	
Impact S-8	Impact modified for processing on 421-2 and Line 96 connection	
Impact HAZ-1	Impacts include Pier 421-1	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
Impact HAZ-2	Impact includes Pier 421-1	
Impact WQ-3	Impact includes Pier 421-1	MM WQ-3a MM modified for connection to Line 96
Impact MBIO-1 Impact MBIO-2 Impact TBIO-1	Impact modified to remove decommissioning/removal activities of Pier 421-1	MM MBIO-1 MM modified to remove reference to Pier 421-1 removal
Impact TBIO-3	Impact includes Pier 421-1	
Impact LU-2	Impact includes processing on PRC 421 piers	
Impact LU-3 Impact VR-2	Impacts includes Pier 421-1	

1 *Geological Resources*

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

12 *Safety*

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

21 The new and recommissioned facilities associated with this alternative would increase
22 potential impacts related to potential collapse of caisson walls and/or potential release
23 of oil or hazardous materials from Pier 421-2; however, the level of significance
24 associated with these impacts would remain the same as under the Project. Impact S-2,
25 related to a potential collapse of caisson walls, would be greater due to the continued
26 presence of Pier 421-1; however, this impact could be mitigated to a less than
27 significant level with implementation of MM S-2a. MM S-2a would be modified to require
28 design review and wave loading evaluation for Pier 421-1 in addition to Pier 421-2.
29 Improvements to the caisson on Pier 421-1 would be similar to the proposed Project
30 (Figure 2-4). The potential for a release of oil or hazardous materials from Pier 421-2
31 into the marine environment or nearby sensitive habitats, Impact S-4, would increase
32 due to the presence of separation equipment on Pier 421-2, and the potential quantity
33 released would be 12.5 barrels. In addition, produced water would be injected from Pier
34 421-1 over open water. This impact is already considered significant and unavoidable,
35 so the level of significance would remain the same.

36 *Hazardous Materials*

37 Impacts related to this alternative would be similar to the Project, including potentially
38 significant Impacts HAZ-1 and HAZ-2, and would require implementation of the

1 proposed MMs as well as expansion of these measures to cover potential impacts from
2 the continued use of Pier 421-1 as a reinjection facility (see Table 5-3 above). HAZ-1
3 would require the implementation of MMs HAZ-1a through HAZ-1d, to reduce this
4 impact to a less than significant level. MM S-2a would be expanded to include a design
5 review and wave loading evaluation for Pier 421-1 to determine whether this facility
6 would require improvements prior to recommissioning. Improvements to the caisson on
7 Pier 421-1 would be similar to the improvements on Pier 421-2 for the proposed Project
8 (Figure 2-7). These measures would reduce the risk of exposing the public and the
9 environment to hazardous materials due to collapse of the caisson on Pier 421-1 or
10 421-2 such that Impact HAZ-2 would be less than significant with mitigation.

11 *Air Quality and Greenhouse Gases (GHGs)*

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

27 *Hydrology, Water Resources, and Water Quality*

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

1 into the marine environment and surface waters still exists and would be greater under
2 this alternative, and therefore Impact WQ-3 would be significant.

3 *Marine Biological Resources*

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

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

27 *Terrestrial Biological Resources*

28 Impacts related to this alternative would be more severe than for the Project due to oil
29 processing occurring on Pier 421-2, with Impacts TBIO-1 and TBIO-2 applying to this
30 alternative. Impact TBIO-1 would be the same under this alternative as under the
31 Project, and the associate mitigation measures, MMs TBIO-1a through TBIO-1f, would
32 apply to this alternative; these measures would reduce this impact to a less than
33 significant level. Impact TBIO-2 would be considered a significant impact under this
34 alternative, as it is under the Project. This alternative presents a slightly higher risk of an
35 oil spill occurring due to the presence of the separation equipment on Pier 421-2. The
36 risk of a spill in the marine environment is low under either the Project or this alternative;
37 however, the risk would be increased under this alternative and any level of risk of an oil
38 spill would be considered a significant impact since a spill would result in significant and

1 unavoidable impacts. MMs TBIO-2a and TBIO-2b would apply to this alternative, and
2 would help to mitigate impacts associated with an oil spill; however, this impact would
3 remain significant and unavoidable.

4 *Land Use, Planning, and Recreation*

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

19 Impacts LU-2 and LU-3 address potential impacts related to a release of oil from PRC
20 421 to recreation and to sensitive area resources, respectively. These impacts are both
21 significant under the Project, and would remain significant under this alternative. Due to
22 the increased risk of a spill associated with the presence of the separation equipment
23 on Pier 421-2, these impacts would be slightly greater than under the Project.
24 Implementation of MMs outlined in Sections 4.1, Geological Resources; 4.2, Safety; 4.3
25 Hazardous Materials; 4.5, Hydrology, Water Resources, and Water Quality; 4.6, Marine
26 Biological Resources; and 4.7, Terrestrial Biological Resources would reduce the risk of
27 a spill and the resulting impacts if a spill were to occur; however, these impacts would
28 remain significant and unavoidable.

29 *Public Services*

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

1 *Transportation and Circulation*

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

11 *Noise*

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

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

35 *Aesthetic/Visual Resources*

36 Aesthetics/visual resource impacts associated with this alternative would be somewhat
37 more severe than for the Project. Impact VR-1 and visual resources from construction
38 activities would remain similar to the Project because this alternative would have the

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

18 *Cultural, Historical, and Paleontological Resources*

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

22 *Energy and Mineral Resources*

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

26 *Socioeconomics and Environmental Justice*

27 This alternative would not disproportionately affect minority or low-income populations
28 or result in a substantial disproportionate decrease in the employment and economic
29 base of minority and/or low-income populations in the area. The presence of separation
30 equipment on Pier 421-2 would increase the risk of an oil spill, which could affect the
31 residents of Isla Vista; however, as discussed Section 4.15, the demographics of Isla
32 Vista do not qualify the community as a disadvantaged population within the CSLC's
33 Environmental Justice Policy.

1 **5.3.2 No Production/Quitclaim State Oil and Gas Lease PRC 421**

2 **Description**

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

13 CSLC staff indicated that the pressure build-up could potentially cause oil releases into
14 the coastal environment as the increased pressure would place pressure on historic
15 abandoned wells in offshore areas of the reservoir or possibly lead to additional
16 releases of oil from a natural seep. Many of the offshore wells were abandoned in the
17 1940s and 1950s using abandonment and well-capping techniques of that period, which
18 are not adequate by current standards (refer to Section 4.2.1). The structural stability of
19 older abandoned facilities is unreliable and a substantial increase in reservoir pressure
20 could cause a release of oil to the coastal environment.

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

35 The subsequent consequence of this alternative would be a future decommissioning of
36 the PRC 421 infrastructure, following either legislative authorization for the necessary
37 appropriations or the conclusion of litigation requiring payment, including the piers,
38 access road and seawall, and pipelines and any associated required clean up or site

1 remediation. Specifics on decommissioning would be addressed in the Abandonment
2 and Restoration Plan to be prepared and submitted to the CSLC, CCC, and the City of
3 Goleta and would require applicable environmental documentation such as a Mitigated
4 Negative Declaration (MND) or an EIR.

5 **Environmental Impact Analysis**

6 *Repressurization*

7 As noted above and in Section 4.2.1, Safety, the CSLC has concerns about the
8 potential repressurization of the Vaqueros Reservoir, leading to oil leaks from wells that
9 were abandoned in the 1940s and 1950s and the impact of any such releases to marine
10 waters, coastal habitats, recreation, public access and other public trust resources and
11 values. Based upon the thresholds identified in this EIR, any such release of oil into the
12 environment could create potentially significant indirect impacts to affected marine,
13 nearshore, and estuarine environments similar to those identified in Impacts S-4, HAZ-
14 1, WQ-3, MBIO-4, MBIO-6, MBIO-7, TBIO-2, LU-3, VR-2, and CR-2. No leaks from
15 existing abandoned wells have been documented and insufficient data exist to quantify
16 the actual potential for such leaks to occur, their exact location, or the size of such
17 leaks; however, given the possibility of leaks this presents a significant and unavoidable
18 impact. A consequence of the alternative would be that the CSLC may need to contract
19 with an operator to temporarily produce the reservoir in order to conduct pressure
20 testing as described above before final disposition of the facilities.

21 *Geological Resources and Safety*

22 Until all PRC 421 facilities are fully abandoned, potentially significant impacts could
23 occur through partial collapse of the caissons, particularly the non-seaward facing walls
24 of Piers 421-1 and 421-2 which have not been repaired (see Impacts GEO-1, GEO-4;
25 S-2). In addition, while damage to sections of the aging timber bulkhead, or under-
26 engineered portions of the seawall protecting this bulkhead, could be of concern due to
27 the possible release of potentially contaminated soil into the surf, impacts would be less
28 than those identified for the Project as damage to the existing 6-inch line would not have
29 the potential to release oil or produced water into the environment (see Impacts S-3, S-
30 4; and HAZ-2).

31 Project facilities, including the caissons and seawall show signs of weathering, aging
32 and damage typical of structures exposed to continual marine action. Repairs to the
33 seaward-facing caissons of Pier 421-1 in 2004 and Pier 421-2 in 2011 addressed some
34 of these adverse conditions, but not all. Under this alternative, these facilities could
35 potentially remain shut in for an extended period of time and be exposed to continued
36 damage from waves and potential seismic activity. As discussed under Impacts S-2 and
37 S-3 above, age, corrosion, weathering, past caisson collapses and undocumented
38 construction techniques create concerns over the long-term stability of these structures.

1 In addition, the gaps in the seawall and uncertain stability of the aging timber bulkhead
2 may expose these facilities to damage. Possible damage to these facilities over an
3 extended decommissioning process could expose these facilities to damage and the
4 potential for accidental release of contaminated soil, sand and potentially residual oil.
5 The risk of fire with this alternative (Impact S-8) would be lower than under the Project
6 as oil would not be produced or transported, although a potential for fire at the PRC 421
7 piers would remain until such time and decommissioning and proper well abandonment
8 is completed.

9 *Hazardous Materials*

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

21 *Air Quality and GHGs*

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

27 *Hydrology, Water Resources, and Water Quality, Marine Biological Resources, and* 28 *Terrestrial Biological Resources*

29 Until PRC 421 is fully decommissioned, potentially significant impacts could occur
30 through damage to the caissons and seawall and subsequent releases of oil or
31 contaminated materials into the marine environment. Both seaward-facing caissons of
32 both Piers 421-1 and 421-2 have now been repaired under emergency permits;
33 however, other aging caisson faces could be subject to collapse or damage. Such
34 impacts would remain similar to that described in Impacts WQ-3, MBIO-2, and MBIO-4
35 (see also Sections 4.2, Safety and 4.3, Hazardous Materials). As noted in Section 4.2.1,
36 the CSLC has concerns about the potential for pressure to build up in the Vaqueros
37 Reservoir, causing oil to escape from wells that were abandoned in the 1940s and
38 1950s. This concern is based on observations following the 1994 shut-in of the PRC

1 421 wells. The potential for unquantified and uncontrolled releases from previously
2 abandoned wells is of concern because the releases would directly impact marine
3 waters and coastal habitats. Based upon the thresholds identified in this EIR, any such
4 release of oil into the environment could create significant and unavoidable impacts,
5 similar to those identified in Impact WQ-3. Although it is not possible to precisely
6 quantify the potential for such leaks to occur, their exact location or the size of such
7 leaks, any release of oil into the environment would be considered an unavoidable and
8 significant impact.

9 *Land Use, Planning, and Recreation*

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

23 *Public Services*

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

28 *Transportation and Circulation and Noise*

29 Because the PRC 421 would not be recommissioned, this alternative would avoid the
30 majority of impacts associated with production, transfer, and transport of crude oil
31 produced from PRC 421. No construction activities associated with the Project would
32 occur; therefore no related traffic and noise would be generated and there would be no
33 impact to transportation resources and noise. Traffic and noise generated from
34 decommissioning activities is unquantified and would be analyzed in a future
35 environmental document. If there was a leak from abandoned wells in the vicinity due to
36 repressurization of the Vaqueros Reservoir, both on- and off-shore traffic and noise
37 would increase during cleanup. Given uncertainty over volumes and locations of leaks,

1 it is not possible to identify traffic and noise impacts, which would likely involve a limited
2 number of auto and marine vessel trips over the short term.

3 *Aesthetic/Visual Resources*

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

18 *Cultural, Historical, and Paleontological Resources*

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

28 *Energy and Mineral Resources*

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

31 *Socioeconomics and Environmental Justice*

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

1 **5.3.3 Reinjection at Platform Holly**

2 **Description**

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

26 The following improvements would be required under this alternative:

- 27 • Installation of new decking and railings on Pier 421-2;
- 28 • Installation of a downhole ESP, stainless steel equipment enclosures, and new
29 oil separation equipment (GLCS and LLCS) on Pier 421-2;
- 30 • Installation and operation of two new 2-inch pipelines, one to transfer oil to Line
31 96 and one to transfer produced water and gas to the 4-inch utility line for
32 reinjection at Platform Holly;
- 33 • Installation of H₂S scrubbers on Platform Holly;
- 34 • Upgrades to the existing 6-inch line from Pier 421-2 to Line 96;
- 35 • Installation and operation of buried power cables to Pier 421-2 to operate the well
36 and associated control systems;
- 37 • Installation of a communication system between Well 421-2 and the EOF;

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

8 **Environmental Impact Analysis**

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

- 14 • Hazardous Materials
- 15 • Hydrology, Water Resources, and Water Quality
- 16 • Marine Biological Resources
- 17 • Land Use, Planning, and Recreation
- 18 • Aesthetic/Visual Resources

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

23 **5.3.4 Processing PRC 421 Oil at Las Flores Canyon**

24 **Description**

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

1 The pipeline from the EOF to LFC would run parallel to and north of Hwy 101 and
2 existing Line 96 along Calle Real, which traverses many private parcels. The emulsion
3 produced at PRC 421 would remain in a three-phase state (oil/gas/water) before being
4 processed at LFC. As such, the existing Line 96 pipeline could not be used to transport
5 the PRC 421 emulsion product as it would be incompatible with the processed oil
6 currently transported from the EOF to the PAAPLP Coastal Pipeline for distribution.⁴
7 This alternative would also require additional infrastructure both at PRC 421 and at LFC
8 to enable pumping of the PRC 421 emulsion product to LFC, processing of the product
9 at the LFC facility, and disposal of produced water. The following detailed description
10 was provided by Venoco in consultation with ExxonMobil due to the required
11 infrastructure needs at LFC.

12 Resuming production at PRC 421 under this alternative would entail:

- 13 • Reactivation of Pier 421-2 and Well 421-2 and installation of improvements at
14 PRC 421, including power and communication cables along the access road and
15 for communication and control systems at the EOF, similar to the Project (refer to
16 Section 2.2, Proposed Project);
- 17 • Use of chemical injection at Well 421-2 to offset the effects of cooling along the
18 pipeline route and provide pipeline corrosion protection, including installation of
19 up to four chemical injection tanks and pumps located near the wellhead;
- 20 • Decommissioning and abandonment of Pier 421-1 and Well 421-1 (refer to
21 Section 2.6, Decommissioning and Removal of Pier 421-1);⁵
- 22 • Installation of a new 3.826-inch pipeline with cathodic protection extending
23 approximately 0.5 mile between PRC 421 and the tie-in adjacent to the EOF, with
24 the existing 6-inch pipeline abandoned in place or removed;
- 25 • Installation of a new 3.826-inch pipeline with cathodic protection from the tie-in
26 south of and adjacent to the EOF extending approximately 8.4 miles parallel to
27 and north of Hwy 101 to reach LFC, and 1.3 miles north within the LFC/
28 ExxonMobil property along Corral Canyon Road to the Receiving Station at LFC;
- 29 • Construction of a new oil dehydration plant and oil and water storage tanks at
30 LFC; and
- 31 • Construction of a Class II Underground Injection well at LFC.⁶

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.



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

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

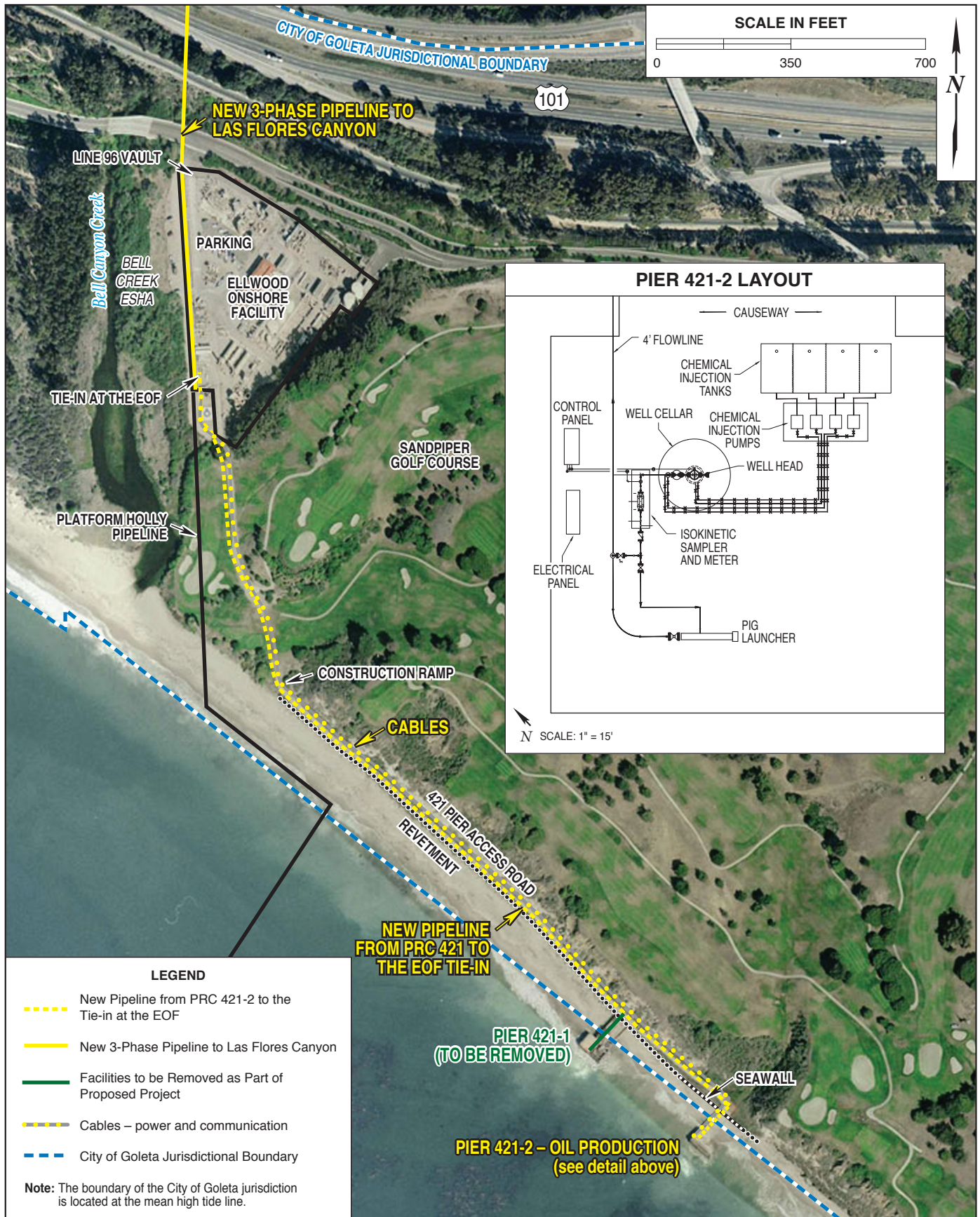
5 Well 421-2 would be returned to service as an oil production well as provided in Section
6 2.2, Proposed Project, and includes the installation of:

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

21 Under this alternative, several other modifications and additional infrastructure at Pier
22 421-2 and Well 421-2 would be required compared to the Project (Figure 5-3) and
23 include the following:

- 24 • A larger ESP would be required to be used for both drawing produced
25 oil/gas/water emulsion to the surface as well as pumping the product
26 approximately 10.2 miles from Pier 421-2 to the LFC Receiving Station.
27 Additionally, the ESP would need to operate at a higher discharge pressure of
28 approximately 700 psig, as opposed to 100 psig with the Project, in order to
29 minimize gas breakout and slugging in the pipeline.⁷ This increased pressure
30 would require an approximately 42 percent increase in brake horsepower.
31

⁷ 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]

FIGURE 5-3

- 1 • Installation of a 10-gallon isokinetic sampler and oil storage bottle adjacent to the
2 wellhead at Well 421-2 to obtain representative samples of a flowing three-phase
3 stream (i.e., oil, gas, water) to facilitate accurate analysis of the produced fluid
4 compensation prior to transportation through the new pipelines to LFC.
- 5 • Installation of a check meter to collect initial measurements of wellhead
6 production, although three-phase mode (oil, water, and gas) production would
7 limit accurate metering.
- 8 • Four chemical tanks ranging from 55 to 350 gallons with 100-percent leak
9 containment to permit injection of chemicals into produced emulsion at Well 421-
10 2 and to accommodate operation and maintenance of the new three-phase
11 pipeline. Chemical injection would help offset the effects of cooling of emulsion
12 along the pipeline route, with subsequent drop-out of asphaltines and paraffin
13 and emulsion tightening, and to provide for pipeline corrosion protection.⁸

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

- 21 • A 1,000 to 1,500-barrel cone roof breakout tank vented to a vapor recovery unit
22 (VRU) control device on Pier 421-2.
- 23 • Installation of a flare with a propane fuel supply in order to burn off the gas that is
24 separated from the emulsion.
- 25 • An oil shipping pump installed on Pier 421-2 in order to pump the remaining
26 oil/water emulsion from the breakout tank through the new pipeline to LFC.

27 *Decommissioning of Pier 421-1 and Well 421-1*

28 Once production has begun at Well 421-2 and is being processed at LFC, Well 421-1
29 would be decommissioned and Pier 421-1 would be removed, as provided in Section
30 2.6, Decommissioning and Removal of Pier 421-1, of the proposed Project. In the event
31 that produced water cannot be disposed of at LFC through the constructed Class II
32 Underground Injection well (see *Construction of a Class II Underground Injection Well at*
33 *LFC* below), produced water would be routed back to PRC 421 via another pipeline for
34 disposal at Well 421-1. If this were to occur, decommissioning would not occur and the
35 facilities at Pier 421-1 would return to service for water disposal.

⁸ Chemicals may include a scale inhibitor and emulsion breaker (both injected downhole through capillary strings); an anti-waxing agent and an emulsion breaker.

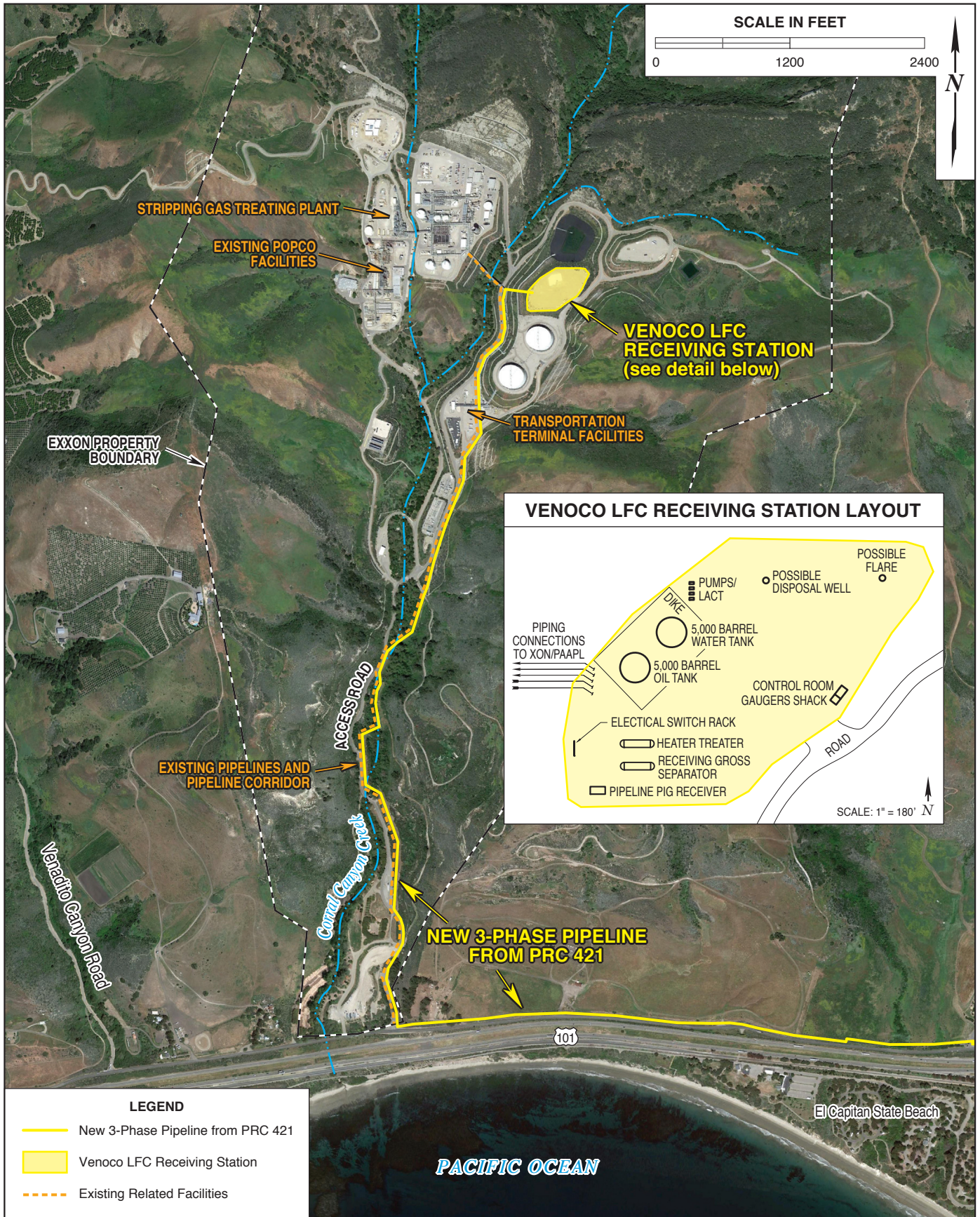
1 *Installation of a New Pipeline between PRC 421 and the Tie-in Adjacent to the EOF*

2 This alternative would require construction of a new 3.826-inch inside diameter and 4.5-
3 inch outside diameter pipeline between PRC 421 and the existing tie-in adjacent to the
4 EOF. The pipeline would need to have at least a 3.826-inch inside diameter to
5 accommodate the pressure drop at the tie-in. Upgrade, extension, and lining of the
6 existing 6-inch pipeline, as proposed under the Project, would not be sufficient since the
7 existing pipe could not reliably support a 3.826-inch lining. Additionally, use of a lining
8 between PRC 421 and the tie-in would hinder the use of cathodic protection for the
9 pipeline between the tie-in and LFC. Therefore, a new underground line would be
10 constructed along the existing access road, ~~following the route of the existing 6-inch~~
11 ~~pipeline and starting from the existing tie-in adjacent to the EOF,~~ extending past Pier
12 421-1 on to Pier 421-2. The new 3.826-inch line would be cathodically protected to
13 reduce potential pipeline corrosion.

14 *Proposed New Pipeline Route to LFC*

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

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



1 to 100 feet in width to allow for equipment access, staging, and construction activities.
2 The pipeline would be installed with a minimum of 3 feet of cover.

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

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

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

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

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.

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

8 In order to reduce potential corrosion of the pipeline, a cathodic pipeline rectifier and
9 associated anodes would be installed at the Receiving Station to provide cathodic
10 protection to the entire length of the new pipeline.¹⁰

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

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

27 The proposed pipeline to LFC would:

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

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

ID*	Location	Type of Bore	Length
1	Bell Creek	Horizontal Directional Drill	522 feet
2	Eagle Canyon Creek	Horizontal Directional Drill	808 feet
3	Dos Pueblos Creek	Horizontal Directional Drill	743 feet
4	Unnamed drainage	Horizontal Directional Drill	905 feet
5	Unnamed creek	Slick Bore	86 feet
6	Unnamed drainage	Slick Bore	322 feet

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

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

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

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

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

3 *Construction of a New Oil Dehydration Plant at LFC*

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

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

23 Oil dehydration would generate a small and widely variable produced gas stream. Gas
24 produced is expected to be sweet, with only trace amounts of H₂S. Although activation
25 of PRC 421 is expected to produce as much as 200 thousand standard cubic feet per
26 day (MSCFD), production would be variable since it is subject to significant “slug” flows
27 inherent from three-phase operation of the approximately 10.2-mile-long pipeline
28 system from PRC 421 to the Receiving Station. During the initial operation,
29 instantaneous flow rates may be higher, reaching as high as 1,500 MSCFD. A new
30 compressor would be used to compress this gas for metering into the ExxonMobil
31 produced gas stream, approximately 1,100 psig. The produced gas would be
32 transferred to the ExxonMobil gas processing facility via a new pipeline, and then
33 admitted into this system for treatment and distribution.

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.

1 The oil dehydration plant, oil storage tanks, and LACT unit, as well as any additional
2 ancillary structures would be constructed on the Receiving Station at LFC. These new
3 facilities would require a minimum of 1 to 1.5 acres. Anticipated construction activities
4 would entail operation of heavy equipment such as bulldozers, backhoes, and rollers to
5 construct new mat foundations, utility infrastructure, and support buildings for wet oil
6 processing at LFC. Additionally, new pipelines would be constructed to transfer gas and
7 processed oil to facilities within LFC. Construction activities would include potential
8 trenching for installation of below-ground pipes and drilling for construction of caissons
9 to support above-ground pipes.

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

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

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

23 In the event that the underground injection well at LFC was not approved, water would
24 be pumped back to PRC 421 for reinjection at Well 421-1. This would require that an
25 additional pipeline be constructed from LFC to PRC 421 in order to transport process
26 water approximately 10 miles back to the existing injection well on Pier 421-1. This
27 produced water pipeline would be constructed parallel to and within the same trench as
28 the new oil emulsion pipeline described above. Continued use of Well 421-1 and Pier
29 421-1 would require that these facilities remain in operation for the life of the Project and
30 would not be decommissioned.

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.

1 *Operations*

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

12 *Additional Potential Infrastructure Needs*

13 This alternative may also result in the need for additional infrastructure to support
14 increased power demand and fire protection needs associated with processing PRC
15 421 output at LFC. If additional power demand cannot be met directly by ExxonMobil,
16 this alternative may require a commitment from Pacific Gas and Electric (PG&E) and
17 possible addition of new service lines into LFC in order to meet the anticipated electrical
18 demand. Also, with the expansion of operations at LFC, additional water storage for fire
19 protection would be required onsite. Minor improvements to the existing ExxonMobil fire
20 system may be possible; however, if expansion of the existing system is not possible,
21 then construction of new water wells, pumps, and tanks, and/or new water mains to
22 connect with existing utility systems would be required.

23 **Environmental Impact Analysis**

24 *Introduction to Alternative Impact Analysis*

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

- 28 1. PRC 421 Vicinity Impacts: Construction and operation activities in the vicinity of
29 PRC 421 and the EOF, including reactivation of PRC 421-2, and construction
30 and improvements of related infrastructure;
- 31 2. EOF to LFC Pipeline Impacts: Construction and operation of the new three-
32 phase pipeline from the EOF to LFC; and
- 33 3. LFC Vicinity Impacts: Construction and operation of new facilities at LFC to
34 receive, process, and distribute production from PRC 421.

35 PRC 421 Vicinity Impacts: Under this alternative, potential impacts related to
36 construction and operation in the vicinity of PRC 421 and the EOF would be similar to

1 those identified for the Project due to the similarity of these activities to the Project,
2 including: reactivating PRC 421-2; performing upgrades to Pier 421-2 and Well 421-2;
3 installing process monitoring, facility control, and power components; installing an ESP
4 in Well 421-2; installing new infrastructure on Pier 421-2 (e.g., pig launcher, check
5 valve, safety equipment); constructing power and communication cables between Pier
6 421-2 and the EOF; and decommissioning and abandoning Pier 421-1 and Well 421-1.
7 The primary differences between the Project and this alternative involve the
8 construction of a new 3.826-inch pipeline from PRC 421-2 to the EOF (as opposed to
9 repair, extension, and lining of the existing 6-inch pipeline); installation of additional
10 infrastructure on Pier 421-2 (e.g., chemical tanks, isokenetic sampler, etc.); increased
11 size of the ESP that would be installed in Well 421-2; and transporting oil/gas/water
12 emulsion directly to LFC instead of using the EOF for processing of oil. Therefore, under
13 this alternative, impacts for construction and operation in the vicinity of PRC 421 would
14 generally be similar to the Project; however, impacts associated with use of the EOF
15 would be reduced or eliminated and impacts at PRC 421-2 would incrementally change.
16 Therefore, the analysis for this portion of the alternative relies primarily on the analysis
17 in this EIR for the Project and includes a discussion of how potential impacts would be
18 different for this alternative.

19 EOF to LFC Pipeline Impacts: Construction and operation of the proposed 8.4-mile-long
20 portion of the pipeline from the EOF to the mouth of LFC would have similar impacts to
21 construction and operation of the Line 96 Pipeline Modification Project, which was
22 completed in January 2012. The new pipeline from the EOF to LFC would primarily
23 traverse the same ROW that was analyzed for the Line 96 pipeline in the Line 96 EIR,
24 would require similar construction and operational activities, and would result in similar
25 impacts. Therefore, this analysis summarizes, expands upon as needed, and
26 incorporates by reference impacts and associated mitigation measures from the Line 96
27 EIR for the 8.4 miles of pipeline from the EOF to the mouth of LFC consistent with State
28 CEQA Guidelines section 15152. However, the proposed northern extension of this
29 pipeline that would run for 1.3 miles up LFC along Corral Canyon Road would not follow
30 a route addressed in the Line 96 EIR. Impacts associated with the LFC pipeline to the
31 Receiving Station are addressed in greater detail (see discussion for LFC below).
32 Potential adverse impacts associated with construction of the Line 96 pipeline, as
33 identified in the Line 96 EIR, are summarized in Table 5-5. Findings from the Line 96
34 EIR, including potential impacts and associated mitigation measures, are contained in
35 Appendix I. The full Line 96 EIR is available on the County of Santa Barbara's website
36 at <http://www.sbcountyplanning.org/energy/projects/VenocoLine96.asp>.
37

Table 5-5. Line 96 EIR Previously Identified Adverse Impacts Relevant to Constructing and Operating a New Pipeline to LFC

Type of Impact	Number of Impacts	Resource Areas Potentially Impacted
Class I: Significant adverse impact that remains significant after mitigation.	5	<ul style="list-style-type: none"> • Hazards and Hazardous Materials • Hydrology, Water Resources, and Water Quality • Biological Resources • Land Use, Planning, and Recreation • Public Services
Class II: Significant adverse impact that can be eliminated or reduced below an issue area's significance criteria.	17	<ul style="list-style-type: none"> • Cultural, Historical, and Paleontological Resources (5) • Geological Resources (3) • Hydrology, Water Resources, and Water Quality (2) • Biological Resources (2) • Agricultural Resources (2) • Transportation and Circulation • Noise • Aesthetics/Visual Resources
Class III: Adverse impact that does not meet or exceed an issue area's significance criteria.	16	<ul style="list-style-type: none"> • Aesthetics/Visual Resources (4) • Public Services (3) • Cultural, Historical, and Paleontological Resources (2) • Agricultural Resources (2) • Geological Resources • Air Quality • Hydrology, Water Resources, and Water Quality • Noise • Energy and Mineral Resources

Source: Line 96 Modification Project EIR

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

12 LFC Vicinity Impacts: This alternative also includes construction of new facilities within
13 LFC, including 1.3 miles of pipeline and a 1- to 1.5-acre Receiving Station. These new
14 facilities were not considered under the Project or in the Line 96 EIR. Therefore, this
15 alternative has the potential to result in additional impacts at LFC that were not
16 previously identified. Construction and operation of an oil dehydration plant with a
17 FWKO unit, heater-treater, and water polishing unit, 3,000 to 5,000 barrel oil storage
18 tank and several pipelines, a compressor station, a produced water injection well and

1 supporting facilities would all create potential impacts. Construction would require use of
2 heavy equipment and result in ground disturbance within the 1- to 1.5-acre Receiving
3 Station and along the pipeline corridors. Major construction activities at LFC, including
4 mass grading, trenching, and facility construction, as well as operations were analyzed
5 in the SYU/LFC EIR. While these documents were consulted as part of this analysis,
6 distinct impacts were identified based on the description of the alternative and existing
7 conditions at LFC.

8 Analysis of construction and operational impacts of this alternative includes transporting
9 an oil/water/gas emulsion through the new pipeline to LFC (tightlining) and produced
10 water injection at LFC. However, this analysis does not address potential impacts
11 related to additional changes that would need to occur if these elements of the
12 alternative are not possible (e.g., transporting process produced water back to PRC
13 421-1 via pipeline for injection disposal). Therefore, additional analysis would need to
14 be performed prior to implementation of this alternative if tightlining or produced water
15 injection at LFC is not possible.

16 *Geological Resources*

17 PRC 421 Vicinity Impacts: Geologic hazards related to reactivation of PRC 421-2,
18 decommissioning and removal of PRC 421-1, and installation of new power and
19 communication cables between Pier 421-2 and the EOF would be similar to the Project.
20 However, under this alternative, four chemical tanks ranging from 55 to 350 gallons and
21 an isokinetic sampler with a 10-gallon oil storage bottle would be located on Pier 421-2.
22 These new facilities would be potentially vulnerable to impacts associated with geologic
23 hazards, particularly from a seismic event. Therefore, Impacts GEO-1, GEO-3, and
24 GEO-4 would be incrementally more severe than under the Project, but they would
25 remain less than significant with inclusion of MMs GEO-1a through GEO-1d, MMs GEO-
26 2a through GEO-2c, MM GEO-3, and MMs GEO-4a through GEO-4d. Impacts GEO-2
27 and GEO-5 would remain the same as under the project at MMs GEO-2a through GEO-
28 2c would still apply. In the event that use of tightlining to transport the oil/water/gas
29 emulsion from the EOF to LFC is not possible, an additional 1,000 to 1,500-barrel
30 breakout tank, VRU control device, flare, and oil shipping pump would also be located
31 on Pier 421-2, with similar impacts and mitigation measures described above.

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

36 Although most of the proposed pipeline route would traverse gently to moderately
37 sloped terrain and follow existing roads wherever possible, it would cross steep creek
38 banks and limited human-made embankments. Use of directional drilling would

1 minimize grading of steep slopes and sedimentation of creeks and drainages. Impacts
2 under this alternative would be similar to Impact GEO-1 of the Line 96 EIR with potential
3 for ground-disturbance from pipeline construction and/or oil spill remediation to cause
4 localized slumping or erosion of unconsolidated soils. This impact would be less than
5 significant since slumping or erosion would likely be shallow and localized, and would
6 likely not affect the integrity of existing infrastructure.

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

15 As discussed in the Line 96 EIR, the proposed pipeline would be constructed in a
16 seismically active region proximate to a number of earthquake faults, but would not be
17 located within an Alquist-Priolo fault rupture hazard zone.¹³ Additionally, no known
18 active or potentially active faults trend towards or traverse the proposed pipeline
19 alignment. Under this alternative, seismic impacts would be similar to those identified
20 under Impact GEO-4 from the Line 96 EIR, and would be potentially significant, but
21 subject to feasible mitigation, including implementation of MM GEO-4a, Implementation
22 of Site-Specific Geotechnical and Seismic Studies Results, MM GEO-4b, Seismic
23 Resistant Design, and MM GEO-4c, Seismic Inspection. MMs GEO-4b and 4c from the
24 Line 96 EIR would help reduce this impact to a less than significant level. MM GEO-4a,
25 Completion of a Site-Specific Geotechnical and Seismic-Hazard Study, and
26 implementation of recommended measures, would be modified to include additional
27 study for the LFC portion of the pipeline, not previously studied and implementation of
28 all recommendations from both studies.

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

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

¹³ 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).

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

13 *Safety*

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

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

34 EOF to LFC Pipeline Impacts: A low frequency risk associated with spills of the
35 oil/water/gas/emulsion from the new EOF to LFC pipeline would be similar to but more
36 severe than Impact S-6 (see also Line 96 EIR Impact H-3) and would be considered an
37 significant and unavoidable impact. Impact severity would be incrementally increased as
38 transport of the three-phase emulsion product would prohibit use of a volumetric-based
39 leak detection system and instead rely upon low pressure leak detectors, which would

1 reduce the effectiveness of leak detention and prevention measures. Application of
2 MMs similar to HM-3 from the Line 96 EIR, which requires installation of automated
3 block valves and check valves, would reduce the severity of this impact, but would not
4 completely eliminate its potential. In addition, increased risk of fire hazards identified in
5 Impact S-8 associated with transport of the oil/water/gas emulsion to LFC would remain
6 similar to the Project, with the addition of a new smaller pipeline along the Line 96
7 corridor. This new pipelines would incrementally increase risk of fire hazards to uses
8 such as Ellwood School and residential areas. MM S-8 (Fire Prevention and
9 Suppression) would need to be modified to ensure that the existing Fire Suppression
10 and Preparedness Plan address the new EOF to LFC pipeline.

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

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

1 *Hazardous Materials*

2 PRC 421 Vicinity Impacts: Potential hazardous materials impacts in the vicinity of PRC
3 421 related to contaminated sediments along the access road at PRC 421-2 or that
4 could be released with decommissioning of PRC 421-1 would be similar to the Project
5 as described in Impacts HAZ-1 (Exposure of the Public or Environment to Hazardous
6 Materials). Application of MM HAZ-1a through HAZ-1e would apply to this Alternative
7 and would reduce impacts to a less than significant level. Impact HAZ-2 (Release of
8 Contaminated Sediment for PRC 421-2 Caisson during Project Operation) would remain
9 similar to the Project under this Alternative and application of MM GEO-4a, MM GEO-
10 4d, MM S-2a, and MM HAZ-1b would reduce this impact to less than significant.

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

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

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

1 *Air Quality and GHGs*

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

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

16 Under this alternative, potential odor impacts would be reduced in the vicinity of PRC
17 421 as oil would not be processed at the EOF and potential increased odor impacts to
18 nearby residents would be eliminated. Although minor odors associated with production
19 at PRC 421-2 and transportation from PRC 421 to LFC may occur, Impact AQ-3 would
20 remain less than significant in the PRC-421 vicinity

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

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

Table 5-6. Line 96 and EOF to LFC Pipelines Construction Emissions¹

	Annual Emissions (tons/year)				
	CO	ROC	NO _x	SO ₂	PM ₁₀
Line 96 Pipeline Construction	73.49	3.97	20.59	0.49	4.38
Exceeds Significance Threshold of 25 Tons?	N/A	No	No	No	No
New EOF to LFC Pipeline Construction	83.87	4.53	23.50	0.56	5.00
Exceeds Significance Threshold of 25 Tons?	N/A	No	No	No	No

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

1 LFC Vicinity Impacts: This alternative would create new construction emissions from
2 facility development at LFC, including trenching, grading and excavation, as well as
3 construction of new facilities, such as pipelines, storage tanks and processing
4 equipment. Because overall construction under this alternative would require more
5 construction than the Project, total construction emissions could exceed 25 tons of NO_x
6 emissions in the first year. However, compliance with Rule 804 and implementation of
7 offsets would reduce the impact to less than significant levels. For all other criteria
8 pollutants, construction emissions anticipated in Impact AQ-1 would remain well below
9 25 tons per year. MM AQ-1a and MM AQ-1b would further reduce this impact to a less
10 than significant level.

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

20 *Hydrology, Water Resources, and Water Quality*

21 PRC 421 Vicinity Impacts: Impacts to hydrology and water quality would be similar to
22 the Project, with an incremental increase associated with trenching for construction of
23 the 3.826-inch line between Pier 421-2 and the EOF, and associated temporary
24 construction impacts to marine water quality (Impact WQ-1) and wetlands (Impact WQ-
25 2) would apply. These impacts would remain less than significant with implementation of
26 MM HAZ-1a through HAZ-1d (Personnel Training, Phase I Environmental Site
27 Assessment, Sediment Sampling, Removal Action Plan, Performance Security), WQ-1a
28 (Silt Curtain), and WQ-1b (Water Quality Certification) for Impact WQ-1, and MM WQ-2
29 (Wetland Avoidance) and TBIO-1a through TBIO-1d (Locate Power Cable and Pipelines
30 Outside Wetland Areas, Project Biological Monitors, Restoration Plan, and Protect
31 Stockpiles of Excavated Material) for Impact WQ-2.

1 Impact WQ-3 (Oil Spill Impacts to Surface and Marine Water Quality) would remain
2 similar to the Project due to potential for spills from restarting Well 421-2 and from
3 transporting oil/gas/water emulsion to the EOF through a new 3.826-inch pipeline. While
4 these new facilities would have a low level of risk for leaks or rupture, they are located
5 in close proximity to the marine environment where any size spill has the potential to
6 adversely affect sensitive marine species. As result, impacts would remain significant
7 and unavoidable and MMs WQ-3a (Pipeline Monitoring) and WQ-3b (Storm Water
8 Pollution Prevention Plan) would continue to apply.

9 EOF to LFC Pipeline Impacts: The new EOF to LFC pipeline could impact onshore
10 waterways during construction (e.g., HDD), as well as during operation due to potential
11 leaks. Construction impacts under this alternative would remain similar to those
12 identified under Impact WQ-2 from the Line 96 EIR, including potential sedimentation
13 and impacts to creek water quality and downstream impacts to the marine environment.
14 Impacts would remain potentially significant and mitigation measure WQ-2a
15 (Construction Storm Water Pollution Prevention Program) from the Line 96 EIR would
16 apply. Similarly, construction related impacts to water quality from HDD for the new
17 EOF to LFC pipeline would be similar to those associated with Impact WQ-3 from the
18 Line 96 EIR, as drilling would occur in the same locations and mitigation measure WQ-
19 3b (Frack-Out Contingency Plan) would apply.¹⁴ However, based on experience with
20 installation of Line 96 (e.g., releases into Bell Canyon Creek and sensitive species
21 impacts) and other directional drilling operations, incidents of hazardous material spills
22 or environmental releases of drilling fluids are considered to be reasonably foreseeable
23 and not subject to full mitigation (see Appendix J for details of Line 96 spills). Therefore,
24 under this alternative, Impact WQ-3 would be considered significant and unavoidable
25 and MM WQ-3a would be updated to require a review of the monitoring reports from the
26 construction of Line 96 during development of the frack-out contingency plan.

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

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

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."

1 Canyon Creek and for the Receiving Station proximate to the creek could lead to
2 sedimentation and potential for polluted runoff to impact creek water quality, particularly
3 where the pipeline closely parallels and crosses the creek. These impacts would be
4 consider potentially significant, but subject to feasible mitigation through application of
5 BMPs identified in MM WQ-3b (Construction Storm Water Pollution Prevention Plan)
6 and MM MBIO-4a (Oil Spill Contingency Plan), which would reduce potential water
7 quality impacts to be less than significant.

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

17 Under this alternative, a produced water injection well would be constructed at the
18 Receiving Station in LFC and used to inject the produced water into the groundwater
19 basin. The potential depth of this well is unknown, although in order to provide
20 separation from productive groundwater resources, it is likely to be deep. The Vaqueros
21 and Sespe Formations are important aquifers underlying Corral Creek Canyon and LFC
22 with shallow alluvium also historically providing irrigation water (Science Applications,
23 Inc. 1984). While detailed information on well depth and deeper groundwater
24 characteristics are unknown, produced water injection to the groundwater under this
25 alternative may create potentially significant impacts to groundwater resources. In order
26 to mitigate such impacts, prior to construction, the Applicant would be required to
27 prepare and complete a geologic analysis of underlying geologic formations to
28 determine suitability for injection and possible impacts to groundwater resources. If
29 impacts cannot be avoided or mitigated, groundwater injection would be prohibited. In
30 the event that produced water injection at the Receiving Station is not possible, a
31 produced water pipeline would likely need to be constructed from LFC back to Pier 421-
32 1 for reinjection at Well PRC 421-1. This would require reactivation of PRC 421-1 rather
33 than decommissioning, with this facility remaining in operation for the next 20 or more
34 years.

35 *Marine Biological Resources*

36 PRC 421 Vicinity Impacts: Potential marine biological resource impacts in the vicinity of
37 PRC 421 would be similar to the Project as identified in Impacts MBIO-1 through MBIO-
38 6 related to similar surf zone construction and potential for release of hazardous
39 materials or oil during operations. Potential impacts to grunion spawning would remain

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

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

32 LFC Vicinity Impacts: Construction and operation of new oil processing facilities and the
33 proposed 1.3-mile-long pipeline in LFC would generally be well removed from the
34 marine habitats, with the Receiving Station located 1.5 miles from the shoreline.
35 However, all new LFC facilities border or are near to Corral Canyon Creek, which drains
36 to the Pacific Ocean. As such, construction and operational activities at LFC may result
37 in indirect impacts to marine biological species. During construction of the Receiving
38 Station and pipeline, trenching and excavation may expose soils to erosion and
39 operation of heavy equipment may lead to accidental spills with sediment or
40 contaminated runoff moving into Corral Canyon Creek and receiving downstream ocean
41 waters. Such impacts would be considered less than significant with inclusion of BMPs

1 for erosion control, MM WQ-3b (Storm Water Pollution Prevention Plan), and MM TBIO-
2 1d (Protect Stockpiles of Excavated Material).

3 In addition, during project operation, accidental release of oil or other materials from the
4 pipeline or Receiving Station could enter Corral Canyon Creek and potentially reach
5 receiving marine habitats. The pipeline corridor within LFC would run north along
6 Canyon Creek for 1.3 miles and cross the creek four times with most of the pipeline
7 located within 100 feet of the creek. In addition, the Receiving Station is located on a
8 bluff above the creek. Although releases or spills are a low probability, oil or other
9 released materials could be carried downstream into the marine environment. Impacts
10 to marine biological resources would be considered less than significant due to the
11 small quantities likely released, the distance from the shoreline, and the application of
12 MMs WQ-3b (Storm Water Pollution Prevention Plan), MBIO-4a (Oil Spill Contingency
13 Plan), TBIO-2a (Oil Spill Contingency Plan, Biological Resource Protection), and TBIO-
14 2b (Oil Spill Contingency Plan, Habitat Restoration)

15 *Terrestrial Biological Resources*

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

28 Operational impacts would also be similar to the Project, with potential for oil spills
29 originating from the PRC 421-2 well, caisson, or vicinity pipelines to impact terrestrial
30 biological resources; however, potential for chemicals to spill from new storage tanks on
31 PRC 421-2 could incrementally increase impact severity. Impacts would remain
32 significant and unavoidable as identified in Impact TBIO-2, with potential impacts to
33 sensitive species, such as the western snowy plover, California least tern, and sandy
34 beach tiger beetle, and sensitive coastal wetlands, such as the Devereux Slough and
35 Bell Canyon Creek Estuary in the vicinity of PRC 421. Although spills are forecast to be
36 small (e.g., 1.7 barrels), MM TBIO-2a (Oil Spill Contingency Plan, Biological Resource
37 Protection) and MM TBIO-2b (Oil Spill Contingency Plan, Habitat Restoration) would
38 serve to reduce, but not fully mitigate this impact.

1 EOF to LFC Pipeline Impacts: Impacts to terrestrial biological resources related to
2 construction, HDD, and potential leaks during operation of the EOF to LFC pipeline
3 would be similar to those identified in the Project and/ or Line 96 EIRs. Trenching,
4 grading, HDD, and installation of the EOF to LFC pipeline could impact rare, threatened,
5 or endangered species (e.g., California red legged frog, tidewater goby) through direct
6 mortality or habitat loss as described in Line 96 EIR Impacts BIO-2 (Construction
7 Impacts on Sensitive Onshore Biological Species) and BIO-3 (Construction Impacts on
8 Onshore Biological Resources, Native Habitat, Wetlands and Drainage to the Ocean).
9 Potential impacts to sensitive aquatic species and habitats from frack-outs would be of
10 particular concern. MMs BIO-2a (Native Habitat and Special Status Species Protection
11 Plan) and BIO-2b (Native Habitat Restoration Plan) from the Line 96 EIR would reduce
12 but not eliminate these impacts. Although the Line 96 EIR found that these measures
13 would fully mitigate impacts, lessons learned (i.e., frack-outs and spills) during Line 96
14 construction indicate that the potential for significant impacts would remain.

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

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

33 Construction of the Receiving Station and pipeline would entail grading, excavation, and
34 trenching primarily within disturbed areas, which could lead to soil erosion,
35 sedimentation, or accidental spills during construction which could directly or indirectly
36 impact Corral Canyon Creek. While the Receiving Station is located on a bluff above the
37 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.

1 including a 500-foot reach that supports areas of recovering riparian vegetation, as well
2 as creek-crossings at four locations. Construction in these reaches could create direct
3 and indirect impacts to the creek and sensitive resources similar to the types of impacts
4 (for other Gaviota area streams) described in Impact BIO-2 (Construction Impacts on
5 Sensitive Onshore Biological Species) and Impact BIO-3 (Construction Impacts on
6 Onshore Biological Resources, Native Habitat, Wetlands and Drainage to the Ocean) in
7 the Line 96 EIR. Given the primarily disturbed nature of these areas and the absence of
8 directional drilling, MMs BIO-2a (Native Habitat and Special Status Species Protection
9 Plan) and BIO-2b (Native Habitat Restoration Plan) from the Line 96 EIR would reduce
10 these impacts to less than significant.

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

23 *Land Use, Planning, and Recreation*

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

34 Similar to the Project, Impacts LU-2 and LU-3 would remain significant and unavoidable,
35 as recreational uses and sensitive resources could be impacted by a low probability
36 small volume oil spill from Pier 421-2 and associated pipelines. Implementation of
37 applicable MMs identified for reinforcement of caisson containment walls and
38 contingency planning and spill response in Sections 4.2, Safety (MMs S-2a, S-2b, S-3,
39 S-4a through S-4e, S-5a through S-5c, and MM HM-3 from the Line 96 EIR); 4.5,

1 Hydrology, Water Resources, and Water Quality (MMs HAZ-1a through HAZ-1d, WQ-
2 1a, WQ-1b, WQ-2, WQ-3a, WQ-3b); 4.6, Marine Biological Resources (MMs MBIO-1a,
3 HAZ-1c, HAZ-1d, MBIO-4a, and MBIO-4b); and 4.7, Terrestrial Biological Resources
4 (MMs TBIO-1a through TBIO-1f, TBIO-2a, and TBIO-2b) would reduce these potential
5 impacts, but they would remain significant and unavoidable.

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

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

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

36 *New oil and gas production from offshore reservoirs or zones shall be processed*
37 *at facilities approved for consolidated processing to the maximum extent*
38 *technically and environmentally feasible. Commingled processing shall be*
39 *required to avoid or reduce project and cumulative impacts -- considering*
40 *environmental, socioeconomic, safety, and land use concerns -- that otherwise*

1 *would result from construction and/or operation of redundant processing*
2 *capacity, redundant pipelines, or redundant ancillary facilities.*

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

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

31 *Public Services*

32 PRC 421 Vicinity Impacts: Operational impacts associated with Impact PS-1 (Adequacy
33 of Fire Response), would be similar to, but incrementally lower than the Project. While
34 demand for fire services from Station 11 in western Goleta would increase, impacts
35 would be different from the Project as oil processing would not occur at the EOF.
36 However, an additional 9.7 miles of pipeline would be installed in the Station 11 service
37 area (see discussion below). Therefore, similar to the Project, this alternative would
38 create potentially significant impacts through incremental increases in demand for fire
39 protection services in underserved western Goleta area. Application of MM PS-1

1 (Impact Development Fee) would reduce, but not eliminate this impact which would
2 remain significant and unavoidable. In addition, similar to the Project, operation of PRC
3 421 under this alternative could create similar effects to Impact PS-2 (Operation without
4 an Approved Fire Prevention Plan) which would be reduced to less than significant with
5 application of MM PS-2 (Prepare PRC 421 Fire Prevention Plan).

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

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

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

35 *Transportation and Circulation*

36 PRC 421 Vicinity Impacts: Similar to the Project, potential traffic impacts in the PRC 421
37 vicinity under this alternative would be similar to those identified in Impacts TR-1 (Route
38 Construction Traffic to Avoid Congested Intersections), TR-2 (Operation- Generated

1 Traffic), and TR-3 (Increased Potential for Traffic Accidents), with all of these impacts
2 being less than significant. Application of MMs TR-1a (Route Construction Traffic to
3 Avoid Congested Intersections) and TR-1b (Repair/ Upgrade any Damage to Access
4 Road) would further reduce Impact TR-1.

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

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

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

28 *Noise*

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

37 EOF to LFC Pipeline Impacts: Construction of the new EOF to LFC pipeline would
38 create short-term increases in noise due to operation of heavy equipment similar to

1 Impact N-1 (Noise from Pipeline Construction) from the Line 96 EIR. Application of MMs
2 N-1a (Noise Reduction Plan) and N-1b (Boring Noise Reduction Measures) would
3 reduce impacts to less than significant. Pipeline operation would generate limited noise
4 increases associated with periodic vehicle traffic, which would be infrequent with
5 negligible noise impacts.

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

16 *Aesthetics/Visual Resources*

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

31 EOF to LFC Pipeline Impacts: Visual impacts of construction of the EOF to LFC pipeline
32 would be similar to Line 96 EIR Impact VR-3 (Visual Effects from Pipeline Construction),
33 including those associated with equipment operation, VR-4 (Visual Effects from Pipeline
34 Installation), including loss of vegetation with construction, grading, excavation, and
35 vegetation removal occurring within the view corridor of Hwy 101, and VR-6 (Visual
36 Effects from Accidental Spills). Impact VR-3 would be short-term and less than
37 significant, Impact VR-4 would be less than significant with inclusion of MM VR-4
38 (Revegetation of Pipeline Right of Way), and Impact VR-6 would be less than
39 significant. Application of MMs associated with reducing oil spill risk and facilitating

1 clean up, such as MM MBIO-4a (Oil Spill Contingency Plan) and Line 96 EIR MM HM-3
2 (Automated Block Valves/ Additional Check Valves), would further reduce these
3 impacts.

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

12 *Cultural, Historical, and Paleontological Resources*

13 PRC 421 Vicinity Impacts: Ground disturbance due to pipeline construction from PRC
14 421-2 to the EOF would have the potential to adversely affect cultural resources. These
15 cultural resource impacts in the vicinity of PRC 421 under this alternative would be
16 similar to the Project. Impact CR-1 would remain less than significant with application of
17 MM CR-1 (Cultural Resources Monitor). A potential oil spill from PRC 421 facilities or
18 from the new pipeline from PRC 421-2 to the EOF could result in primary impacts to
19 undiscovered cultural resources from contamination, or secondary impacts related to
20 spill cleanup activities. An accidental oil spill from PRC 421 facilities would be similar to
21 Impact CR-2, which would remain less than significant due to small spill size and limited
22 potential for direct or indirect impacts to cultural resources.

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

36 LFC Vicinity Impacts: Construction of the new pipeline and oil processing facilities in
37 LFC may create impacts similar to Impacts CR-2 through CR-4 from the Line 96 EIR, as
38 there are multiple known archaeological sites in LFC proximate to or underlying

1 developed pads, particularly near the confluence of Las Floras and Corral Creeks and,
2 to a lesser extent, at the mouth of Corral Canyon (Science Applications, Inc. 1984).
3 Impacts to cultural resources could occur from subsurface trenching, grading, or
4 construction of concrete pads or pipeline caisson supports in areas of known
5 subsurface archaeological sensitivity, including buried archeological resources east of
6 Corral Creek and on adjacent uplands. Any ground disturbance in areas overlying
7 known archeological sites would be subject to review and approval by a qualified
8 archeologist, which may include Phase II testing and avoidance as determined
9 appropriate. Implementation of MM CR-1 (Cultural Resource Monitor) would ensure
10 construction is monitored. With this mitigation, this impact would be less than significant.

11 *Energy and Mineral Resources*

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

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

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

36 Electrical power is expected to be provided onsite by Exxon; however, if this is not
37 possible, increased demand for electric service in LFC may require obtaining power
38 from PG&E with extension of a new power line up Corral Canyon. While increased

1 power demand would not be significant, depending on design, construction of a new
2 power line may have secondary impacts (e.g., cultural resources, terrestrial biological
3 resources). Mitigation measures that require use of existing facilities, routing power
4 lines through previously disturbed areas, and performance of cultural and biological
5 resource surveys and required mitigation/avoidance would reduce secondary impacts to
6 less than significant levels.

7 *Socioeconomics and Environmental Justice*

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

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

21 LFC Vicinity Impacts: Up to a 1.5-acre oil processing facility and 1.3 miles of pipeline
22 would be developed within the 113-acre LFC consolidated oil and gas processing
23 facility, located approximately 15 miles west of the City of Santa Barbara, approximately
24 10 miles west of the City of Goleta, and 1 mile north of Hwy 101. This remote location is
25 not proximate to disadvantaged populations and construction and operation of this
26 alternative would not disproportionately affect a disadvantaged population; therefore, no
27 socioeconomic and environmental justice impacts would occur.

6.0 OTHER REQUIRED CEQA SECTIONS AND ENVIRONMENTALLY SUPERIOR ALTERNATIVE

1 As lead agency under the California Environmental Quality Act (CEQA), the California
2 State Lands Commission (CSLC) has prepared this Environmental Impact Report (EIR)
3 to evaluate the potential significant environmental effects associated with the Revised
4 PRC 421 Recommissioning Project (Project). The Project proposes to return State Oil
5 and Gas Lease PRC 421 (PRC 421) to production and process PRC 421 crude at the
6 Ellwood Onshore Facility (EOF), instead of on a shoreline pier as occurred prior to
7 1994. The State CEQA Guidelines¹ state in part that an EIR shall:

- 8 • Identify and focus on the significant environmental effects of a proposed project
9 (Guidelines § 15126.2, subd. (a));
- 10 • Describe any significant impacts, including those that can be mitigated but not
11 reduced to a level of insignificance (Guidelines § 15126.2, subd. (b));
- 12 • Identify significant irreversible environmental changes that would be caused by a
13 proposed project should it be implemented (Guidelines § 15126.2, subd. (c));
- 14 • Identify any growth-inducing impacts of a proposed project such as the ways in
15 which the proposed project could foster economic or population growth, or the
16 construction of additional housing, either directly or indirectly, in the surrounding
17 environment (Guidelines § 15126.2, subd. (d)); and
- 18 • Identify the environmentally superior alternative (Guidelines § 15126.2, subd.
19 (e)(2)).

20 These elements are discussed in Sections 6.1 through 6.4, below.

6.1 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROJECT IS IMPLEMENTED

23 Section 4.0, Environmental Impact Analysis, of this EIR focuses on the significant
24 environmental impacts anticipated as a result of the Project and identifies mitigation
25 measures to reduce impacts. State CEQA Guidelines section 15126.2, subdivision (b),
26 requires that an EIR describe any significant impacts that cannot be avoided, even with
27 the implementation of feasible mitigation measures. The majority of significant
28 unavoidable impacts (i.e., impacts that cannot be reduced to a level of insignificance)
29 associated with the proposed Project relate to accidental release of crude oil from Well
30 421-2 during extraction activities or from onshore pipelines during transport. The Project
31 would also incrementally increase the volume of oil transported through the Line 96
32 pipeline from the EOF to the Plains All American Pipeline L.P. (PAAPLP) Coastal
33 Pipeline west of Las Flores Canyon (LFC). This increase in oil shipped through this

¹ The State CEQA Guidelines are found in California Code of Regulations, Title 14, section 15000 et seq.

1 pipeline would incrementally increase the probability of spills to the environment as
 2 compared to pipeline operation without the Project. As detailed in Section 4.0, an
 3 accidental release of crude oil would result in significant impacts to:

- 4 • Safety;
- 5 • Water Quality;
- 6 • Marine and terrestrial water quality;
- 7 • Marine and terrestrial biological resources;
- 8 • Land use, planning and recreation;
- 9 • Public services; and
- 10 • Aesthetics/visual resources.

11 Table 6-1 provides a list of the Significant and Unavoidable impacts.

12 **Table 6-1. Summary of Significant and Unavoidable Impacts Due to the Project**

EIR Section	Impact No. and Impact
Safety (Section 4.2)	<ul style="list-style-type: none"> • Impact S-4: Potential for Release of Oil or Hazardous Materials from Pier 421-2 • Impact S-6: Increased Amount of Oil or Hazardous Materials Potentially Released or Fire from Oil Transfer in Line 96 • Impact S-7: Increased Processing of Oil and Gas at the EOF
Water Quality (Section 4.5)	<ul style="list-style-type: none"> • Impact WQ-3: Oil Spill Impacts to Surface and Marine Water Quality • Impact WQ-4: Cumulative Impacts to Marine Water Quality
Marine Biological Resources (Section 4.6)	<ul style="list-style-type: none"> • Impact MBIO-4: Oil Spill Impacts to Marine Resources • Impact MBIO-5: Oil Spill Impacts to Commercial and Recreational Fishing • Impact MBIO-7: Cumulative Impacts of an Oil Spill on Marine Resources
Terrestrial Biological Resources (Section 4.7)	<ul style="list-style-type: none"> • Impact TBIO-2: Oil Spill Impacts to Terrestrial Biological Resources • Impact TBIO-3: Cumulative Impacts to Terrestrial Biological Resources
Land Use, Planning, and Recreation (Section 4.8)	<ul style="list-style-type: none"> • Impact LU-1: Conflicts with Goleta General Plan/Coastal Land Use Plan and underlying Coastal Act Policies • Impact LU-2: Oil Releases Could Affect Recreational Activities • Impact LU-3: Oil Releases from Pier 421-2 or Pipelines Could Affect Sensitive Area Resources and Raise Consistency Issues with Adopted Policies • Impact LU-4: Cumulative Impacts of Potential Project-Related Oil Spills on Area Land Use and Recreational Uses
Public Services (Section 4.9)	<ul style="list-style-type: none"> • Impact PS-1: Adequacy of Fire Response
Aesthetics/Visual Resources (Section 4.12)	<ul style="list-style-type: none"> • Impact VR-2: Visual Effects from Accidental Oil Spills

13 Mitigation measures are identified that would reduce the frequency and consequences
 14 of spills; however, the inherent risk of spills to the environment as a result of the Project
 15 would not be reduced to a less than significant level. The Project as proposed would

1 also require new or upgraded support facilities to accommodate processing of PRC 421
2 oil at the EOF; however, the EOF is operating as a nonconforming use pursuant to City
3 of Goleta Municipal Code and processing at the EOF requires City approval.

4 Due to these Significant and Unavoidable impacts, CSLC approval of the Project would
5 require a Statement of Overriding Considerations prepared by CSLC, stating the
6 specific reasons to support its action, in compliance with section 15093 of the State
7 CEQA Guidelines.

8 **6.2 SIGNIFICANT IRREVERSIBLE CHANGES WHICH WOULD BE CAUSED BY**
9 **THE PROJECT SHOULD IT BE IMPLEMENTED**

10 State CEQA Guidelines section 15126.2, subdivision (c), states that significant
11 irreversible environmental changes that would be involved with a proposed project may
12 include the following:

- 13 • Uses of non-renewable resources during the initial and continued phases of the
14 project, which would be irreversible because a large commitment of such
15 resources makes removal or non-use thereafter unlikely;
- 16 • Primary impacts and, particularly, secondary impacts which commit future
17 generations to similar uses; and
- 18 • Irreversible damage, which may result from environmental accidents associated
19 with the project.

20 The purpose of the Project is to resume the extraction of crude oil and a limited amount
21 of gas by returning PRC 421 to production by improving existing infrastructure. Thus,
22 the Project, by definition, involves development of and production from non-renewable
23 resources. Implementation of the Project would also involve the consumption of some
24 non-renewable and locally limited natural resources (i.e., fossil fuels consumed remotely
25 to supply Project energy consumption). However, the Project's main goal is to
26 accommodate development of non-renewable oil resources through existing
27 infrastructure. In the context of local, regional, and global energy production and
28 consumption, the proposed use and production of non-renewable fossil fuels associated
29 with the Project would not be considered a large commitment for the use of such
30 resources, but would incrementally contribute to the continued use of and reliance upon
31 such non-renewable resources. No new facilities are proposed. Modifications to existing
32 Well 421-2 and improvements to supporting equipment including the pipeline that
33 connects PRC 421 to the EOF are proposed. However, these modifications would allow
34 extraction at PRC 421, which is an action that is consistent with historical production
35 from this facility. As such, no large-scale new impacts associated with the Project
36 commit future generations to similar uses; the facilities and uses already exist.

1 Finally, while the Project would only contribute a minor increase in oil production and
2 consumption, it would continue the trend of reliance on non-renewable fossil fuel
3 consumption with the Project's contribution to associated local and larger scale
4 environmental impacts, such as global warming as discussed in Air Quality and
5 Greenhouse Gases (Section 4.4).

6 The Project could result in oil spills that have the potential to create irreversible impacts
7 to environmental resources. Potential impacts can be reduced through use of adequate
8 design and operating procedures and effective emergency response plans specifying
9 staffing and equipment needs. However, the potential remains for significant impacts as
10 a result of a Project-related oil spill.

11 **6.3 GROWTH-INDUCING IMPACT OF THE PROPOSED PROJECT**

12 State CEQA Guidelines section 15126.2, subdivision (d), states that growth-inducing
13 impacts of the proposed Project must be discussed in the EIR. In general terms, a
14 project may induce spatial, economic, or population growth in a geographic area if it
15 meets any one of the four criteria identified below:

- 16 • Removal of an impediment to growth (e.g., establishment of an essential public
17 service or the provisions of new access to an area);
- 18 • Economic expansion or growth (e.g., changes in revenue base or employment
19 expansion);
- 20 • Establishment of a precedent-setting action (e.g., an innovation, a change in
21 zoning, or general plan amendment approval); or
- 22 • Development or encroachment in an isolated area or one adjacent to open space
23 (i.e., being different from an "infill" type of project).

24 Should a project meet any one of the criteria listed above, it can be considered growth
25 inducing. The impacts of the proposed Project are evaluated below with regard to these
26 four growth-inducing criteria.

27 The Project would not remove an impediment to growth or result in the establishment of
28 an essential public service, and it would not provide new access to an area previously
29 inaccessible. The Project would not result in increased employment in the area. No
30 increase in personnel is proposed as part of the Project. The operational activities would
31 result in an increase in the revenue base for the State of California and the Santa
32 Barbara County via oil and gas royalties sharing. However, economic growth associated
33 with the Project is not considered to be significant.

34 The Project would not establish a precedent-setting action that could lead to growth nor
35 would it develop or encroach in an isolated area or one adjacent to open space. The
36 piers at PRC 421, originally constructed in 1928, are a legal non-conforming use. The

1 wells on the piers are located below the mean-high-tide line and consequently are under
2 the jurisdiction of the CSLC; therefore, City of Goleta or Santa Barbara County zoning
3 designations do not apply. Development of open space is considered growth-inducing
4 when it encroaches upon urban-rural interfaces or in isolated localities. All surface
5 Project activities would be limited to the footprint of existing developed facilities.
6 However, should the project be permitted to use processing at the EOF, the policy
7 modifications required to accommodate this option may also be viewed as an
8 adjustment to recent policy direction. Thus, this action may have limited potential to
9 establish or reverse precedents and possibly require amendments to or revised
10 interpretations of general plan policies and zoning ordinance provisions. However, the
11 proposed Project would not foster economic or population growth, or the construction of
12 additional housing in the surrounding environment. Accordingly, the Project is not
13 considered to be growth-inducing.

14 **6.4 COMPARISON OF PROPOSED PROJECT AND ALTERNATIVES AND** 15 **ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

16 State CEQA Guidelines section 15126.6, subdivision (e)(2), states, in part, that an EIR
17 shall identify an environmentally superior alternative among the other alternatives “*if the*
18 *environmentally superior alternative is the ‘No Project’ alternative*” (emphasis added).
19 Table 6-2 compares the proposed Project impacts with those of the alternatives. In
20 addition, Table 6-3 provides a summary of additional environmental impacts for the
21 Processing PRC 421 Oil at Las Flores Canyon Alternative that are beyond the scope of
22 impacts relative to the Project and other alternatives. Based on the analysis contained
23 within the EIR, the CSLC has determined that the proposed Project is the
24 Environmentally Superior Alternative.

25 **6.4.1 Proposed Project**

26 Under the proposed Project, Well 421-2 would be recommissioned and the water and
27 gas from crude oil emulsion extracted from Well 421-2 would be transported to the EOF
28 for processing. Venoco would decommission Well 421-1 and would remove Pier 421-1
29 and the caisson and facilities that support Well 421-1. This alternative would require no
30 processing or separation equipment to be installed at Pier 421-2.

31 Similar to the No Project Alternative, under which PRC 421 would return to production
32 with processing on Pier 421-2 as it occurred prior to 1994, the proposed Project would
33 address the potential, significant risk associated with the potential for repressurization of
34 the Vaqueros Reservoir to cause releases of oil at the sites of historic subsea wells,
35 which were abandoned under antiquated standards, or from a natural seep (see Section
36 4.2.1, Safety, for a discussion of reservoir repressurization). With the PRC 421 wells
37 currently shut in, CSLC staff engineers are unable to pressure test the reservoir (a
38 process that requires temporary oil production). Because the reduction of reservoir

1 pressure and processing of 421 oil onshore instead of over water would reduce the risk
2 of oil spills in the ocean and surf zone, and because decommissioning of Well 421-1
3 and removal of its associated pier would improve aesthetics/visual resources and
4 enhance public access, the proposed Project is environmentally superior compared to
5 the alternatives discussed below.

6 **6.4.2 No Project Alternative**

7 This alternative would have greater environmental impacts when compared to the
8 proposed Project, as oil produced from PRC 421 would be processed in the shore zone
9 on Pier 421-2 instead of at the EOF, thus resulting in greater environmental impacts
10 related to surf zone accidental spills. Further, under this alternative, Pier 421-1 would
11 not be removed and the well on Pier 421-1 would be returned to service as a water and
12 gas injection well using existing injection equipment to reinject and dispose of water and
13 gas that are separated from the gross fluid produced out of Well 421-2. This alternative
14 would result in fewer environmental benefits related to aesthetics when compared to the
15 proposed Project, as Pier 421-1 would not be removed. Impacts to Marine Biology,
16 Water Quality, Safety, and Land Use, Planning and Recreation would remain significant
17 with this alternative, and would be substantially increased in severity due to the location
18 of the separation-processing component of the Project in a vulnerable location in the
19 shore zone environment where it would be exposed to wave action and other potentially
20 damaging conditions.

21 By retaining the separation process at Pier 421-2 rather than moving it to the EOF as
22 proposed, this alternative would increase activity and equipment required on Pier 421-2
23 and would result in the potential for releases from separation equipment on the pier.
24 While the amount of oil that could be released is relatively small, the creation of this
25 potential hazard is important given the immediate proximity of highly sensitive coastal
26 resources such as Tecolote Creek, Devereux Slough, nearby kelp beds, and
27 recreational uses. This alternative would also be less consistent with adopted City of
28 Goleta land use policy as it would result in separation or processing of oil in the surf
29 zone. Because processing would occur on Pier 421-2, there would be an increased risk
30 of an oil spill in the surf zone and this alternative would not substantially reduce or avoid
31 any of the impacts identified for the proposed Project. Furthermore, Pier 421-1 would
32 not be removed and Well 421-1 decommissioned. Therefore, this alternative would not
33 be environmentally superior to the proposed Project.

34 **6.4.3 No Production/Quitclaim State Oil and Gas Lease PRC 421 Alternative**

35 This alternative would avoid all Project-related construction and operational impacts
36 compared to the proposed Project. However, this alternative is not environmentally
37 superior because of the potential, significant risk that oil may be released into the

1 coastal environment under the conditions stated below (see the reservoir
2 repressurization discussion in Section 4.2.1, Safety).

- 3 • The PRC 421 wells are immediately and permanently shut in. Prior to
4 abandonment of the wells, CSLC reservoir engineers do not pressure test the
5 reservoir (a process that requires temporary oil production).
- 6 • The PRC 421 reservoir repressurizes over time.
- 7 • Reservoir pressurization causes oil to leak at the sites of historic wells
8 abandoned under antiquated standards or from a natural seep.

9 **6.4.4 Reinjection at Platform Holly Alternative**

10 The Reinjection at Platform Holly Alternative is essentially the same as the No Project
11 Alternative described above with the only difference being that produced water would
12 not be injected in Well 421-1, but piped to Platform Holly for reinjection. Similar to the
13 proposed Project, Pier 421-1 would be decommissioned since the well would not be
14 used for water injection. Because processing would still occur on Pier 421-2, there
15 would be a continued risk of an oil spill in the surf zone and this alternative would not
16 substantially reduce or avoid any of the impacts identified for the proposed Project;
17 therefore, similar to the alternative above, this alternative would not be environmentally
18 superior to the proposed Project.

19 **6.4.5 Processing PRC 421 Oil at Las Flores Canyon Alternative**

20 This alternative would have greater environmental impacts when compared to the
21 proposed Project due to construction and operation of 9.7 miles of new pipeline from the
22 EOF to the Receiving Station in LFC. In addition, construction and operation of up to 1.5
23 acres of new oil processing facilities at LFC would be required and would result in
24 additional environmental impacts. While the construction-related impacts for the new
25 pipeline and processing facility would be short term, they would be substantially more
26 severe compared to the limited construction impacts associated with the Project.

27 Under this Alternative, potential operational impacts would also incrementally increase.
28 The new pipeline system would require the use of three-phase operation (i.e.,
29 oil/gas/water emulsion). This would require a pressure-based, rather than volumetric,
30 leak detection system, which would in turn decrease leak detection capabilities and
31 increase the probability of a larger-sized spill if the pipeline ruptured or leaked.
32 Additionally, operation of new facilities at LFC would introduce potential impacts
33 associated with spills or releases from the 1.3-mile-long portion of pipeline and new
34 processing facility in LFC into and along Corral Canyon Creek that would not occur
35 under the proposed Project.

1 The potential for a release of oil or hazardous materials from Pier 421-2 would be
2 similar to the Project and would remain significant and unavoidable since this alternative
3 would still entail production of oil at this location; however, potential impacts would be
4 incrementally increased due to the presence of four chemical tanks ranging from 55 to
5 350 gallons being present on Pier 421-2 as such tanks could be damaged or subject to
6 other causes of leaks. The Project-related significant and unavoidable impacts
7 associated with operation of Line 96 would be similar to operation of the new three-
8 phase pipeline and oil processing facility at LFC. However, these risks would be greater
9 than they would be for operation of Line 96 since the leak detection system would not
10 be as reliable for three-phase pipeline operation. Although this alternative would reduce
11 the risk of an environmental release or fire related to increased processing at the EOF,
12 the addition of new facilities at LFC would result in increased risk of an environmental
13 release or fire at this location.

14 Impacts to Safety, Water Quality, Marine Biology, Terrestrial Biology, Public Services,
15 Aesthetic/Visual Resources, and Land Use, Planning and Recreation would remain
16 significant and unavoidable under this alternative. These impacts are mostly related to
17 the potential of an environmental release of oil or hazardous materials during operation
18 and the resulting impacts to the environment. These potential impacts would be more
19 severe due to the increased risk of an environmental release under this alternative and
20 the increased area in which such a release could occur. Construction of this alternative
21 also has the potential to result in additional significant and unavoidable impacts to water
22 quality and to marine and terrestrial biological resources due to a release of drilling
23 fluids during horizontal directional drilling for construction of the new EOF to LFC
24 pipeline. The addition of new facilities in an area that is underserved for fire protection
25 would continue to result in a significant and unavoidable impact; however, the impact
26 under this alternative would be greater since there would be additional facilities
27 constructed within the fire service area. By moving oil processing from the EOF to LFC,
28 this alternative would increase Land Use impacts related to use of redundant facilities
29 and potential exposure of Corral Canyon Creek and other Gaviota area streams to
30 increased risk of spills more severe than under the Project. In addition, while Land Use
31 impacts related to expanding processing of oil at the EOF and conflicts with the City's
32 General Plan Policy LU 10.1 would be reduced, recommissioning oil production at PRC
33 421 and potential impacts to coastal waters would result in continued inconsistencies
34 with LU 10.4 and this impact would remain significant and unavoidable under this
35 alternative. Because this alternative would introduce new environmental impacts and
36 increase the severity of others, and result in many similar significant and unavoidable
37 impacts to those that would occur under the proposed Project, this alternative would not
38 be environmentally superior to the proposed Project.

Table 6-2. Summary of Environmental Impacts for Proposed Project and Alternatives

Impact	Impact Class ²				
	Proposed Project	No Project	Quitclaim Alternative	Reinjection at Platform Holly	Processing PRC 421 Oil at LFC ³
Section 4.1 Geological Resources					
GEO-1: Seismic and Seismically Induced Hazards	LTSM	LTSM	NI	LTSM	LTSM
GEO-2: Landslide and Slope Failure	LTSM	LTSM	NI	LTSM	LTSM
GEO-3: Soil Settlement and Liquefaction	LTSM	LTSM	NI	LTSM	LTSM
GEO-4: Corrosion, Weathering, and Erosion	LTSM	LTSM	NI	LTSM	LTSM
GEO-5: Erosion-Induced Siltation	LTS	LTS	NI	LTS	LTS
Section 4.2 Safety					
S-1: Release of Oil During Cleanup of 6-inch Pipeline	LTS	LTS	NI	LTS	NI
S-2: Exposure of the Public and Environment to Safety Hazards Due to Collapse of the 421-1 or 421-2 Caissons	LTSM	LTSM	NI	LTSM	LTSM
S-3: Exposure of the Public and Environment to Safety Hazards Due to Collapse of or Damage to the Existing Timber Bulkhead or Rip-Rap Seawall	LTSM	LTSM	NI	LTSM	LTSM
S-4: Potential for Release of Oil or Hazardous Materials from Pier 421-2	SU	SU	SU	SU	SU
S-5: Potential for Release of Oil or Hazardous Materials From the Crude Oil Flowline	LTSM	LTSM	NI	LTSM	LTSM
S-6: Increased Amount of Oil or Hazardous Materials Potentially Released or Fire/Explosion from Oil Transfer in Line 96	SU	SU	NI	SU	NI
S-7: Increased Processing of Oil and Gas at the EOF	SU	NI	NI	NI	NI
S-8: Increased Risk of Fire	LTSM	LTSM	NI	LTSM	LTSM
S-9: Repressurization Monitoring	B	B	SU	B	B
Section 4.3 Hazardous Materials					
HAZ-1: Exposure of Public or Environment to Hazardous Materials	LTSM	LTSM	SU	LTSM	LTSM
HAZ-2: Release of Contaminated Sediment from the Caisson on Pier 421-2 during Operation of the Project	LTSM	LTSM	NI	LTSM	LTSM

² Impact Class: SU = Significant and unavoidable; LTSM = Less than significant with mitigation; LTS = Less than significant; NI = No impact; B = Beneficial

³ For the full range of impacts associated with this alternative, see also Table 6-3.

Table 6-2. Summary of Environmental Impacts for Proposed Project and Alternatives

Impact	Impact Class ²				
	Proposed Project	No Project	Quitclaim Alternative	Reinjection at Platform Holly	Processing PRC 421 Oil at LFC ³
Section 4.4 Air Quality and Greenhouse Gases					
AQ-1: Increase in Emissions from Construction	LTS	LTS	NI	LTS	LTS
AQ-2: Increase in Emissions from Operations	LTS	LTS	NI	LTS	LTS
AQ-3: Odor Emissions from Operation	LTS	LTS	NI	LTS	LTS
AQ-4: Project Would Result in a Net Increase in GHG Emissions	LTSM	LTSM	NI	LTSM	LTSM
AQ-5: Project Would Contribute to Cumulative Air Quality Impacts	LTS	LTS	NI	LTS	LTS
Section 4.5 Hydrology, Water Resources, and Water Quality					
WQ-1: Temporary Construction Impacts to Marine Water Quality	LTSM	LTSM	NI	LTSM	LTSM
WQ-2: Temporary Construction Impacts to Wetlands	LTSM	LTSM	NI	LTSM	LTSM
WQ-3: Oil Spill Impacts to Surface and Marine Water Quality	SU	SU	SU	SU	SU
WQ-4: Cumulative Impacts to Marine Water Quality	SU	SU	SU	SU	SU
Section 4.6 Marine Biological Resources					
MBIO-1: Disturbance to Intertidal Organisms during Construction	LTSM	LTSM	NI	LTSM	LTSM
MBIO-2: Impacts to Marine Organisms from Sediment Resuspension in the Near-Shore Zone due to Disturbance of Sediments during Caisson Repairs	LTSM	LTSM	NI	LTSM	LTSM
MBIO-3: Noise Impacts to Marine Life during Caisson Repairs on Pier 421-2 and Decommissioning and Removal of Pier 421-1	LTS	LTS	NI	LTS	LTS
MBIO-4: Oil Spill Impacts to Marine Resources	SU	SU	SU	SU	SU
MBIO-5: Oil Spill Impacts to Commercial and Recreational Fishing	SU	SU	SU	SU	SU
MBIO-6: Impacts to Kelp Harvesting	LTS	LTS	NI	LTS	LTS
MBIO-7: Cumulative Impacts of an Oil Spill on Marine Resources	SU	SU	SU	SU	SU
Section 4.7 Terrestrial Biological Resources					
TBIO-1: Short-Term Construction Impacts to Biological Resources	LTSM	LTSM	NI	LTSM	LTSM
TBIO-2: Oil Spill Impacts to Terrestrial Biological Resources	SU	SU	SU	SU	SU
TBIO-3: Cumulative Impacts to Terrestrial Biological Resources	SU	SU	SU	SU	SU
Section 4.8 Land Use, Planning, and Recreation					
LU-1: Potential Conflicts with Goleta General Plan/Coastal Land Use Plan (GP/CLUP) and underlying Coastal Act Policies.	SU	SU	B	SU	SU

Table 6-2. Summary of Environmental Impacts for Proposed Project and Alternatives

Impact	Impact Class ²				
	Proposed Project	No Project	Quitclaim Alternative	Reinjection at Platform Holly	Processing PRC 421 Oil at LFC ³
LU-2: Oil Releases Could Affect Recreational Activities	SU	SU	SU	SU	SU
LU-3: Oil Releases from Pier 421-2 or Pipelines Could Affect Sensitive Area Resources and Raise Consistency Issues with Adopted Policies	SU	SU	SU	SU	SU
LU-4: Cumulative Impacts of Potential Project-Related Oil Spills on Area Land Use and Recreational Uses	SU	SU	SU	SU	SU
Section 4.9 Public Services					
PS-1: Adequacy of Fire Response	SU	SU	NI	SU	SU
PS-2: Operation without an Approved Fire Prevention Plan	LTSM	LTSM	NI	LTSM	LTSM
Section 4.10 Transportation and Circulation					
TR-1: Construction-Generated Traffic	LTSM	LTSM	NI	LTSM	LTSM
TR-2: Operation-Generated Traffic	LTS	LTS	NI	LTS	LTS
TR-3: Increased Potential for Traffic Accidents	LTS	LTS	NI	LTS	LTS
Section 4.11 Noise					
NZ-1: Construction Impacts to Beach Users and Golfers	LTS	LTS	NI	LTS	LTS
NZ-2: Operational Impacts to Beach Users and Golfers	LTS	LTS	NI	LTS	LTS
Section 4.12 Aesthetics/Visual Resources					
VR-1: Visual Effects from Construction Activities at PRC 421	LTSM	LTSM	NI	LTSM	LTSM
VR-2: Visual Effects from Accidental Oil Spills	SU	SU	SU	SU	SU
VR-3: Visual Improvements due to Removal of Pier 421-1	B	NI	NI	B	B
VR-4: Visual Changes to Pier 421-2	LTS	LTS	NI	LTS	LTS
Section 4.13 Cultural, Historical, and Paleontological Resources					
CR-1: Potential Impacts to Previously Undiscovered Cultural Resources During Construction	LTSM	LTSM	NI	LTSM	LTSM
CR-2: Potential Impacts to Cultural Resources Due to Oil Spill and Cleanup Activities	LTS	LTS	LTS	LTS	LTS
Section 4.14 Energy Mineral Resources					
EMR-1: Increase in Electricity Use	LTS	LTS	NI	LTS	LTS
EMR-2: Conflict with State-Adopted Energy Conservation Plans	LTS	LTS	NI	LTS	LTS

Table 6-3. Summary of Environmental Impacts for the Processing PRC 421 Oil at LFC Alternative that are Not Applicable to the Proposed Project or other Alternatives⁴

Impact	LFC Alternative Components	
	EOF to LFC Pipeline	LFC Facility
PRC 421 EIR Section 4.1 Geological Resources		
Similar to Line 96 GEO-1 (Slope Failures)	LTS	-
Similar to Line 96 GEO-2 (Erosion of Drainages)	LTSM	-
Similar to Line 96 GEO-3 (Expansive Soils)	LTSM	-
Similar to Line 96 GEO-4 (Faulting and Seismicity)	LTSM	-
Exposure of New Facilities to Seismic Hazards	-	LTSM
Exposure of New Facilities to Landslide and Slope Failure	-	LTSM
Exposure of New Facilities to Soil Settlement and Liquefaction	-	LTSM
Exposure of Soils to Erosion	-	LTSM
PRC 421 EIR Section 4.2 Safety		
Similar to Impact S-6 from this Revised Draft EIR (above) and to Line 96 H-3 (Pipeline Spill Impacts to the Environment)	SU	-
Potential for Release of Oil or Hazardous Materials from LFC Facilities	-	SU
Increased Risk of Fire	-	LTSM
PRC 421 EIR Section 4.3 Hazardous Materials		
Similar to Line 96 WQ-2 (Construction Impact to Waterways; also included in Water Quality)	LTSM	-
Exposure of Public or Environment to Hazardous Materials	-	LTSM
PRC 421 EIR Section 4.4 Air Quality and Greenhouse Gases		
Similar to Line 96 AQ-1 (Construction Emissions)	LTS	-
Increase in Emissions from Construction	-	LTSM
Increase in Emissions from Operations	LTS	LTS
Net Increase in GHG Emissions	LTSM	LTSM
PRC 421 EIR Section 4.5 Hydrology, Water Resources, and Water Quality		
Similar to Line 96 WQ-2 (Construction Impact to Waterways)	LTSM	-
Similar to Line 96 WQ-3 (Horizontal Directional Drilling Impacts to Onshore Waterways)	SU	-

⁴ This table summarizes impacts identified in the 2011 Line 96 EIR (as applicable) and analysis performed in this EIR of potential impacts at Las Flores Canyon associated with the Processing PRC 421 Oil at LFC Alternative.

Table 6-3. Summary of Environmental Impacts for the Processing PRC 421 Oil at LFC Alternative that are Not Applicable to the Proposed Project or other Alternatives⁴

Impact	LFC Alternative Components	
	EOF to LFC Pipeline	LFC Facility
Similar to Line 96 WQ-4 (Impacts to Onshore Waterways from Potential Facilities Leaks)	SU	-
Construction Impacts to Water Quality	-	LTSM
Operational Impacts to Water Quality	-	SU
Wastewater Injection Impacts to Groundwater Quality	-	LTSM
PRC 421 EIR Section 4.6 Marine Biological Resources		
Similar to Line 96 BIO-2 (Construction Impacts to Sensitive Species)	SU	-
Similar to Line 96 BIO-3 (Construction Impacts to Native Habitats)	SU	-
Similar to Line 96 BIO-4 (Oil Spill Impacts to Biological Resources)	SU	-
Construction Impacts to Marine Biological Resources	-	LTSM
Operational Impacts to Marine Biological Resources	-	LTSM
PRC 421 EIR Section 4.7 Terrestrial Biological Resources		
Similar to Line 96 BIO-2 (Construction Impacts to Sensitive Species)	SU	-
Similar to Line 96 BIO-3 (Construction Impacts to Native Habitats)	SU	-
Similar to Line 96 BIO-4 (Oil Spill Impacts to Biological Resources)	SU	-
Construction Impacts to Sensitive Species and Native Habitats	-	LTSM
Oil Spill Impacts to Biological Resources	-	SU
PRC 421 EIR Section 4.8 Land Use, Planning, and Recreation		
Oil Releases Could Affect Recreational Activities (not included in Line 96 EIR)	SU	-
Similar to Line 96 AG-1 (Loss of Resources, Construction and Soil Disturbance)	LTSM	-
Similar to Line 96 AG-2 (Restoration after a Leak/Spill)	LTSM	-
Similar to Line 96 AG-3 (Loss of Prime Agricultural Land)	LTS	-
Similar to Line 96 AG-4 (Loss of Organic Cultural Land)	LTS	-
Potential Conflicts with Coastal Land Use Plan and underlying Coastal Act Policies	-	SU
Oil Releases Could Affect Recreational Activities	-	SU
PRC 421 EIR Section 4.9 Public Services		
Similar to Line 96 PS-1 (Adequacy of Fire Response)	SU	-
Similar to Line 96 PS-2 (Impacts on Water Utility Sewer)	LTS	-

Table 6-3. Summary of Environmental Impacts for the Processing PRC 421 Oil at LFC Alternative that are Not Applicable to the Proposed Project or other Alternatives⁴

Impact	LFC Alternative Components	
	EOF to LFC Pipeline	LFC Facility
Similar to Line 96 PS-3 (Impacts on Sewer)	LTS	-
Similar to Line 96 PS-4 (Impacts on Solid Waste Facilities)	LTS	-
Adequacy of Fire Response	-	SU
Expansion of Onsite Fire Protection Infrastructure	-	LTS
PRC 421 EIR Section 4.10 Transportation and Circulation		
Similar to Line 96 T-1 (Increased Construction Traffic)	LTSM	-
Construction-Generated Traffic	-	LTSM
Operation-Generated Traffic	-	LTS
PRC 421 EIR Section 4.11 Noise		
Similar to Line 96 N-1 (Noise from Pipeline Construction)	LTSM	-
Noise from Construction	-	LTSM
Noise from Operation	-	LTS
PRC 421 EIR Section 4.12 Aesthetics/Visual Resources		
Similar to Line 96 VR-3 (Visual Effects from Pipeline Construction)	LTS	-
Similar to Line 96 VR-4 (Visual Effects of Pipeline Installation)	LTSM	-
Similar to Line 96 VR-6 (Visual Effects from Accidental Oil Spills)	LTS	-
Visual Effects from Construction and Operation	-	LTS
PRC 421 EIR Section 4.13 Cultural, Historical, and Paleontological Resources		
Similar to Line 96 CR-2 (Construction at CA-SBA-139)	LTSM	-
Similar to Line 96 CR-3 (Construction Access to CA-SBA-139)	LTSM	-
Similar to Line 96 CR-4 (Construction Access to CA-SBA-83, CA-SBA-1676, and CA-SBA-1733)	LTSM	-
Similar to Line 96 CR-5 (Oil Spill Impacts)	LTSM	-
Potential Construction Impacts to Cultural Resources	-	LTSM
PRC 421 EIR Section 4.14 Energy Mineral Resources		
Similar to Line 96 EMR-1 (Electricity Use)	LTS	-
Increased Energy Use During Construction and Operation	-	LTS
Potential Construction of New Power Lines	-	LTSM

7.0 MITIGATION MONITORING PROGRAM

1 As the Lead Agency under the California Environmental Quality Act (CEQA), the
2 California State Lands Commission (CSLC) is required to adopt a program for reporting
3 or monitoring regarding the implementation of mitigation measures for the Revised PRC
4 421 Recommissioning Project, if it is approved, to ensure that the adopted mitigation
5 measures are implemented as defined in this Environmental Impact Report (EIR). This
6 Lead Agency responsibility originates in Public Resources Code section 21081.6,
7 subdivision (a) (Findings), and the State Guidelines for Implementing CEQA sections
8 15091, subdivision (d) (Findings), and 15097 (Mitigation Monitoring or Reporting).

9 7.1 MONITORING AUTHORITY

10 The purpose of a Mitigation Monitoring Program (MMP) is to ensure that measures
11 adopted to mitigate or avoid significant impacts are implemented. A MMP can be a
12 working guide to facilitate not only the implementation of mitigation measures by the
13 Project proponent, but also the monitoring, compliance and reporting activities of the
14 CSLC and any monitors it may designate.

15 The CSLC may delegate duties and responsibilities for monitoring to other
16 environmental monitors or consultants as deemed necessary, and some monitoring
17 responsibilities may be assumed by responsible agencies, such as affected jurisdictions
18 and cities, and the California Department of Fish and Wildlife (CDFW). The number of
19 construction monitors assigned to the project will depend on the number of concurrent
20 construction activities and their locations. The CSLC or its designee(s), however, will
21 ensure that each person delegated any duties or responsibilities is qualified to monitor
22 compliance.

23 Any mitigation measure study or plan that requires the approval of the CSLC must allow
24 at least 60 days for adequate review time. When a mitigation measure requires that a
25 mitigation program be developed during the design phase of the project, the Applicant
26 must submit the final program to the CSLC for review and approval at least 60 days
27 before construction begins. Other agencies and jurisdictions may require additional
28 review time. It is the responsibility of the environmental monitor assigned to the
29 installation or implementation of the project or a project component (e.g., a pipeline
30 “spread” [the equipment and crew needed to build a section of pipeline]) to ensure that
31 appropriate agency reviews and approvals are obtained.

32 The CSLC or its designee will also ensure that any deviation from the procedures identified
33 under the monitoring program is approved by the CSLC. Any deviation and its correction
34 shall be reported immediately to the CSLC or its designee by the environmental
35 monitor.

1 **7.2 ENFORCEMENT RESPONSIBILITY**

2 The CSLC, as lead agency, is responsible for enforcing the procedures adopted for
3 monitoring through the environmental monitor. Any assigned environmental monitor
4 shall note problems with monitoring, notify appropriate agencies or individuals about
5 any problems, and report the problems to the CSLC or its designee.

6 **7.3 MITIGATION COMPLIANCE RESPONSIBILITY**

7 Venoco is responsible for successfully implementing all the mitigation measures in the
8 MMP, and shall ensure that these requirements are met by all of its construction
9 contractors and field personnel. Standards for successful mitigation also are implicit in
10 many mitigation measures that include such requirements as obtaining permits or
11 avoiding a specific impact entirely. Other mitigation measures include detailed success
12 criteria. Additional mitigation success thresholds may be established by applicable
13 agencies with jurisdiction through the permit process and through the review and
14 approval of specific plans for the implementation of mitigation measures.

15 **7.4 GENERAL MONITORING PROCEDURES**

16 **Environmental Monitors**

17 Many of the monitoring procedures will be conducted during the construction phase of
18 the project. The CSLC and the environmental monitor(s) are responsible for integrating
19 the mitigation monitoring procedures into the construction process in coordination with
20 the Applicant. To oversee the monitoring procedures and to ensure success, the
21 environmental monitor must be on site during that portion of construction that has the
22 potential to create a significant environmental impact or other impact for which
23 mitigation is required. The environmental monitor is responsible for ensuring that all
24 procedures specified in the monitoring program are followed.

25 **General Reporting Procedures**

26 Site visits and specified monitoring procedures performed by other individuals will be
27 reported to the environmental monitor. A monitoring record form will be submitted to the
28 environmental monitor by the individual conducting the visit or procedure so that details of
29 the visit can be recorded and progress tracked by the environmental monitor. A checklist
30 will be developed and maintained by the environmental monitor to track all procedures
31 required for each mitigation measure and to ensure that the timing specified for the
32 procedures is adhered to. The environmental monitor will note any problems that may
33 occur and take appropriate action to rectify the problems.

1 **Public Access to Records**

2 The public is allowed access to records and reports used to track the monitoring
3 program. Monitoring records and reports will be made available for public inspection by
4 the CSLC or its designee on request.

5 **7.5 MITIGATION MONITORING TABLE**

6 This section presents mitigation monitoring tables (Table 7-1 to Table 7-13) for each
7 environmental discipline that required mitigation measures. Each table lists the following
8 information, by column:

- 9 • Impact (impact number, title, and impact class);
- 10 • Mitigation Measure (full text of the measure);
- 11 • Location (where the impact occurs and the mitigation measure should be
12 applied);
- 13 • Monitoring/reporting action (the action to be taken by the monitor or Lead
14 Agency);
- 15 • Effectiveness criteria (how the agency can know if the measure is effective);
- 16 • Responsible agency; and
- 17 • Timing (before, during, or after construction; during operation, etc.).

Table 7-1. Mitigation Monitoring Program—Geological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>Impact GEO-1: Seismic and Seismically Induced Hazards Seismic activity along the More Ranch Fault Zone or other regional faults could produce fault rupture, seismic ground shaking, liquefaction, or other seismically induced ground failure that could expose Pier 421-2 facilities, including the pier, caisson and pipeline, to damage during the Project life; Pier 421-1 would be exposed to seismic hazards for approximately 1 year before decommissioning is completed (Less than Significant with Mitigation).</p>	<p>MM GEO-1a. Include Seismic Loading Evaluation. Venoco shall have the caisson at Pier 421-2 evaluated to ensure its ability to withstand effects of dynamic earth pressures, seismic overturning and base shear, and to support Project facilities through the production life of the facility. Results of the evaluation, together with any redesign plans determined to be necessary to ensure the ability of the caisson to withstand effects of dynamic earth pressures, seismic overturning and base shear, and to support Project facilities through the production life shall be reviewed and certified by a professional engineer and submitted to California State Lands Commission (CSLC) staff for approval. Prior to recommencement of production, and subject to receipt of all necessary approvals and permits to undertake the work, Venoco shall construct the necessary improvements to meet the criteria of this mitigation measure.</p>	At PRC 421	Venoco shall ensure that a seismic loading evaluation is conducted, reviewed, and certified by a professional civil/structural engineer and that seismic design is incorporated into the upgrades to PRC 421.	Incorporating seismic design into the Project would reduce the chance of a seismic or seismically-induced hazard.	CSLC	<p>Evaluate prior to finalizing Project design</p> <p>Implement prior to commencing production</p>
	<p>MM GEO-1b. Field-Verify Subsurface Condition Assumptions. Venoco shall establish a procedure to field-verify that the subsurface conditions used in the design of the past repairs and proposed improvements at the 421-2 caisson are representative of actual conditions to be encountered. The procedure established by Venoco for field-verification shall be submitted to California State Lands Commission (CSLC) staff for approval prior to</p>	At PRC 421	Venoco shall submit procedure used to verify subsurface conditions used in the design of caisson repairs to the CSLC. If conditions warrant design modifications, revised design	Incorporating any required modifications into the Project design would reduce impacts to PRC 421 from a tsunami	CSLC	<p>Verify prior to finalizing Project design</p> <p>Construct prior to commencing production</p>

Table 7-1. Mitigation Monitoring Program—Geological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	implementation. If the field conditions encountered require a design modification of past repairs and proposed improvements, then the revised design plans shall be reviewed and certified by a registered professional civil/structural engineer, and shall be submitted to the CSLC staff for approval. Prior to recommencement of production, and subject to receipt of all necessary approvals and permits to undertake the work, Venoco shall construct the necessary improvements to meet the criteria of this mitigation measure.		shall be reviewed and certified by a professional civil/structural engineer and submitted to CSLC.			
	MM GEO-1c. Seismic Inspection. Venoco shall inspect the structures, including Pier 421-2, pipeline, and associated infrastructure following any seismic event in the region (for these purposes defined as Santa Barbara County and offshore waters of the Santa Barbara Channel and Channel Islands) that exceeds a Richter magnitude of 4.0 (see also Appendix H, MM GEO-4c Seismic Inspection). Venoco shall report the findings of such inspection to the California State Lands Commission staff and City of Goleta staff. Venoco shall not reinstate operations of the pipeline within the City of Goleta until authorized by the City of Goleta.	At PRC 421 facilities	Venoco shall report applicable seismic events and inspection results. The monitoring agency or designated monitor shall review and approve the repairs.	Regular inspections after seismic events would permit timely repair.	CSLC, City of Goleta	Follow each applicable seismic event in the region
	MM GEO-1d. Tsunami Preparedness. In the event that a tsunami warning is issued for an area that includes PRC 421, Venoco shall cease production activities at PRC 421 as	At PRC 421 facilities	Venoco shall report applicable tsunami warnings and inspection results. The	Ceasing production during potential tsunami events and conducting	CSLC, City of Goleta	Follow each applicable tsunami warning event

Table 7-1. Mitigation Monitoring Program—Geological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	quickly as possible within the constraints of operations and safety. When the tsunami warning is lifted, Venoco shall conduct a thorough inspection of Pier 421-2, pipeline, and associated infrastructure before resuming production. Venoco shall report the findings of such inspections to the California State Lands Commission and City of Goleta staffs.		monitoring agency or designated monitor shall review and approve the report and any repairs stemming from inspections.	inspections would minimize the risk of upset and release of oil.		
<p>Impact GEO-2: Landslide and Slope Failure The Project would be located on a geologic unit or soil that is unstable, which could create potentially significant damage to the project access road and pipeline from a landslide or slope failure (Less than Significant with Mitigation).</p>	<p>MM GEO-2a. Monitor Coastal Bluff and Access Road. Venoco shall monitor the coastal bluff and access road weekly for signs of water saturation, including during and/or heavy rains, or after a sprinkler line leak from the Sandpiper Golf Course. If saturation is apparent, the source of the water infiltration shall be evaluated and, diverted (if possible) or removed. Venoco shall provide written weekly statements regarding bluff and access road stability and saturation conditions to the City of Goleta. If saturation is apparent, Venoco shall immediately report such finding to the City of Goleta. Within 24 hours of such a finding, Venoco shall identify the source of water infiltration and shall divert or remove the water source within 24 hours, and shall provide a written report with photo documentation to the City within one week of the action. If native habitats could be impacted as a result of related activities, Venoco shall coordinate the activities with the Project Biologist and implement MM TBIO-1b Project</p>	At coastal bluffs and access road located north of PRC 421	As part of its routine inspection of facilities, Venoco shall inspect the coastal bluff and access road for signs of water saturation, including during and after heavy rains or after a sprinkler line leak.	If erosion is avoided after the ground disturbing activities, the measure is effective.	CSLC, City of Goleta	During and after heavy rain events or after a sprinkler line leak

Table 7-1. Mitigation Monitoring Program—Geological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	Biological Monitors and MM TBIO-1c Restoration Plan/Restoration.					
	<p>MM GEO-2b. Maintain Existing Seawall and Rock Revetment. Venoco shall inspect the existing seawall and rock revetment weekly for signs of erosion or need for repairs. If eroded areas are observed, these shall immediately be filled in, and any areas in need of repair or addition of rip-rap shall be repaired consistent with applicable permit requirements. Venoco shall provide written weekly reports regarding existing seawall and rock revetment stability to the City of Goleta. If erosion is observed, Venoco shall immediately report such finding to the City of Goleta. Within 24 hours of such a finding, Venoco shall repair the erosion and shall provide a written report with photo documentation to the City within one week of the action. Venoco shall coordinate the activities with the Project Biologist and implement MM TBIO-1b Project Biological Monitors and MM TBIO-1c Restoration Plan/Restoration.</p>	At seawall and rock revetment located just north of PRC 421	After completion of improvements, monitoring agency or designated monitor shall inspect seawall/rock revetment for permit compliance. As part of its routine inspection of facilities, Venoco shall inspect seawall/revetment for signs of erosion or need for repairs. Failures shall be reported. Any repairs shall be coordinated with monitoring agencies.	Ensuring the integrity of the seawall and revetment would protect the flowlines.	CSLC, City of Goleta	Daily as part of Venoco's routine inspection of facilities and as required to address major failures or repairs
	<p>MM GEO-2c. Inspect and Repair Access Road and Pipeline after Landslide Events. Venoco shall monitor the access road and pipeline after bluff failure or landslide events and shall repair any damaged areas or add rip-rap consistent with applicable permit requirements. In addition to clearing the road of debris, Venoco shall test or inspect the pipeline immediately after any major slope</p>	At PRC 421	Venoco shall contract a registered professional engineer or a registered certified engineering geologist to perform an onshore soil	Identifying expansive soils would alert monitors of conditions to look for and where to look, which would increase effectiveness of mitigation measure GEO-	CSLC, City of Goleta	Evaluate prior to finalizing Project design

Table 7-1. Mitigation Monitoring Program—Geological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	failure to determine if pipeline damage has occurred and shall implement repairs to this infrastructure. If damage is observed, Venoco shall immediately report such finding to the City of Goleta. Within 24 hours of such a finding, Venoco shall repair the erosion and shall provide a written report with photo documentation to the City within one week of the action. Venoco shall coordinate the activities with the Project Biologist and implement MM TBIO-1b Project Biological Monitors and MM TBIO-1c Restoration Plan/Restoration.		evaluation to identify expansive soils. If any expansive soils are identified, the design of Project upgrades shall be amended as needed.	2a and GEO-2b.		
<p>Impact GEO-3: Soil Settlement and Liquefaction The recommissioning of PRC 421 could potentially expose Project facilities such as the caisson and proposed pipeline to soil settlement or liquefaction that could damage these facilities, particularly the pipeline (Less than Significant with Mitigation).</p>	<p>MM GEO-3. Perform Subsurface Evaluation. An evaluation of soils within and beneath the Pier 421-2 caisson, seawall, revetment, and access road shall be performed to ascertain if the soil is fit for purpose. The evaluation shall be performed by a California-registered Geotechnical Engineer, and shall propose maintenance and repair procedures as needed to ensure these areas remain fit for purpose for the life of the Project. The conclusions and recommendations shall be incorporated into Project engineering design components, as applicable, and submitted to the California State Lands Commission, City of Goleta, and California Coastal Commission staffs for review and approval prior to issuance of permits for construction clearance.</p>	At PRC 421	Venoco shall ensure that a subsurface evaluation is conducted by a registered professional engineer or engineering geologist and the results are incorporated into the upgrades to PRC 421.	Identifying the potential for soil settlement and liquefaction would allow engineers to design project upgrades appropriately.	CSLC, City of Goleta, CCC	Evaluate prior to finalizing Project design
<p>Impact GEO-4: Corrosion, Weathering, and</p>	<p>MM GEO-4a. Corrosion Protection Design Specifications. The corrosion protection design specifications shall</p>	At PRC 421	Venoco shall ensure that corrosion	Including corrosion protection in the	CSLC, City of Goleta	Include design specifications prior to review

Table 7-1. Mitigation Monitoring Program—Geological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Erosion Corrosion, weathering, fatigue, or erosion could cause deterioration of structural components of PRC 421 (Less than Significant with Mitigation).)	be included on the design drawings. Once included, the revised design plans shall be reviewed and certified by a registered corrosion engineer or qualified mechanical or electrical engineer, and submitted to the California State Lands Commission staff for approval. Prior to commencement of production, and subject to receipt of all necessary approvals and permits to undertake the work, Venoco shall construct all corrosion protection improvements specified in the approved plans. If corrosion protection is required for the Project, with the exception of the caisson walls which are just beyond the City limits, all design plans shall be submitted to the City of Goleta for review and approval.		protection design specifications are included on the design drawings and that the plans are appropriately reviewed.	project specifications would reduce deterioration of structural components.		by professional civil or structural engineer
	MM GEO-4b. Check Overall Structural Stability against Wind and Wave Action. The Project design shall include evaluation of cyclic wind and wave action on structural components. Once included, revised design plans shall be reviewed and certified by a professional civil/structural engineer then submitted to the California State Lands Commission staff for approval. These revised design plans shall identify any additional construction required as part of the Project. Prior to commencement of production, and subject to receipt of all necessary approvals and permits to undertake the work, Venoco shall construct all structural improvements specified in	At PRC 421	Venoco shall ensure that cyclic wind and wave action on the structural components are evaluated and that the results of the analysis are included in the project design. Venoco will ensure that the revised design plans are certified by a professional civil/structural engineer.	Incorporating the impacts of wind and wave action into the project design would reduce the impacts on project facilities.	CSLC, City of Goleta	Include design specifications prior to review by professional civil or structural engineer

Table 7-1. Mitigation Monitoring Program—Geological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	the approved plans. Venoco shall submit the design plans to the City of Goleta, for review and approval for any part of the Project within City limits.					
	MM GEO-4c. Evaluate Embedment of Concrete Panels and Lean Concrete Backfill. Venoco shall include in the Project design an evaluation of the potential depth of scour and erosion during the lifetime of the Project within the Monterey Formation in the area of Pier 421-2. Venoco shall ensure that the concrete shoring panels and lean concrete backfill shall be embedded into the Monterey Formation to a depth greater than the maximum potential scour depth. Venoco shall submit all plans to the City of Goleta for work within City limits and California State Lands Commission staffs.	At PRC 421	Venoco will ensure that the design of the Project includes an evaluation of the potential depth of scour and erosion during the lifetime of the project.	Incorporating the impacts of scouring into the project design would reduce the impacts on project facilities.	CSLC, City of Goleta	Include design specifications prior to review by professional civil or structural engineer
	MM GEO-4d. Inspect Structures During and/or After Storm Events. Venoco shall conduct inspections of the structural components including the pier, caisson, causeway, seawall and revetment during and after major storm events. Venoco shall immediately report inspection results to the California State Lands Commission and the City of Goleta staffs and conduct repairs accordingly and per agency authorization.	At PRC 421	Venoco employees shall inspect structural components during and/or after winter storms. Monitor shall inspect structural components including piers, caissons, causeways, seawall, and revetment.	Regular monitoring would provide for early identification and repair of damage to structures.	CSLC, City of Goleta	Ongoing throughout project operation

Table 7-2. Mitigation Monitoring Program—Safety

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Impact S-2: Exposure of the Public and Environment to Safety Hazards Due to Collapse of the Pier 421-1 or 421-2 Caisson The Project would prolong the use of the aging caisson on Pier 421-2, which could collapse and lead to the release of hazardous materials and oil from within the caisson or from Project-related pipelines (Less than Significant with Mitigation).	MM S-2a. Design Review/Wave Loading Evaluation. Prior to implementing caisson repairs at Pier 421-2, Venoco shall develop design improvement plans that account for design wave loading conditions including hydrodynamic loading, overturning, and base shear, as well as the maximum credible earthquake according to the current California Building Code; these improvements shall be sufficient to support Project facilities through the production life. The revised design plans shall be reviewed and certified by a professional civil/structural engineer and shall be submitted to the California State Lands Commission staff for approval. Caisson repair shall be performed in accordance with approved design plans prior to recommencement of production at Pier 421-2.	At PRC 421	Venoco shall contract a civil/structural engineer to perform an analysis of the caissons to determine the structural stability of the facilities.	Structural stability analysis would allow project design to account for potential deficiencies.	CSLC, City of Goleta	Evaluate prior to finalizing Project design
	MM S-2b. Post Storm Inspection, Monitoring and Cleanup. Venoco shall amend the existing monitoring program to include regular monitoring and inspection of both caissons during the winter storm season. Damage to caissons shall be reported to California State Lands Commission staff and cleanup and removal of any debris immediately initiated (see also MM S-4e).	At PRC 421	Venoco shall ensure that the caissons are reinforced to withstand wave and tidal action, including tsunami-sized waves.	Ensuring that project facilities would withstand substantial wave and tidal action would reduce the potential for a release of oil.	CSLC, City of Goleta	Include design specifications prior to review by professional civil or structural engineer
Impact S-3: Exposure of the Public and Environment to	MM S-3. Design Review by Civil/Structural Engineer. Prior to construction on the Project and subject to receipt of all necessary	At PRC 421	Venoco shall contract a civil/structural engineer to	Structural stability analysis would allow project design to	CSLC, City of Goleta	Design Review: Evaluate prior to finalizing

Table 7-2. Mitigation Monitoring Program—Safety

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>Safety Hazards Due to Collapse of or Damage to the Existing Timber Bulkhead or Rip-Rap Seawall The Project would prolong the use of the existing causeway and supporting, aging timber bulkhead and rip-rap seawall, which would be exposed to high winter surf and large wave events over the Project's life, leading to possible erosion or collapse and the potential for release of hazardous materials and oil from within the causeway or Project-related pipelines (Less than Significant with Mitigation).</p>	<p>approvals and permits to undertake the work, Venoco shall complete the following:</p> <ul style="list-style-type: none"> • Venoco shall retain a licensed civil/structural engineer to review seawall design and recommend improvements to the Project seawall to permit it to support Project access road, pipelines, and power cables through the production life. • These potential design improvements, including a maintenance and repair plan to ensure fitness for purpose, shall account for anticipated winter surf conditions and for a design wave event. • West of Pier 421-1, improvements to the seawall may include use of additional appropriately sized (i.e., 1- to 3-ton boulders) rip-rap if needed to fill in small gaps in the wall. • Between Piers 421-1 and 421-2 and east of 421-2, to the maximum extent feasible, any needed seawall improvements shall consist of minor repairs to and strengthening of the existing timber bulkhead, unless seawall design review indicates that such improvements would be insufficient to protect the pipeline and power cables over the life of the Project. 		<p>perform an analysis of the timber bulkhead and seawall to determine the structural stability of both facilities.</p>	<p>account for potential deficiencies.</p>		<p>Project design Construction: Prior to restart of production, Venoco shall construct necessary improvements to meet criteria of MM</p>
<p>Impact S-4: Potential for Release of Oil or</p>	<p>MM S-4a. Containment. As the primary containment at Pier 421-2, the</p>	<p>Pier 421-2</p>	<p>Venoco shall ensure that the</p>	<p>Installing containment</p>	<p>CSLC</p>	<p>Design Review:</p>

Table 7-2. Mitigation Monitoring Program—Safety

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Hazardous Materials from Pier 421-2 Project operations could result in the release of oil or hazardous materials from Project facilities, including the 421-2 well and caisson, drilling and separation equipment (Significant and Unavoidable).	well cellar shall be tested by Venoco to determine whether it is leaking, and coated with a rubber type liner or other sealant to prevent migration from the cellar walls or bottom to surrounding areas. If the well cellar is leaking, an engineering evaluation shall be performed to determine the best method to achieve containment; which may include replacement with a double wall cellar or retrofit with a membrane coating capable of containing oil and preventing migration. The revised design, which includes these improvements, shall be reviewed and certified by a registered engineer and submitted to the California State Lands Commission staff for approval, and Venoco shall construct all approved improvements prior to recommencing production.		Project design includes measures to update the well cellar and caisson deck at PRC 421-2.	features would reduce the potential for a release of oil to reach the environment.		Incorporate features into final Project design Construction: Prior to restart of production, Venoco shall construct all containment upgrades described in MM
	MM S-4b. Response Drills and Planning. Venoco shall revise its existing Oil Spill Contingency Plan (OSCP) to include site-specific procedures for response to a release from Pier 421-2, in accordance with applicable State and Federal regulations. The revised OSCP shall be submitted to the City of Goleta, county of Santa Barbara, California Department of Fish and Wildlife Office of Spill Prevention and Response, California Coastal Commission, and California State Lands Commission (CSLC) staffs for review and approval prior to issuance of the Land Use Permit. Venoco shall demonstrate spill	Pier 421-2	Venoco shall ensure that the existing OSCP is updated to include site specific procedures relevant to the Project and conduct a tabletop exercise of the Project.	Plan would ensure that clean up procedures are in place to quickly respond to a release from the Project.	CSLC, OSPR, CCC, City of Goleta	Complete Plan prior to Project operation Conduct tabletop exercise within 6 months after start of Project operation

Table 7-2. Mitigation Monitoring Program—Safety

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>response capability by responding to at least two surprise drills each year – one at Pier 421-2 and one along the pipeline route. A tabletop exercise shall be conducted within six months of operation to test and improve upon the revised procedures. Venoco shall prepare and submit a critique and recommendations of Venoco’s OSCP, regarding Pier 421-2, to CSLC staff and shall demonstrate the effectiveness of Venoco’s oil spill response plan. Any recommended adjustments to the frequency of drills required to improve the effectiveness of the measure, in consideration of all other Ellwood oil spill response drill operations by Venoco, and a timetable for implementation of drill schedules may be considered by CSLC staff. In addition, Venoco shall participate in the Santa Barbara County Area Oil and Gas Industry Emergency Response Plan (P-4 Plan).</p>					
	<p>MM S-4c. Casing Pressure Testing. Prior to initiating active pumping, Venoco shall perform pressure testing on the well casing to ensure that the casing meets required operating specifications. The exact pressure shall be determined by the reviewing agencies. If the casing does not meet required test pressure as reviewed and approved by the California Department of Conservation’s Division of Oil, Gas, and Geothermal Resources (DOGGR), Venoco shall implement casing repairs and</p>	At PRC 421	Venoco shall ensure that well casing meets required operating specifications for pressure and shall repair and improve if it does not.	Measure would reduce the potential for a release of oil or hazardous materials.	CSLC, DOGGR	Prior to initiating active pumping

Table 7-2. Mitigation Monitoring Program—Safety

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	improvements subject to review and approval by the DOGGR and California State Lands Commission staffs.					
	MM S-4d. Regular Facility Inspections. As part of its daily facility inspections, Venoco shall check the caisson at Pier 421-2 for signs of oily or sulfurous leaks. If leaks are detected, Venoco shall report this occurrence to the City of Goleta, Santa Barbara County Office of Emergency Management, California Coastal Commission, and California Department of Fish and Wildlife Office of Spill Prevention and Response, and California State Lands Commission staffs, and in coordination with these agencies, take immediate steps to clean up or repair such leaks and prevent public exposure to any hazards.	At PRC 421	Venoco shall inspect facilities on a daily basis for signs of leaks.	Implementation of this measure would ensure timely repairs and reduce the risk of release of oil or hazardous materials.	CSLC, OSPR, City of Goleta, Santa Barbara County Office of Emergency Services, CCC	Regularly throughout Project duration
	MM S-4e. Quantitative Risk Assessment (QRA) and Implementation of QRA-Recommended Measures. Prior to issuance of land use permits, Venoco shall prepare a QRA to determine long-term risk of upset potential for the PRC 421 facilities. The QRA should assume the best estimate of life of the project. The QRA shall identify any deficient facilities with potential for creation of hazards associated with production from PRC 421 and processing of oil/gas/water at the Ellwood Onshore Facility and identify any improvements needed to reduce	PRC 421 and EOF	Venoco shall ensure that a QRA is prepared for PRC 421 and facilities altered under the Project (i.e., pipelines, EOF). Venoco shall implement measures recommended in the approved QRA.	Implementation of this measure would ensure that risks from the Project to the public are identified, quantified, and reduced to the extent possible.	City of Goleta, CSLC	Prior to issuance of land use clearances

Table 7-2. Mitigation Monitoring Program—Safety

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	such hazards to acceptable levels The QRA shall be submitted to the California State Lands Commission, City of Goleta, Santa Barbara County Fire Department Fire Protection Division staffs for review and comment prior to approval. Subsequent to approval, Venoco shall implement any modifications to facilities or processes recommended in the QRA.					
<p>Impact S-5: Potential for Release of Oil or Hazardous Materials from the Crude Oil Flowline Project operations could result in the release of oil or hazardous materials from the crude oil flowline as oil is transported from Well 421-2 to the tie-in at the EOF (Less than Significant with Mitigation).</p>	<p>MM S-5a. Install Pipeline Warning Markers. Venoco shall modify Project design to include installation of several pipeline markers with reflective warning tape along the 6-inch line to identify the pipeline route and associated excavation hazards. Venoco shall submit the modified Project design to the City of Goleta for review and approval prior to issuance of the Land Use Permit.</p>	At PRC 421	Venoco shall install pipeline warning markers along the 6-inch line to identify the pipeline route and associated excavation hazards.	This measure would reduce the risk of release of oil or hazardous materials by alerting future workers in the area of the pipeline location.	City of Goleta	Prior to the finalizing Project design
	<p>MM S-5b. Develop Emergency Action Plan (EAP)/Update South Ellwood Field EAP. Venoco shall develop and incorporate into the EAP updated descriptions of the pipeline and flowline, detection systems, emergency shutdown, and response procedures specific to the new system prior to the initiation of operation. Venoco shall update the existing <u>South Ellwood Field EAP to include descriptions of the new flowline interconnection with Platform Holly production within the EOF, and other EOF modifications such as the programmable logic controller cabinet, variable speed drive facility, and</u></p>	At PRC 421 and EOF	Venoco shall include updated descriptions of the pipeline and flow lines, detection systems, emergency shutdown, and response procedures specific to the new system into the EAPs.	Updates to plans and procedures would provide responders with better information to manage emergency conditions.	City of Goleta	<p>Prior to initiation of operation</p> <p>Update notice within two months of initiating operations</p>

Table 7-2. Mitigation Monitoring Program—Safety

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<u>transformer. Venoco shall submit the EAPs to the City of Goleta and Santa Barbara County Office of Emergency Management for review and approval prior to recommissioning start-up. The City of Goleta and Santa Barbara County Office of Emergency Management shall coordinate updates notice for these revisions shall be provided to the current plan holders within two months of initiating operations of the EAPs with the operator on a regular basis or as conditions change that warrant review of emergency response protocols.</u>					
	MM S-5c. Safety, Inspection, and Maintenance of Oil and Gas Pipelines. Venoco shall prepare a Safety Inspection, Maintenance, and Quality Assurance Program (<u>SIMQAP</u>) or similar mechanism for Project-related pipelines to ensure adequate ongoing inspection, maintenance, and other operating procedures. Any such mechanism shall be subject to approval by the City of Goleta prior to commencement of pipeline operations and provide for systematic updates as appropriate. Requirements shall be commensurate with the level and anticipated duration of the risk. <u>The City of Goleta and Venoco would update the SIMQAP or similar mechanism biennially or sooner if conditions change that warrant review of the program.</u>	At PRC 421 and EOF	Venoco shall ensure that the program is prepared and updated as necessary.	Implementation of this MM would ensure that pipelines are regularly inspected and properly maintained.	City of Goleta	Prior to issuance of land use clearances, and updated <u>biennially or as necessary</u> during operation
Impact S-6: Increased Amount of	MM HM-3 (Automated Block Valves and an Additional Check Valve on	At EOF and Line 96	Venoco would demonstrate to	The upgrades improved the	City of Goleta	Prior to initiation of

Table 7-2. Mitigation Monitoring Program—Safety

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>Oil or Hazardous Materials Potentially Released from Oil Transfer in Line 96 Project implementation would increase throughput in the Line 96 pipeline, and therefore increase the amount of oil or hazardous materials potentially released (Significant and Unavoidable).</p>	<p>the Proposed Pipeline) from the certified Line 96 Modification Project EIR (Santa Barbara County 2011) is incorporated by reference (see Appendix H for details);</p>		<p>the satisfaction of the City of Goleta and county of Santa Barbara that the recommended upgrades to the SCADA system have been made.</p>	<p>capability of the SCADA system to accommodate the production from PRC 421.</p>		<p>operation</p>
<p>Impact S-7: Increased Processing of Oil and Gas at the EOF Project implementation would increase processing of oil and gas at the EOF, and therefore increase potential risks related to safety and potential release of hazardous materials (Significant and Unavoidable).</p>	<p>MM S-5b would apply to this impact.</p>	<p>See specific MM in MMP for details on Location, Monitoring/ Reporting Action, Effectiveness Criteria, Responsible Agency, and Timing.</p>				
<p>Impact S-8: Increased Risk of Fire Project implementation would include production and transport of oil and gas from PRC 421 to the EOF, increase</p>	<p>MM S-8. Fire Prevention and Suppression. Venoco shall revise the existing Fire Prevention and Preparedness Plan to incorporate the new equipment and operations at PRC 421, and submit to the City of Goleta, Santa Barbara County Fire Department, California Coastal Commission, California Department of</p>	<p>At PRC 421</p>	<p>Venoco shall ensure that the existing Fire Prevention and Preparedness Plan is updated to adequately cover new equipment and</p>	<p>Updating the plan will ensure that emergency procedures are in place to respond adequately to emergencies at the Project site.</p>	<p>CSLC, Santa Barbara County Fire Department, City of Goleta, CCC, Caltrans</p>	<p>Prior to starting Project operations</p>

Table 7-2. Mitigation Monitoring Program—Safety

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
processing of oil and gas at the EOF, and increase transport of oil and gas to market, therefore increasing potential risks related to fire (Less than Significant with Mitigation).	Transportation, and California State Lands Commission staffs for review and approval. The plan shall be revised and provided to the agencies for review prior to commencing operations, and the plan shall be formally updated and circulated within one month of receiving comments from the aforementioned agencies.		operations at PRC 421.			

Table 7-3. Mitigation Monitoring Program—Hazardous Materials

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Impact HAZ-1: Exposure of Public or Environment to Hazardous Materials The Project would create a potential hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials during construction and/or project operation (Less than Significant with Mitigation).	MM HAZ-1a. Proper Personnel Training. Personnel working during the Project's construction, operation, and Pier 421-1 decommissioning and removal phases shall be adequately trained per the requirements included in Venoco's Emergency Action Plan, Oil Spill Contingency Plan, Fire Prevention and Preparedness Plan, Spill Prevention, Control and Countermeasures Plan and other relevant plans. These plans include specific training requirements such that personnel that have the potential to come into contact with contaminated media and/or hazardous materials understand safe work practices, Best Management Practices, and waste management practices, so that a release of hazardous materials can be avoided, controlled, or minimized. Project construction and field personnel shall also be trained to identify possible	At PRC 421	Venoco shall ensure that personnel working on the proposed Project are adequately trained per the requirements contained in the relevant construction and operation planning documents.	Training personnel will ensure that a release of hazardous materials is controlled, minimized, or eliminated.	CSLC, City of Goleta	Prior to starting Project operations

Table 7-3. Mitigation Monitoring Program—Hazardous Materials

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	indicators of a hazardous release, such as hydrocarbon or solvent odors, stained soils, and oily sheens on standing water.					
	MM HAZ-1b. Conduct a Phase I Environmental Site Assessment (ESA). To gain a better understanding of the study area and its potential to have additional, previously unknown releases of hazardous materials or other environmental concerns, Venoco shall perform a Phase I ESA on the study area prior to issuance of land use permits, which shall incorporate information from Santa Barbara County Fire Department Fire Protection Division (FPD) records and files. The results of this study shall be provided to the City of Goleta, FPD, and California State Lands Commission staffs. Conclusions of the Phase I ESA, including any recommendation of a Phase II and subsequent investigation, shall be followed. Any subsequent work plans for soil and groundwater sampling shall be submitted to FPD for review and incorporated into the current and ongoing assessment under their Site Mitigation Unit Site #371.	At PRC 421	Venoco shall conduct a Phase I ESA. Conclusions of the Phase I ESA, including recommendation of a Phase II and subsequent investigation, shall be followed.	Phase I ESA will determine the likelihood of site contamination and whether subsequent investigations are necessary to quantify and remediate any existing contamination.	CSLC, City of Goleta	Prior to Project construction activities
	MM HAZ-1c. Soil Sampling. During construction activities at Pier 421-2 and during Pier 421-1 decommissioning and removal, all soil materials removed shall be presumed to be contaminated and handled accordingly. The soil materials removed from the caisson will be sampled, profiled, and disposed of	At PRC 421	<u>Venece City of Goleta Soils Inspector/Monitor</u> shall ensure that contaminated soils, sediment, or water are disposed of	Properly disposing of contamination will reduce the likelihood of a release to the environment.	CSLC, City of Goleta	Upon generation of waste containing hazardous materials or contamination

Table 7-3. Mitigation Monitoring Program—Hazardous Materials

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>or recycled according to regulatory requirements. During all other Project construction activities, Venoco a City of <u>Goleta Soils Inspector/Monitor</u> shall continually visually monitor the soils disturbed within the construction areas to determine if there is any evidence of undiscovered contamination. <u>The City of Goleta shall hire the Soils Inspector/Monitor, paid for by Venoco, to inspect soil disturbance activities within the City's jurisdiction during all phases of the Project to ensure that any hazardous materials and/or contaminated soils encountered are properly contained and removed. Soil samples may be taken, subject to the direction of the Soils Inspector/Monitor.</u></p> <p>Any soil suspected of contamination shall be contained on site in appropriate storage container, sampled, profiled, and disposed of or recycled according to regulatory requirements. All soils removed shall be handled in accordance with MM HAZ-1d. All soil sampling results shall be provided to the California State Lands Commission and City of Goleta staffs immediately upon receiving results.</p>		properly and that a Removal Action Plan is prepared, if needed.			
	<p>MM HAZ-1d. Removal Action Plan. If sediment within the Project construction and 421-1 decommissioning areas and surrounding soils is determined to contain total petroleum hydrocarbons or other contaminants above California</p>	At PRC 421	Venoco shall ensure that contaminated soils, sediment, or water are disposed of properly and that	If contamination is determined to be present, a Removal Action Plan will define requirements for proper cleanup	CSLC, City of Goleta, RWQCB, OSPR	Prior to Project construction activities

Table 7-3. Mitigation Monitoring Program—Hazardous Materials

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>Ocean Plan thresholds and if such sediments may be exposed, prior to commencing construction activities, Venoco shall prepare a Removal Action Plan for the safe removal of contaminated materials from the structures and surrounding area. The action plan shall be circulated to the City of Goleta, Santa Barbara County Fire Department Fire Protection Division, California State Lands Commission (CSLC) staffs for review and comment. Final approval of the plan shall be under the purview of the California Department of Fish and Wildlife Office of Spill Prevention and Response (OSPR) and/or CSLC staffs. Upon approval, sediments shall be removed from construction areas and disposed of in accordance with procedures described in the Removal Action Plan. However, if OSPR and/or CSLC staffs determine that removal of some contaminated sediments would impair the integrity of Pier 421-2 (includes the well, caisson supporting the well, and the causeway leading to the caisson),(either through complete removal of the soil filling the caisson or having to dig underneath), Venoco shall prepare a Decommissioning Plan to remove those remaining contaminated sediments at such time that Pier 421-2 is decommissioned. All other contaminated sediments whose removal would not threaten the integrity of Pier 421-2 would be removed upon approval of the Plan as described</p>		<p>a Removal Action Plan is prepared, if needed.</p>	<p>and disposal, thereby minimizing risk to the public and environment.</p>		

Table 7-3. Mitigation Monitoring Program—Hazardous Materials

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>above.</p> <p>MM HAZ-1e. Performance Security. The permittee shall provide to the California State Lands Commission (CSLC) and the City of Goleta, or maintain if already provided, performance securities and agreements for <u>work that would need to be performed at the end of the Project's life. The security and agreement provided to CSLC would cover decommissioning and abandonment of the Well 421-1 and Pier 421-2. The performance security total shall be the estimated amount for the decommissioning/ abandonment work. The performance security shall be provided to the CSLC and agreements signed, prior to return to production of the PRC 421 well. The security and agreement provided to the City of Goleta would cover decommissioning and abandonment of the portions of the Project located within the City's jurisdiction, including, but not limited to, the piers, the sea wall supporting the access road, the access road, and the onshore pipelines and cables and ancillary facilities. The performance security total shall be the estimated amount for the decommissioning/abandonment work, less any amount contributed toward overlapping infrastructure that is covered in the securities and agreements with CSLC. The performance security shall be provided</u></p>	At PRC 421	Venoco shall pay the performance security and formally complete all necessary agreements.	Provision of a performance security and related agreements will ensure that decommissioning and abandonment is completed as promised.	CSLC, <u>City of Goleta</u>	Prior to issuance of land use clearances

Table 7-3. Mitigation Monitoring Program—Hazardous Materials

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<u>to the City of Goleta and agreements signed prior to the issuance of the Land Use Permit.</u>					
Impact HAZ-2: Release of Contaminated Sediment from the Caisson on Pier 421-2 during Operation of the Project Contaminated sediment contained within the caisson structures could infiltrate to the surrounding environment (Less than Significant with Mitigation).	MMs GEO-4a, Corrosion Protection Design Specification, MM GEO-4d, Inspect Structures During and/or After Storm Events, and MM S-2a, Design Review/ Wave Loading Evaluation , shall be employed to ensure the integrity of the structure. Results from the Phase I and any subsequent Phase II ESAs described in MM HAZ-1b would provide information on the nature and extent of any pre-existing contamination from past site operations.	At PRC 421	Venoco shall ensure that appropriate engineering design reports are completed to address identified structural design issues and that project design incorporates all recommended design features.	MMs will identify environmental issues with existing contamination in the Project area and ensure the integrity of the caisson structures, thereby decreasing the potential for a release of contaminated sediment	CSLC, City of Goleta	Various

Table 7-4. Mitigation Monitoring Program—Air Quality

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Impact AQ-1: Increase in Emissions from Construction Project construction could potentially result in increased emissions at the Project site (Less than Significant).	MM AQ-1a. Prohibit Unnecessary Truck Idling. The construction contractor shall limit unnecessary truck idling on site in excess of five minutes.	At PRC 421	Project contractor should ensure that unnecessary truck idling is prohibited by including the MM in the construction site management plan.	Prohibiting unnecessary idling will reduce emissions from trucks.	APCD	Prior to initiating, and during, construction activities
	MM AQ-1b. Use of Diesel Emission Reduction Measures. The construction contractor shall implement	At PRC 421	Project contractor should ensure that diesel	Implementing diesel emission reduction	APCD	During construction activities

Table 7-4. Mitigation Monitoring Program—Air Quality

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>the following measures, as feasible.</p> <ul style="list-style-type: none"> • Diesel construction equipment meeting the California Air Resources Board (CARB) Tier 1 emission standards for off-road heavy-duty diesel engines shall be used. Equipment meeting CARB Tier 2 or higher emission standards should be used to the maximum extent feasible. • Diesel powered equipment should be replaced by electric equipment whenever feasible. • If feasible, diesel construction equipment shall be equipped with selective catalytic reduction systems, diesel oxidation catalysts and diesel particulate filters as certified and/or verified by the U.S. Environmental Protection Agency (EPA) or California. • Catalytic converters shall be installed on gasoline-powered equipment, if feasible. • All construction equipment shall be maintained in tune per the manufacturer's specifications. • The engine size of construction equipment shall be the minimum practical size. • The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time. • Construction worker trips should be minimized by requiring carpooling 		<p>emission reduction measures are implemented by using equipment with diesel particulate filters or oxidation catalysts and using emulsified diesel fuel in construction equipment, as specified. Project monitor should confirm use of approved equipment.</p>	<p>measures will reduce emissions from construction equipment.</p>		

Table 7-4. Mitigation Monitoring Program—Air Quality

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	and by providing for lunch onsite.					
	MM AQ-1c. Maintain Construction Equipment. All construction equipment shall be properly maintained according to manufacturers' specifications.	At PRC 421	Project contractor should ensure that all equipment is properly maintained. Project monitor should confirm adherence to approved maintenance schedule.	Properly maintained equipment emits fewer emissions than equipment that is not maintained.	APCD	During Project construction
	MM AQ-1d. Compliance with State Portable Air Toxics Control Measure. Any portable diesel engines greater than 50 horsepower used in construction shall comply with the State Portable Air Toxics Control Measure and be certified to Tier 1, 2, or 3 non-road engine standards.	At PRC 421	Project contractor should use ultra-low sulfur fuel, as specified. Project monitor should confirm use of approved fuel.	Utilizing ultra-low sulfur fuel will reduce the sulfur content of equipment emissions.	APCD, City of Goleta	During Project construction
	MM AQ-1e. Establish On-Site Equipment Staging Area and Worker Parking Lots. The staging area and worker parking lots shall be restricted to either paved surfaces or soil stabilized unpaved surfaces only.	At PRC 421	Project contractor should establish on-site equipment staging areas and worker parking lots, as detailed. Project monitor should ensure compliance with this measure.	Properly designed staging areas and parking lots minimize dust generation.	APCD, City of Goleta	Prior to starting Project construction activities
	MM AQ-1f. Fugitive Dust Management. Venoco shall implement the following measures in accordance with requirements of the Santa Barbara Air Pollution Control District. <ul style="list-style-type: none"> • During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp 		Project contractor should adhere to the dust reduction practices listed in the measure.	Implementing MM would reduce fugitive dust generation.	APCD, City of Goleta	During Project construction

Table 7-4. Mitigation Monitoring Program—Air Quality

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>enough to prevent dust from leaving the site. At a minimum, this should include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency should be required whenever the wind speed exceeds 15 mph. Reclaimed water should be used whenever possible. However, reclaimed water should not be used in or around crops for human consumption.</p> <ul style="list-style-type: none"> • Minimize amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less. • If importation, exportation and stockpiling of fill material is involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin. • Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads. • After clearing, grading, earth moving or excavation is completed, treat the disturbed area by watering, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur. • The contractor shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, 					

Table 7-4. Mitigation Monitoring Program—Air Quality

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.					
<p>Impact AQ-4: Project Would Result in a Net Increase in GHG Emissions Project oil and gas production and drilling and construction would increase GHG emissions. (Less than Significant with Mitigation)</p>	<p>MM AQ-4 Greenhouse Gas Monitoring and Reduction Strategies. The Applicant shall be required to quantify and report annually the greenhouse gas (GHG) emissions associated with Project operations using methodologies prescribed for the California Climate Action Registry General Reporting Protocol, the California Air Resources Board (CARB) Compendium of Emission Factors and Methods to Support Mandatory Reporting of Greenhouse Gas Emissions (CCAR 2009, CARB 2007c) and the U.S. Environmental Protection Agency (EPA) Mandatory Reporting of Greenhouse Gases annual reports. Copies shall be provided to the California State Lands Commission (CSLC) and Santa Barbara County Air Pollution Control District (APCD) staffs, including a reporting of all mitigation measures applied. In addition, Venoco shall prepare and submit a GHG emission reduction program to CSLC staff for review and approval prior to issuance of the Land Use Permit commencement of construction.</p>	At PRC 421 and Ellwood Onshore Facility	Applicant shall annually report GHG emissions and effectiveness of mitigation measures to CSLC and APCD and applicant shall prepare and submit a GHG reduction program to CSLC	Offset of GHG emissions to zero net increase.	CSLC	Prior to construction and ongoing throughout project operation

Table 7-4. Mitigation Monitoring Program—Air Quality

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>Venoco shall implement the approved <u>GHG emission reduction program detail specific measures</u> to reduce net GHG emissions to zero <u>on an annual basis over the life of the Project. Annual updates shall specify any changes in such measures required to meet targeted reductions.</u> The following measures, or their equivalent, shall be used individually or in combination to achieve such reductions:</p> <ul style="list-style-type: none"> • On-site increased equipment efficiencies or operational modifications such as using more efficient de-watering systems at the EOF or other measures to reduce the need for crude heating; • Implementation of off-site GHG reduction programs in Santa Barbara County as approved by the APCD; and/or • Purchase of “credits” from a source <u>or offsets through existing adopted plan or mitigation program such as CARB’s Cap-and-Trade program or Climate Action Reserve, the City of Goleta’s Climate Action Plan, or other equivalent approved or certified program</u> that is verified by the CSLC staff or CARB. 					

Table 7-5. Mitigation Monitoring Program—Hydrology, Water Resources, and Water Quality

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>Impact WQ-1: Temporary Construction Impacts to Marine Water Quality Short-term construction activities along the access road and seawall, and in the surf zone could adversely affect marine water quality (Less than Significant with Mitigation).</p>	<p>MM WQ-1a. Avoidance of High Tides and Silt Curtain. Venoco shall schedule in-water construction efforts to avoid times of high tides (defined herein as tides greater than +5 feet as predicted by the National Oceanic and Atmospheric Administration). Prior to implementation of any in-water construction, affected sediments shall be tested for the presence of hydrocarbons and trace metals. Any potentially contaminated sediment which may be disturbed during caisson repairs would be contained within the Project area for off-site disposal at an appropriate waste facility, and disposed of according to State and Federal regulation. Regardless of the presence of contaminated sediment, Venoco shall install measures to reduce siltation of the nearshore marine environment during in-water construction, potentially including but not limited to a silt curtain, installation of sheet piling, and/ or soil removal techniques such as hydro-displacement and weighted floating. Venoco shall prepare a plan to monitor the performance of the adopted measure and identify thresholds for localized turbidity to ensure that they are performing as expected and not impairing water quality. If it is found that turbidity threshold values are being repeatedly exceeded, construction activities shall be temporarily halted until a better capture solution is implemented. Additionally, in order to</p>	<p>At PRC 421</p>	<p>Venoco shall ensure construction activities are scheduled appropriately and that a silt curtain or other silt containment method is used during in-water construction activities and that contaminated materials are disposed of properly</p>	<p>Appropriate scheduling and use of a silt curtain or other silt containment methods will reduce the risk of short-term construction impacts on marine water quality</p>	<p>CSLC, City of Goleta</p>	<p>Prior to in-water construction activities</p>

Table 7-5. Mitigation Monitoring Program—Hydrology, Water Resources, and Water Quality

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	protect spawning endangered species, monitoring should occur to ensure that a turbidity plume from construction in the marine environment does not reach the mouth of Bell Creek or Tecolote Creek and that turbidity in the lagoon does not increase as a result of construction activities. If a plume reaches the mouth of the lagoon, construction should be halted until turbidity returns to normal levels.					
	MM WQ-1b. Water Quality Certification. Venoco shall complete and implement a Spill Prevention, Control and Countermeasures (SPCC) Plan and implement any additional MMs mandated by the State Water Resources Control Board (SWRCB) through the Section 401 water quality certification process.	At PRC 421	Venoco shall implement SPCC Plan and any additional MMs mandated by SWRCB through 401 water quality certification process.	Implementation of MMs above and those mandated by the SWRCB would reduce potential water quality impacts to below State thresholds.	CSLC, SWRCB	Prior to in-water construction activities
Impact WQ-2: Temporary Construction Impacts to Wetlands Short-term construction activities along the access road and could adversely affect water quality in adjacent wetlands (Less than Significant with Mitigation).	MM WQ-2. Wetland Delineation, Avoidance and Minimization. Venoco shall engage a qualified biologist to conduct a Wetland Delineation and prepare a Wetland Delineation Report, subject to approval and permitting by the City of Goleta, California Department of Fish and Wildlife, Army Corps of Engineers, and California Coastal Commission, to determine the precise location of all wetlands within and in the vicinity of the Project, including the access road, the flow line, the cables, sea wall bulkheads, and riprap sea-walls. The Report shall be reviewed and approved prior to City issuance of the Land Use Permit. Prior to commencement of construction, all	At PRC 421	Venoco shall delineate provide measures to avoid impacts to any identified wetlands during construction and operation of the Project, and any necessary post-construction restoration actions for any temporary disturbance to the wetlands.	Identification of wetlands and appropriate conservation measures would reduce impacts to wetlands and sensitive habitats.	City of Goleta, CDFW, CCC, RWQCB, USACE	Prior to any Project construction

Table 7-5. Mitigation Monitoring Program—Hydrology, Water Resources, and Water Quality

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>wetland areas located within and adjacent to the Project area will be flagged for fencing by a qualified wetland scientist. If wetlands identified in the Wetland Delineation Report cannot be avoided, the Applicant shall consult with appropriate agencies including the City of Goleta, California Department of Fish and Wildlife, California Coastal Commission, and the Regional Water Quality Control Board to design measures to minimize impacts to the wetland and appropriate restoration standards and methods, if necessary following construction.</p>					
<p>Impact WQ-3: Oil Spill Impacts to Surface and Marine Water Quality Accidental discharge of petroleum hydrocarbons into the surf zone from Pier 421-2 and flowline would adversely affect surface or marine water quality (Significant and Unavoidable).</p>	<p>MM WQ-3a. Pipeline Monitoring. In addition to the installed safety measures on the pipeline from Pier 421-2 to the EOF tie-in (e.g., low-pressure alarm system and automatic shut-in), Venoco staff shall conduct daily visual monitoring of the access road above the pipeline and soils adjacent to the access road. Staff shall inspect for obvious indicators of a small leak such as petroleum smells and any seepage of oil or visible sheen in soils adjacent to the roadway. If any indicators are present, Venoco shall (1) notify City of Goleta and California State Lands Commission (CSLC) staffs within 24 hours, (2) conduct further investigations to determine the source of the indicator, and (3) repair the pipeline as necessary upon City and CSLC staff approval.</p>	<p>Along the pipeline in the access road</p>	<p>Venoco shall inspect the pipeline and provide the report and any indications of a leak to the City of Goleta and CSLC. If any indicators are present Venoco shall conduct further investigations to determine the source of the indicator and conduct repairs as necessary.</p>	<p>Regularly inspecting the pipeline will ensure that leaks are detected early and would prevent large releases of oil.</p>	<p>City of Goleta, CSLC</p>	<p>During Project operation</p>
	<p>MM WQ-3b. Storm Water Pollution Prevention Plan (SWPPP). A site-specific SWPPP shall be prepared for</p>	<p>Venoco Offices</p>	<p>Venoco shall prepare a site-specific SWPPP</p>	<p>The Plan will prevent releases of contaminants</p>	<p>RWQCB, City of Goleta</p>	<p>Prior to implementing Project</p>

Table 7-5. Mitigation Monitoring Program—Hydrology, Water Resources, and Water Quality

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	construction activities and the existing Ellwood area SWPPP shall be updated to include the Project and submitted to the Regional Water Quality Control Board (RWQCB), Central Coast Region, and City of Goleta to prevent adverse impacts to nearby waterways associated with oil spills and contaminated storm water releases not covered under the Emergency Action Plan (EAP), which only applies to “significant events.” This plan shall include site-specific diagrams illustrating primary surface drainage features (e.g., Bell Canyon Creek, Devereux Creek and Devereux Slough, and proposed spill containment, delineation of drainage features) and a description of Best Management Practices (BMPs), including spill containment equipment and procedures tailored for the Project site.		and submit it to the Central Coast RWQCB.	and sediment to nearby waterways.		activities
Impact WQ-4: Cumulative Impacts to Marine Water Quality Potential oil spills occurring as a result of recommissioning of PRC 421 could result in contributions to cumulative water quality impacts on the waters of the Santa Barbara Channel (Significant and Unavoidable).	Each of these projects must meet regulatory requirements designed to reduce the probability and consequences of accidental releases to the environment. However, even the best-designed and implemented MMs, such as safe design of the facilities, oil spill contingency plans, training and drills, and availability of oil spill cleanup means, cannot eliminate all risk of an oil spill.	Santa Barbara Channel	Implementation of standard regulatory process.	Permits obtained and regulator processes adhered to.	Local, State and Federal agencies	Ongoing

Table 7-6. Mitigation Monitoring Program—Marine Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>Impact MBIO-1: Disturbance to Intertidal Organisms during Construction Construction activities during recommissioning activities at Pier 421-2 and following decommissioning and removal of Pier 421-1 would disturb and kill intertidal invertebrates and might dislodge grunion eggs (Less than Significant with Mitigation).</p>	<p>MM MBIO-1. Avoid Caisson Repair on Pier 421-2 and Removal of Pier 421-1 during Grunion Spawning Season. Project activities that require equipment access on the beach shall be scheduled to avoid, to the extent possible, anticipated California grunion runs. In the event that construction will occur during the seasonally predicted run period and egg incubation period for California grunion as identified by the California Department of Fish and Wildlife, a Project Biological Monitor, hired by the City of Goleta and paid by Venoco, shall be present on the Project site each night, for the entire night, from one night before the beginning of each seasonally predicted grunion run until one night after the end of each run to monitor the presence of grunion on the site. If any adult grunion are observed at the Project site, no construction activities requiring equipment access within the area of the observed grunion will be allowed until after the next predicted grunion run (or two weeks after the last run in August) in which no adult grunion have been observed on the Project site, unless otherwise approved by the California State Lands Commission staff.</p>	<p>Project Caissons</p>	<p>Venoco to coordinate with City of Goleta, CSLC, and CDFW on timing of Caisson repairs outside of grunion season. Project biological monitor to oversee construction.</p>	<p>Caisson repairs occur outside grunion runs. Construction avoids documented grunion spawning areas.</p>	<p>City of Goleta, CSLC, CDFW</p>	<p>During Project construction</p>
<p>Impact MBIO-2: Impacts to Marine Organisms from Sediment Resuspension in the Near-Shore Zone</p>	<p>Implement MMs WQ-1a through WQ-1b and MMs HAZ-1c through HAZ-1-d.</p>	<p>See specific MMs in MMP for details on Location, Monitoring/ Reporting Action, Effectiveness Criteria, Responsible Agency, and Timing</p>				

Table 7-6. Mitigation Monitoring Program—Marine Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>due to Disturbance of Sediments during Construction Activities during construction activities such as caisson repairs on non-seaward facing walls on Pier 421-2 and later decommissioning and removal of Pier 421-1 would have the potential to resuspend sediments in near-shore waters due to the disturbance of beach sediments. Resuspension of sediment, particularly contaminated sediments, could have adverse impacts on marine organisms (Less than Significant with Mitigation).</p>						
<p>Impact MBIO-4: Oil Spill Impacts to Marine Resources Leaks and spills of petroleum hydrocarbons into the ocean could adversely affect marine organisms (Significant and Unavoidable).</p>	<p>MM MBIO-4a. Update South Ellwood Field Oil Spill Contingency Plan (OSCP) to Address a Spill from Lease PRC 421 Oil Production. Prior to beginning construction at PRC 421 and prior to the City of Goleta's issuance of the Land Use permit, Venoco shall update the South Ellwood Field OSCP to address protection of sensitive biological resources disturbed during an oil spill or cleanup activities. The revised OSCP shall include specific measures to avoid impacts on</p>	Ellwood Area	Venoco shall coordinate with CSLC, CDFW, the County, the City and Coal Oil Point Reserve on preparation of the OSCP.	The OSCP is updated and approved by all affected agencies.	CSLC, CDFW, Santa Barbara County, City of Goleta	Prior to Project operation

Table 7-6. Mitigation Monitoring Program—Marine Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>Federal- and State-listed endangered and threatened species, and shall specifically identify training and procedures to contain oil spilled from production at Lease PRC 421. The OSCP shall identify sensitive resources, including the birds on the Bird Island platforms, kelp beds offshore the piers, intertidal and subtidal resources within the Campus Point SMCA such as those at Coal Oil Point, the harbor seal rookery at Burmah Beach and Naples Reef, and the Naples MPA that could be oiled rapidly from a spill on PRC 421. Rapid response procedures to protect those sensitive resources shall be identified. Venoco shall submit the updated South Ellwood Field and OSCP to the California State Lands Commission, Department of Fish and Wildlife Office of Spill Prevention and Response, California Coastal Commission, Santa Barbara County, and City of Goleta staffs for review and approval prior to operation of the recommissioned facilities.</p>					
	<p>MM MBIO-4b. Develop a Protection Plan to Keep Birds Roosting on Bird Island from Harm in the Event of an Oil Spill on Lease PRC 421. Prior to starting construction at PRC 421 and prior to the City of Goleta’s issuance of a Land Use Permit, Venoco shall engage a biologist experienced with wildlife and bird rehabilitation to determine whether it is necessary to develop a plan specifically to protect</p>	<p>Ellwood Area</p>	<p>Venoco to coordinate with CSLC and CDWF and selected wildlife rehabilitation expert on need for preparation of Bird Island Protection Plan.</p>	<p>The protection plan, if necessary, is approved by CSLC and CDFW and provides clear measures to avoid disturbance of or harm to birds</p>	<p>CSLC, CDFW, City of Goleta</p>	<p>Prior to Project operation</p>

Table 7-6. Mitigation Monitoring Program—Marine Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	pelicans and cormorants roosting on the Bird Island platforms from harm in the event of an oil spill. The biologist shall submit a memorandum explaining their position to the California State Lands Commission staff for review and approval. If the biologist deems plan preparation necessary, Venoco shall include this plan within the revised OSCP, potentially including methods to deter the birds from feeding or resting in oiled waters. The plan also shall include procedures to capture and rehabilitate oiled birds. If the plan is deemed necessary, Venoco shall submit the Plan to the California State Lands Commission, California Coastal Commission, Santa Barbara County, and City of Goleta staffs for review and approval prior to operation of the recommissioned facilities.			using Bird Island.		
Impact MBIO-5: Oil Spill Impacts to Commercial and Recreational Fishing Accidental discharge of petroleum hydrocarbons into marine waters would adversely affect commercial and recreational fishing (Significant and Unavoidable).	Implementation of MMs identified in Sections 4.2, Safety; 4.5, Hydrology, Water Resources, and Water Quality; and 4.7, Terrestrial Biological Resources, for contingency planning and spill response would be required.	See specific MMs in MMP for details on Location, Monitoring/ Reporting Action, Effectiveness Criteria, Responsible Agency, and Timing				
Impact MBIO-7: Cumulative Impacts of an Oil Spill on Marine Resources	Implementation of MMs MBIO-4a and MBIO-4b would be required.	See specific MMs in MMP for details on Location, Monitoring/ Reporting Action, Effectiveness Criteria, Responsible Agency, and Timing				

Table 7-6. Mitigation Monitoring Program—Marine Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Oil development at PRC 421 would add to the cumulative risk that marine resources would be impacted by one or more oil spills (Significant and Unavoidable).						

Table 7-7. Mitigation Monitoring Program—Terrestrial Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Impact TBIO-1: Short-Term Construction Impacts to Biological Resources Construction activities associated with installation of underground cables, repair of pipelines, recommissioning of Pier 421-2, and decommissioning and removal of Pier 421-1 and related infrastructure may impact existing wetlands along the project access road and nearby ESHAs (Less than Significant with Mitigation).).	MM TBIO-1a. Locate Power Cables and Pipeline Outside ESHA. To the maximum extent feasible, Venoco shall locate new power cables and pipeline repair activities outside existing wetland areas and wetland buffers (defined as undeveloped lands surrounding wetlands) along the access road. A wetland delineation shall be performed in accordance with MM WQ-2. The delineation report and related restoration plan, if required, will establish construction avoidance techniques and restoration where impacts cannot be avoided. The City of Goleta requires a minimum 3 to 1 ratio for wetland or wetland buffer impacts. The wetland delineation, wetland protection plan, and related restoration plan shall be prepared by Venoco for the City of Goleta and Coastal Commission comment and final approval prior to issuance of the City's Land Use Permit. To protect adjacent	PRC 421 access road	Project <u>biological</u> monitor shall ensure that fencing is installed around all sensitive wetland areas, and that all construction avoids these protected areas.	No intrusion of construction activities into protected areas.	CSLC, City of Goleta	During Project construction

Table 7-7. Mitigation Monitoring Program—Terrestrial Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>small wetlands from disturbance, the inland edge of the access road shall be fenced prior to commencement of construction activities. Any unavoidable intrusion of construction activities into this area shall only be performed under the supervision of a City of Goleta-approved biologist. Venoco shall also engage a qualified biologist to prepare a Native Habitat and Special Status Species Survey and Protection Plan (Protection Plan) to be submitted to the City of Goleta and the California Coastal Commission for review and approval prior to the issuance of the City's Land Use Permit. The Protection Plan will map and describe accurate locations of resources in the City's jurisdiction, from the mean high tide line north to Hollister Avenue, in the context of the Project features and all construction staging, laydown, stockpile, and parking areas and shall identify methods to avoid or reduce related impacts to sensitive biological resources and resource buffers. Protection measures will include, at a minimum, a requirement for pre-construction surveys, worker training, the presence of the Project Biological Monitor during all construction activities, and authorization of the Project Biological Monitor to stop work if threats to any sensitive species or habitats are identified during monitoring.</p>					
	<p>MM TBIO-1b. Project Biological Monitors. The City of Goleta shall hire</p>	<p>PRC 421 access</p>	<p>The monitor shall oversee the</p>	<p>Sensitive wetland areas are</p>	<p>CSLC, City of Goleta</p>	<p>Throughout Project</p>

Table 7-7. Mitigation Monitoring Program—Terrestrial Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>a Project Biological Monitor, paid for by Venoco, to supervise pipeline and cable installation, and oversee all construction activities that cross sensitive biological areas and habitat restoration and enhancement activities. The Project Biological Monitor shall ensure that damage to any sensitive wetland habitat within or adjacent to construction zones is minimized. The Project Biological Monitor and the project engineer shall clearly designate “sensitive resource zones” on the project maps and construction plans, which would include the mouth of Bell Canyon Creek. Sensitive resource zones shall be defined in the Native Habitat and Special Status Species Survey and Protection Plan (required under MM TBIO-1a), to avoid impacts to special status biological resources. If the Project Biological Monitor determines that birds are nesting and/or breeding in the Project vicinity, Venoco shall cease Project activities that may affect these birds during the breeding season.</p>	road	<p>installation and maintenance of temporary fencing around sensitive habitats and ensure that construction activities do not intrude into or damage these areas.</p>	protected from damage.		construction
	<p>MM TBIO-1c. Restoration Plan/Restoration. Venoco shall submit a Restoration Plan, prepared by a consultant specializing in restoration ecology to the City, California State Lands Commission, California Coastal Commission, and California Department of Fish and Wildlife staffs for review and approval prior to the issuance of the City’s Land Use Permit. The Restoration Plan shall include at</p>	PRC 421 access road, EOF	<p>The project biologist shall document any disturbance to native habitats and provide recommendations on and oversight of restoration activities.</p>	Disturbed native habitats are restored.	CSLC, City of Goleta	Four weeks prior to completion of Project construction

Table 7-7. Mitigation Monitoring Program—Terrestrial Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>least the following elements and shall be consistent with the wetland-specific guidance and Native Habitat and Special Status Species Survey and Protection Plan associated with implementation of MM WQ-2a and TBIO-1a.</p> <p>a. Venoco shall restore any plant communities disturbed by Project construction activities within 90 days of completion of Project construction in conformance with the City-approved Restoration Plan.</p> <p>b. The Plan shall include criteria for evaluating success of restoration efforts and contingencies in the event efforts and not successful.</p> <p>c. Any salvaging and replanting of existing native vegetation shall be undertaken as much as feasible at the direction of the Project Biological Monitor.</p> <p>d. Only native locally derived vegetation and seeds shall be planted in project restoration areas.</p> <p>e. Monitoring and reporting of restored sites by the Project Biological Monitor biologist shall occur for a minimum of 5 years after Project completion, with changes made as necessary based on annual monitoring reports.</p>					
	<p>MM TBIO-1d. Protect Stockpiles of Excavated Material. In addition to Best Management Practices identified in the State Water Resource Control Board 401 certification, materials excavated to install the underground cables shall be stockpiled in such a way that they will</p>	<p>PRC 421 access road, EOF</p>	<p>The monitor shall ensure proper stockpiling of material to avoid any disturbance to native habitats.</p>	<p>Wetlands are protected from stockpiled fill material.</p>	<p>CSLC, City of Goleta</p>	<p>During Project construction</p>

Table 7-7. Mitigation Monitoring Program—Terrestrial Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>not inadvertently spill into or be washed into wetland areas. Stockpile areas shall be located at least 100 feet from delineated wetlands. Drainages and any riparian areas shall be prohibited from use for disposal or temporary placement of excess fill. The Project Biological Monitor shall ensure compliance with this mitigation measure during construction monitoring activities.</p>					
	<p>MM TBIO-1e. Equipment Use, Storage, and Maintenance. Prior to issuance of the Project Land Use Permit, Venoco shall submit an equipment use, storage, and maintenance work plan to the City of Goleta and California State Lands Commission staffs for review and approval. The work plan shall include at least the following elements.</p> <p>a. Heavy equipment and construction activities shall be restricted to the defined construction right-of-way. Vehicles and personnel shall only use existing access roads to the maximum degree feasible.</p> <p>b. Emergency provisions shall be in place at all drainage crossings prior to the onset of construction to deal with accidental spills.</p> <p>c. All equipment used on site and in or near drainages shall be maintained such that no leaks of oil, fuel, or vehicle residues will take place.</p> <p>d. Provisions shall be in place to remediate any accidental spills.</p> <p>e. All machinery shall be stored and</p>	<p>PRC 421</p>	<p>The project contractor shall ensure that all equipment is properly maintained. The project monitor will verify the appropriate maintenance occurs.</p>	<p>Accidental leaks and spills are avoided or cleaned up.</p>	<p>CSLC, City of Goleta</p>	<p>During Project construction</p>

Table 7-7. Mitigation Monitoring Program—Terrestrial Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	fueled in designated locations, such as the equipment laydown areas next to the Ellwood Onshore Facility, as specified in previous sections.					
	MM TBIO-1f. Biological Enhancement Activities. Where possible (e.g., not including steep slopes adjacent to the roadway), existing native habitats within 100 feet of the proposed trenching activities shall be enhanced in terms of their biological value through removal of invasive, non-native species and the planting of appropriate native species. Enhancement activities are to include removal of the non-native giant reed (<i>Arundo donax</i>) and other invasive species identified by the Project Biological Monitor. Hand-removal of above-ground stalk and rhizome biomass shall be undertaken to prevent damage to adjacent native plants. Monitoring and reporting of restored sites by the Project Biological Monitor shall occur for a minimum of 5 years after Project completion, with changes made as necessary based on annual monitoring reports.	Three small wetlands along PRC 421 access road and Bell Canyon Creek Estuary	The Project Biologist shall identify all clumps of <i>Arundo</i> or other highly invasive species along access road and in Bell Canyon Creek Estuary and oversee their removal.	Highly invasive non native species are removed.	CSLC, City of Goleta	Prior to completion of Project construction
Impact TBIO-2: Oil Spill Impacts to Terrestrial Biological Resources An accidental oil spill and subsequent cleanup efforts during operation of the Project would potentially result in the	MM TBIO-2a. Oil Spill Contingency Plan (OSCP) Measures Regarding Protection of Biological Resources. Before re-starting production at PRC 421, Venoco shall revise and update the OSCP to address protection of sensitive biological resources disturbed during an oil spill or cleanup activities. The revised OSCP shall, at a minimum, include: (1) specific measures to avoid	PRC 421 and Ellwood Coast area	Venoco shall prepare a revised EAP that permits training and provides funding for the two understaffed agencies most responsible for oversight of the	A revised OSCP is submitted and approved by concerned agencies and adequate funding is provided to local agencies.	CSLC, OSPR, CCC, Santa Barbara County, and City of Goleta	Prior to Project operation

Table 7-7. Mitigation Monitoring Program—Terrestrial Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>loss or injury of threatened, endangered, or candidate species such as the Western snowy plover; the loss or degradation of functional habitat value of sensitive biological habitats such as coastal wetlands; or cause a substantial loss of a population or habitat of native fish, wildlife, or vegetation (Significant and Unavoidable).</p>	<p>impacts on Federal- and State-listed endangered and threatened species and Environmentally Sensitive Habitat Areas (ESHAs) during response and cleanup operations; (2) identify, feasible, low-impact, site-specific, and species-specific techniques; (3) identify standards of a spill response personnel training program; (4) funding (up to \$5,000 each) for City and Coal Oil Point Reserve updates to multi-hazard response plans and other emergency response documents (e.g., those for Coal Oil Point Reserve) to ensure clear internal and inter-agency communication in the event of an accident and for spill clean-up/restoration; and (5) provide one-time training and a brief checklist regarding the OSCP and the Emergency Action Plan for Neighborhood Services and Public Safety Department and Planning and Environmental Review Department, and the staff of the Coal Oil Point Reserve. Venoco shall submit the updated OSCP to the California State Lands Commission, Department of Fish and Wildlife Office of Spill Prevention and Response, California Coastal Commission, Santa Barbara County, and City of Goleta staffs for review and approval prior to operation of the recommissioned facilities.</p>		<p>sensitive biological resources potentially affected by a Project-related oil spill.</p>			
	<p>MM TBIO-2b. Oil Spill Contingency Plan (OSCP) Measures Regarding Habitat Protection and Restoration. Before re-starting production at PRC 421, Venoco shall revise and update</p>	<p>PRC 421 and Ellwood Coast area</p>	<p>Venoco shall revise the OSCP to address revegetation of any areas</p>	<p>A revised OSCP is submitted and approved by concerned agencies and</p>	<p>CSLC, Santa Barbara County, City of Goleta</p>	<p>Prior to Project operation</p>

Table 7-7. Mitigation Monitoring Program—Terrestrial Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>the OSCP to address revegetation of any areas disturbed during an oil spill or cleanup activities. The revised OSCP shall include: (1) preemptive identification of access and egress points, staging areas, and material stockpile areas that avoid sensitive habitat areas; (2) stipulations for development and implementation of site-specific habitat restoration plans and other site-specific and species-specific measures; (3) identification of sources for restoration project implementation (e.g., restoration contractors, seed vendors, native plant nursery facilities, academic institution support); (4) procedures for timely re-establishment of vegetation; (5) monitoring procedures and minimum success criteria to be satisfied for restoration areas; (6) funding (up to \$5,000 each) for City and Coal Oil Point Reserve updates to multi-hazard response plans and other emergency response documents to ensure clear internal and inter-agency communication in the event of an accident and for spill clean-up/restoration; and (7) provide one-time training a brief checklist regarding the OSCP and the Emergency Action Plan for Neighborhood Services and Public Safety Department and Planning and Environmental Review Department. Venoco shall submit the updated OSCP to the California State Lands Commission, Department of Fish and Wildlife Office of Spill Prevention and</p>		<p>disturbed during an oil spill or cleanup activities.</p>	<p>adequate funding are provided to local agencies.</p>		

Table 7-7. Mitigation Monitoring Program—Terrestrial Biological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	Response, California Coastal Commission, Santa Barbara County, and City of Goleta staffs for review and approval prior to operation of the recommissioned facilities.					
Impact TBIO-3: Cumulative Impacts to Terrestrial Biological Resources Potential oil spills occurring as a result of recommissioning Pier 421-2 could result in contributions to cumulative terrestrial biological resource impacts (Significant).	MMs TBIO-2a and -2b would apply to this impact.	See specific MMs in MMP for details on Location, Monitoring/ Reporting Action, Effectiveness Criteria, Responsible Agency, and Timing				

Table 7-8. Mitigation Monitoring Program—Land Use, Planning, and Recreation

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Impact LU-1: Conflicts with Goleta General Plan/Coastal Land Use Plan and underlying Coastal Act Policies Production of oil and gas at PRC 421 would increase the potential for accidental releases of oil into the environment and conflict with policies contained within the Goleta General	MM LU-1a. Obtain Property Owner Authorizations. Prior to issuance of any Land Use Permit, Venoco shall secure all required property owner authorizations or other documentation, including encroachment permits or easements to the satisfaction of the City of Goleta allowing the project on or within property not owned by the permittee, including, but not limited to property owned by Sandpiper Golf Trust and the City.	N/A	Venoco shall present documentation of all necessary authorizations.	Confirming authorizations will avoid unauthorized land uses.	City of Goleta, CSLC	Prior to issuance of land use clearances.
	MM LU-1b. Obtain Permits Required by Title 15 of Goleta Municipal Code. Venoco shall obtain from the City's	N/A	Venoco shall present documentation	Confirming permits will avoid unauthorized	City of Goleta, CSLC	Prior to issuance of land use

Table 7-8. Mitigation Monitoring Program—Land Use, Planning, and Recreation

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Plan/Coastal Land Use Plan (GP/CLUP) Land Use, Open Space, or Conservation Elements and relevant underlying Coastal Act policies (Significant and Unavoidable).	Planning and Environmental Review Department all Building, Electrical, Well or other Permits required by Title 15 of the Goleta Municipal Code prior to the construction, erection, moving, alteration, enlarging, rebuilding of any building, structure, or improvement, or any other action(s) requiring a Building Permit pursuant to Title 15 of the Goleta Municipal Code.		that all necessary permits have been received.	land uses.		clearances.
	MM LU-1c. Obtain City Land Use Permit Prior to Development. The permittee shall obtain from the City's Planning and Environmental Review Department a Land Use Permit prior to commencement of any uses and/or development authorized by this permit.	N/A	Venoco shall ensure receipt of the necessary land use permit.	Ensuring permitting prior to development allows for implementation of mitigation.	City of Goleta, CSLC	Prior to start of Project development.
Impact LU-2: Oil Releases Could Affect Recreational Activities High-quality recreational resources are located within the area and could be impacted by the spread of oil from an accidental release from surf zone production activities at Pier 421-2, associated pipelines, and transportation by the Line 96 pipeline. Shoreline and water-related uses would be disrupted by oil on the shoreline and in the	Implementation of those MMs identified 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, reinforcement of caisson containment walls, and contingency planning and spill response.	See specific MMs in MMP for details on Location, Monitoring/ Reporting Action, Effectiveness Criteria, Responsible Agency, and Timing				

Table 7-8. Mitigation Monitoring Program—Land Use, Planning, and Recreation

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
water, resulting in significant impacts to on- and off-shore public recreation (Significant and Unavoidable).						
<p>Impact LU-3: Oil Releases from Pier 421-2 or Pipelines Could Affect Sensitive Area Resources and Raise Consistency Issues with Adopted Policies.</p> <p>Spills that reach the shore along sensitive land use areas or heavily used areas, including recreational areas, would limit or preclude such uses and result in significant adverse impacts (Significant and Unavoidable).</p>	<p>Implementation of those MMs 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, for reinforcement of caisson containment walls, and contingency planning and spill response.</p>	<p>See specific MMs in MMP for details on Location, Monitoring/ Reporting Action, Effectiveness Criteria, Responsible Agency, and Timing</p>				
<p>Impact LU-4: Cumulative Impacts of Potential Project-Related Oil Spills on Area Land Use and Recreational Uses</p> <p>Impacts to sensitive shoreline lands, and/or water and non-water recreation due to a release of oil would result in</p>	<p>Implementation of those MMs 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, for reinforcement of caisson containment walls, and contingency planning and spill response would be required.</p>	<p>See specific MMs in MMP for details on Location, Monitoring/ Reporting Action, Effectiveness Criteria, Responsible Agency, and Timing</p>				

Table 7-8. Mitigation Monitoring Program—Land Use, Planning, and Recreation

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
potentially significant impacts. When the cumulative environment is considered, the contribution from the Project could be significant (Significant and Unavoidable).						

Table 7-9. Mitigation Monitoring Program—Public Services

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>Impact PS-1: Adequacy of Fire Response</p> <p>The incremental increase for fire protection services caused by reactivating oil production in an area which is currently under-served with difficult and limited accessibility contributes to the need for new and/or expanded fire inspection and protection services in western Goleta (Significant and Unavoidable).</p>	<p>MM PS-1. Impact Development Fee.</p> <p>Venoco shall provide an impact development fee payment to the City of Goleta that would be directed toward fire response improvements. The fee would be determined based on the County of Santa Barbara's Development Fee Ordinance (County Ordinance 4745), which assesses a fee of \$1,007.00 per 1,000 sf for non-retail commercial development in Fiscal Year 2013-2014. For the purposes of determining the fee, the Project area would consist of the PRC 421 piers, pipeline corridor, and roadbed, which has a total cost of \$26,168. Fire response upgrades, which may include maintenance of a 12-foot-wide all-weather access road and installation of portable fire extinguishers, shall be implemented per Santa Barbara County Fire Department (SBCFD) requirements. Venoco shall also obtain a hot-work permit from SBCFD before</p>	At PRC 421	Venoco shall pay an impact development fee to the City of Goleta. CSLC will identify the fee as part of final approval of this project.	The impact fee will help pay for the construction of a new fire station that could service the project site.	CSLC, SBCFD, and City of Goleta	Upon Project approval

Table 7-9. Mitigation Monitoring Program—Public Services

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	any hot-work operations on the Project.					
Impact PS-2: Operation without an Approved Fire Prevention Plan Operating PRC 421 without an approved fire protection plan could result in an unsafe situation if an emergency requiring response by Venoco or the Santa Barbara County Fire Department were to occur (Less than Significant with Mitigation).	MM PS-2. Prepare Fire Prevention Plan for PRC 421. Prior to re-starting oil and gas production at PRC 421, Venoco shall prepare a fire prevention plan that includes fire prevention strategies for the Project area. The plan may either be in the form of a stand-alone plan for the PRC 421 facilities or included as an update to the South Ellwood Facilities Fire Prevention and Preparedness Plan. The Plan shall be submitted to the City of Goleta and the Santa Barbara County Fire Department (SBCFD) for review and approval prior to the issuance of the City's Land Use Permit.	At PRC 421	Venoco shall ensure that a Fire Prevention Plan is created for PRC 421.	A Fire Prevention Plan would detail fire prevention strategies for the project.	SBCFD, City of Goleta	Prior to City's Land Use Permit issuance

Table 7-10. Mitigation Monitoring Program—Transportation and Circulation

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Impact TR-1: Construction-Generated Traffic Traffic generated from construction activities would have a short-term, less than significant impact on local transportation and circulation (Less than Significant with Mitigation).	MM TR-1a. Route Construction Traffic to Avoid Congested Intersections. To minimize the potential for adverse impacts, Venoco shall direct Project construction traffic, particularly heavy trucks, during non-emergency trips, to avoid congested areas at Storke Road and use the Winchester Canyon Overpass to access the Project site. Venoco shall prepare and implement a Construction Traffic Control Plan that would apply to all construction activities, including but not limited to recommissioning and decommissioning activities, for review and approval by the City of Goleta.	Winchester Canyon Overpass	The project contractor and monitor shall ensure that construction traffic accesses the project site and Highway 101 from the Winchester Canyon Overpass instead of Storke Rd.	Directing traffic away from Storke Rd will reduce traffic congestion.	City of Goleta	During Project construction

Table 7-10. Mitigation Monitoring Program—Transportation and Circulation

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	MM TR-1b. Repair/Upgrade Any Damage to Access Road. To minimize the potential for adverse impacts, Venoco shall repair/upgrade the access road if it receives damage or degradation as a result of construction-related traffic. The access road shall be inspected and photographed before and after the Project, and a determination will be made regarding any needed repairs.	Access road	The project contractor and monitor shall ensure that repairs to damage from construction related activities are preformed on the access road.	Impacts from short-term construction are less than significant on local transportation, circulation, and roadways.	City of Goleta	During and after Project construction

Table 7-11. Mitigation Monitoring Program—Noise

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Impact NZ-1: Construction Impacts to Beach Users and Golfers Short-term noise levels would increase during Project construction potentially affecting a public beach and the Sandpiper Golf Course (Less than Significant).	MM NZ-1a. Sound-Control Devices. All construction equipment shall have properly maintained sound-control devices, and no equipment should have an unmuffled exhaust system.	At PRC 421	The project contractor shall ensure that all construction equipment has properly maintained sound control devices and that no equipment has an unmuffled exhaust system. The project monitor will review and confirm implementation of required measures.	Ensuring the use of sound control devices will reduce noise generated from construction equipment.	City of Goleta	During Project construction
	MM NZ-1b. Additional Best Management Practices (BMPs). Contractors shall implement	At PRC 421	The project contractor should ensure that all	Implementing noise mitigation measures will	City of Goleta	During Project construction

Table 7-11. Mitigation Monitoring Program—Noise

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>appropriate BMPs to avoid impacting the public including but not limited to changing the location of stationary construction equipment, shutting off idling equipment, and installing acoustic barriers around significant sources of stationary construction noise, so that the noise at sensitive receptors such as golf courses, water recreation areas, and riding stables does not exceed 70 A-weighted decibels (dBA) California Noise Equivalent Level (CNEL).</p>		<p>appropriate noise mitigation measures are implemented, as detailed. The project monitor should review and confirm implementation of measures.</p>	<p>reduce noise generated from the project.</p>		
	<p>MM NZ-1c. Buffers. To the maximum extent feasible, adequate distance buffers shall be maintained between noise-generating machinery or equipment and any sensitive receptors. The buffer shall be of a width that will ensure that noise at the receiver site such as a residence does not exceed 65 A-weighted decibels (dBA) California Noise Equivalent Level (CNEL), and at receptors such as golf courses, water recreation areas, and riding stables, the noise does not exceed 70 dBA CNEL. For equipment that produces a noise level of 95 dBA at 50 feet, a buffer of 1,600 feet is required for attenuation of sound levels to 65 dBA.</p>	<p>At PRC 421</p>	<p>The project contractor and project monitor should ensure that noise buffers are maintained, as detailed, in coordination with the City of Goleta.</p>	<p>Noise buffers will reduce noise generated from the project for sensitive receivers.</p>	<p>City of Goleta</p>	<p>During Project construction</p>

Table 7-12. Mitigation Monitoring Program—Aesthetics/Visual Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Impact VR-1: Visual Effects from Construction Activities at PRC 421 Construction activities would create negative visual impacts (Less than Significant with Mitigation).	MM VR-1a. Use Laydown Areas for Overnight Storage of Equipment. Equipment placed on the beach shall be returned to the laydown areas at the end of each workday, both for public safety and for aesthetic considerations.	At the beach at PRC 421	The project contractor and monitor shall ensure that all construction equipment placed on the beach is returned to the laydown areas at the end of each work day.	Removing equipment from the beach will eliminate visual impacts on the weekends and at night.	CSLC and City of Goleta	Each night during Project construction
	MM VR-1b. Caution Tape around Materials Placed on Beach. Materials temporarily placed on the upper reaches of the beach shall be roped-off with caution tape and removed within 24 hours in most cases.	At the beach at PRC 421	The project contractor and monitor shall ensure that materials placed on the beach temporarily are roped off with caution tape and removed as detailed.	Removal of items placed temporarily on the beach after 24 hours will reduce visual impacts.	CSLC and City of Goleta	During Project construction
	MM VR-1c. Material Removal at Construction Completion. All materials, equipment, and debris shall be removed from the site upon completion of the Project construction. Venoco shall revegetate all areas subject to ground disturbance associated with project construction with species that are biologically and visually compatible with the surroundings in accordance with a Restoration Plan approved by the City of Goleta as identified in MM TBIO-1c Restoration Plan/Restoration.	At PRC 421	Venoco shall ensure that all construction materials will be removed from the Project site after completion and appropriately revegetate disturbed areas.	Removal of construction materials and revegetation will help minimize visual impacts	CSLC and City of Goleta	At construction completion
	MM VR-1d. Minimal Night Lighting. Lighting shall use the minimum number	At PRC 421	Venoco shall ensure that use	Minimal use of night lighting will	CSLC and City of Goleta	During construction

Table 7-12. Mitigation Monitoring Program—Aesthetics/Visual Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
	<p>of fixtures and intensity needed for construction activities. Fixtures shall be fully shielded and have full cut-off lights to minimize visibility from public viewing areas, wildlife habitats, migration routes, and other sensitive environs. Venoco shall prepare and implement a Night Lighting Plan to ensure that night lighting is minimal and directed away from sensitive habitats to the maximum extent feasible, for review and approval by the City of Goleta.</p> <p>MM VR-1e. No Night Lighting After 5:00 p.m. Night lighting and work shall not occur past the 5:00 p.m. work stoppage deadline.</p>	<p>At PRC 421</p>	<p>of night lighting will be minimized</p> <p>Venoco shall ensure that construction activities cease by 5 p.m. and that no night lighting is used thereafter.</p>	<p>help reduce visual impacts to receptors</p> <p>Adherence to the 5 p.m. stoppage deadline will reduce the need for night lighting and reduce visual impacts.</p>	<p>CSLC and City of Goleta</p>	<p>During construction</p>
<p>Impact VR-2: Visual Effects from Accidental Oil Spills Project implementation would incrementally increase the likelihood of oil spill from primary or secondary Project components, including Pier 421-2, associated pipelines, and the Line 96 pipeline (Significant and Unavoidable).</p>	<p>Implementation of those MMs identified in Sections 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 for contingency planning and spill response shall be required.</p>	<p>See specific MMs in MMP for details on Location, Monitoring/ Reporting Action, Effectiveness Criteria, Responsible Agency, and Timing</p>				

Table 7-13. Mitigation Monitoring Program— Cultural, Historical, and Paleontological Resources

Impact (Class)	Mitigation Measure (MMs)	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
<p>Impact CR-1: Potential Impacts to Previously Undiscovered Cultural Resources During Construction</p> <p>Although no cultural resources are known to be present within the Project area and Project activities would generally occur in previously disturbed areas, excavations around the EOF and along the Project access road could exceed previous depths and disturb previously undiscovered cultural resources (Less than Significant with Mitigation).</p>	<p>MM CR-1. Cultural Resources Monitor. A qualified cultural resources expert shall act as a construction monitor during all ground-disturbing work. The expert shall be retained by the City of Goleta and paid for by Venoco. The Cultural Resources Monitor shall prepare a Cultural Resources Monitoring Plan, outlining the approach to monitoring, involvement of the affected Native American nation, and detailing pre-construction workshops for construction personnel for review approval by the City of Goleta and paid for by Venoco. In the event archaeological resources are encountered during grading, as observed by the cultural resources monitor or their designee, work shall be stopped immediately or redirected until the City-approved archaeologist and local Chumash observer can evaluate the significance of the find pursuant to Phase 2 investigation standards set forth in the City Archaeological Guidelines. The Phase 2 shall be funded by Venoco. If resources are found to be significant, they shall be subject to a Phase 3 mitigation program consistent with City Archaeological Guidelines. The Phase 3 shall be funded by the permittee. This requirement shall be printed on all plans submitted for any City of Goleta Land Use Permit, building, grading, or demolition permits.</p>	At PRC 421, EOF	Monitors shall prepare memoranda for review by City describing any discovered resources and the course of action taken. If a Phase II investigation is necessary, Venoco shall consult with the City to identify and retain a cultural resources expert to prepare the investigation.	Expert monitor will ensure that any previously undiscovered resources are protected.	City of Goleta	During construction

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8.0 REPORT PREPARATION SOURCES AND REFERENCES

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8.0 Report Preparation Sources and References

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