2.0 PROJECT DESCRIPTION

This section of the Environmental Impact Report (EIR) addresses and describes the history and details of the proposed Revised PRC 421 Recommissioning Project (Project) and is organized as follows. Section 2.1 presents a history of State Oil and Gas Lease PRC 421 (PRC 421) and the Project site and provides an overview of existing PRC 421 facilities and other oil production facilities in the Ellwood area. This area, located within and adjacent to the City of Goleta, Santa Barbara County, encompasses offshore and coastal areas between the Bacara Resort and Coal Oil Point, including onshore areas that extend almost to Hollister Avenue. Sections 2.2 through 2.5, respectively, describe the Project, including: current conditions at the Project site; Project construction activities; proposed operation, maintenance, and safety controls; and the Project's proposed use of the Line 96 pipeline for oil transportation. Section 2.6 discusses decommissioning of Well 421-1 and removal of Pier 421-1. Section 2.7 concludes with a discussion on the eventual future decommissioning and abandonment of the PRC 421 lease as a whole.

2.1 PROJECT BACKGROUND

2.1.1 PRC 421 Lease and Production History

The original oil and gas lease (Lease No. 89) was issued in 1929, terminated and renewed under PRC 421 in 1949, and subsequently reassigned several times with the last and current assignment to Venoco, Inc. (Venoco) in 1997 (see Table 2-1). The two existing PRC 421 piers, Pier 421-1 and Pier 421-2, are the last remaining production structures associated with the prolific oil development of the Ellwood Oil Field that occurred along the Ellwood Coast from the late 1920s to 1990s. The Ellwood Oil Field, which was discovered by Barnsdall Oil Company in 1928, is approximately 4 miles long and 0.5 mile wide, and trends east-west along the shoreline just south of the Sandpiper Golf Course. The immediate Project vicinity supported numerous onshore and offshore wells from the 1930s through the 1950s, along with substantial supporting infrastructure. Peak production from the entire Ellwood Oil Field reached nearly 49,000 barrels of oil per day (BOPD) in 1930.[1] Remnants of this infrastructure still exist today, including multiple capped wells, the old timber seawall which lines portions of the Ellwood Coast, and the surf zone production piers of PRC 421.

Construction of the PRC 421 piers began in 1928; Pier 421-1 was completed in November 1929 and Pier 421-2 was completed in April 1930. A total of nine wells were drilled within PRC 421 into the Vaqueros Reservoir (a portion of the Ellwood Oil Field), which is the source of oil produced from PRC 421 (CSLC 2006). Production peaked 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 "*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*."
		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: 1) return PRC 421 to oil production from the existing Well 421-2; and 2) process PRC 421 crude oil emulsion at the EOF.

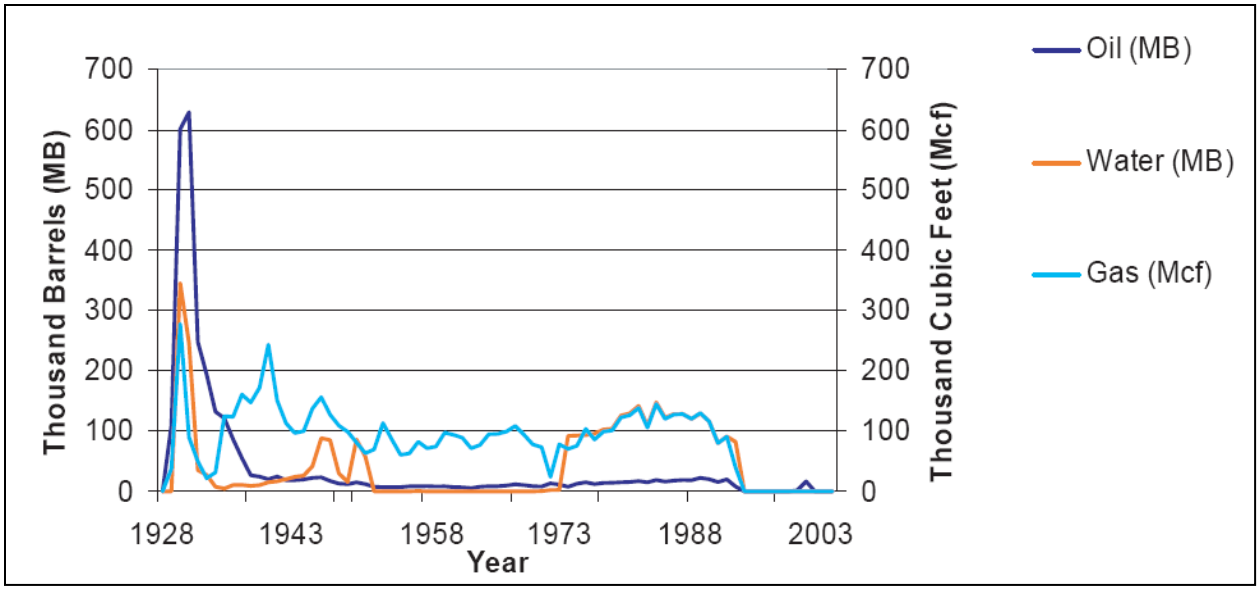


Figure 2-1. Production History of PRC 421

By the mid-1950s, more than half of the offshore wells in the Ellwood Oil Field were plugged and abandoned. On PRC 421, all but two wells were plugged and abandoned. The two that remained were Well 421-2, a producer, and Well 421-1, which was converted in 1973 to receive injection of produced water. Ellwood area oil facilities continued to be operated and developed, with active development occurring in the Ellwood area into the 1990s. By the end of 1993, Well 421-2 became the only producing well in the Ellwood Oil Field. Mobil Exploration and Producing, Inc. (Mobil) was the lessee at that time, having acquired the lease from Atlantic Richfield Company (ARCO). In 1997, Mobil sold the lease and the Ellwood facilities, including the piers, Ellwood Marine Terminal (EMT), Ellwood Onshore Facility (EOF), and Platform Holly to Venoco, now an independent oil and gas company.

The Ellwood Oil Field produces light "sweet"[2] oil that is low in sulfur and carbon dioxide and that requires less processing to meet product specifications than the heavier oil typically found in the South Ellwood Oil Field located further offshore, which requires processing to remove hydrogen sulfide (H_2S) and other impurities. The gravity of the oil from Well 421-2 is 35° American Petroleum Institute (API).

Recent production information is only available for Well 421-2 since Well 421-1 has not produced oil since 1972. During the latest five consecutive years of operation (1989 to 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.

2.1.2 PRC 421 Spill and Repair History

In 1994, PRC 421 was shut-in when the 6-inch pipeline extending from the PRC 421 piers to Line 96 leaked, resulting in a release of approximately 170 barrels of oil underneath the 12th green at the Sandpiper Golf Course, near the coastal bluffs.[3] Mobil obtained an Emergency Permit (94-EMP-002) and a Final Development Plan (94-FDP-009) from Santa Barbara County for clean-up and repair of the pipeline. Oiled soil was excavated and the area cleaned up as part of the pipeline repair project.

In November 2000, during routine Santa Barbara County Air Pollution Control District (APCD) inspections, a methane gas leak was detected at Well 421-1 and Well 421-2 experienced an oil leak induced by a fluid level check. Subsequent inspection noted the corroded condition of the well control and associated equipment occupying the piers and the potential for a release to the adjacent marine environment. Santa Barbara County approved specific corrective actions in an emergency permit (No. 00-EMP-006) on November 28, 2000, and the California Coastal Commission (CCC) and other agencies also issued emergency permits. Revisions to the 2000 County emergency permit (Revision RV01-03) authorized a series of major improvements and repairs in 2001 to stabilize both wells on PRC 421. The County assessed environmental impacts of the repair project in a ND in 2001 (01-ND-34). The access road was resurfaced to permit heavy equipment access, riprap was installed to reinforce the old timber bulkhead seawall, and the piers supporting the two caissons were repaired and reinforced. Other activities included repairing the caissons, casings, and wellheads, installing subsurface safety valves in the wells, and removing all production equipment from the piers. Under the emergency permit, a temporary flowline was extended from the EOF to Well 421-2 to relieve wellhead pressure. The depressurization of Well 421-2 resulted in the production of approximately 17,000 barrels of oil during the 10 months it flowed.[4] (See discussion on Vaqueros Reservoir Repressurization in Section 4.2, Safety.) Following the well stabilization project, the wells were re-idled.

On January 19, 2004, following a series of severe winter storms, a large section of the outer caisson wall of Pier 421-1 sheared off and fell into the surf below. In response to a CSLC directive and to protect the caisson from further deterioration, Venoco installed a new wall face on the ocean (south) side of the caisson with a small return on the adjacent east and west facing walls. Venoco also removed the fallen wall debris from the beach. Construction of the new wall was completed on December 22, 2004. Emergency permits 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).

(USACE) (200401576-JCM), and CCC (E-01-013-G) and the environmental impacts of this activity were assessed in a ND in 2006 (06-MND-01). The City of Goleta granted a follow-up permit (05-132-DP) in October 2006.

In November 2010, routine CSLC inspections revealed that the ocean side of the caisson structure at Pier 421-2 was also rapidly deteriorating due to continual wave and environmental action and was in need of immediate repair. In order to repair the caisson and protect it from further deterioration a new wall face was installed on the ocean side of the Pier 421-2 caisson in 2011, with a small extension of the wall onto the adjacent walls. The new repair wall is virtually identical to the repair wall installed on the Pier 421-1 caisson in 2004. It consists of 15 steel piles installed in holes drilled 25 feet into the underlying bedrock. Precast concrete panels were installed between the steel piles to provide the new wall surface. Concrete was installed between the replacement wall and the existing caisson for additional strength and to solidify the structure. The majority of this work was completed from the existing caisson and pier structure. Access was required on the beach to excavate beach sand to assure clear access for drilling the pile holes, for concrete panel placement, and as needed to support the project. Emergency permits for the caisson repair work were granted by the City of Goleta (10-120-EMP), CCC (E-10-013-G), and USACE (2010-959-JWM).

In November 2011, the CSLC directed Venoco to remove all old pilings from Piers 421-1 and 421-2 that no longer provide structural support as they were becoming a threat to public safety. In February 2011, Venoco removed 72 redundant pilings from the piers.

In 2012, the Line 96 Modification Project to extend Line 96 from the EOF to the Plains All American Pipeline, L.P. (PAAPLP) Coastal Pipeline located west of Las Flores Canyon (LFC) was completed and became operational. Operation of the extended Line 96 allowed cessation of barging activities and operations at the EMT.

2.1.3 CSLC Lease Boundary and Regulatory Boundary Areas

State Oil and Gas Lease PRC 421 is located in the surf zone off the Ellwood Coast, just south of Sandpiper Golf Course, southeast of the EOF, and 2,000 feet west of the Ellwood Mesa. The Bacara Resort is located approximately 3,700 feet west of the lease location. The lease area is offshore of the City of Goleta, extending from the surf zone at the two well locations offshore to a water depth of about 50 feet below Mean Lower Low Water (MLLW).

2.1.4 Existing Infrastructure at PRC 421

The primary facilities associated with PRC 421 occupy approximately 10,000 square feet of pier space and include two piers on State tide and submerged lands below the bluffs at the southern limit of Sandpiper Golf Course. The two piers, Pier 421-1 and Pier 421-2, are approximately 325 feet apart and provide access and support for two wells

on separate concrete caissons: Well 421-1 (to be decommissioned and Pier 421-1 to be removed) and Well 421-2 (oil production). Currently, both PRC 421 wells are shut-in and equipped with subsurface safety valves and packers. Each steel-pile caisson is a concrete and sheet pile, sand-filled structure, approximately 68 feet wide, 42 feet deep, and 20 feet above mean sea level (msl).

An access road originating near the EOF provides access to the two shoreline piers at PRC 421. The access road extends from the EOF for 500 feet across Sandpiper Golf Course and then turns east and extends approximately 1,300 feet along the beach to the PRC 421 piers. An existing 6-inch pipeline connects PRC 421 to Line 96 (the oil line that historically connected the EOF to the EMT) at a tie-in located just outside of the EOF. Portions of the access road and the 6-inch pipeline are located within easements granted to Venoco by predecessors in the interest of the Sandpiper Golf Course and are located in the City of Goleta.

2.2 PROPOSED PROJECT

The CSLC is considering whether to approve Venoco's application to return PRC 421 to production after ongoing production was shut-in in 1994. If approved, the CSLC would authorize Venoco to resume production of the lease, which Venoco expects would commence in 2015 and continue for an estimated 20 years (until year 2035) depending upon production characteristics and Project economics. Other agencies, including the City of Goleta, CCC, and others, also have or may have permit authority over elements of the Project (see Section 1.3.1, Permits, Approvals and Regulatory Requirements).

Important Project components are summarized below.

- Pier 421-2 and Well 421-2. PRC 421 production would occur only on Pier 421-2 from Well 421-2.
- Pier 421-1 and Well 421-1. Following the return to production of Well 421-2, Venoco would plug and decommission a second well (Well 421-1), located on an adjacent pier (Pier 421-1), and would remove Pier 421-1 and the caisson and facilities that support Well 421-1. Well 421-1 was historically used as a water and gas injection well during past production of PRC 421.
- Pipelines and Cables. An existing 6-inch ~~outer-~~diameter pipeline would be extended to the EOF and used as a protective sleeve (hereafter referred to as a "line") for a new 3-inch flowline inserted inside the existing line. Power for Well 421-2 equipment would be provided through a new power cable with between 1,100 and 1,800 volts of alternating current (VAC) and a new 480 VAC cable. A communication cable for safety and security systems monitoring would also be 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 remain within existing Platform-Holly-to-EOF permitted production limits (13,000 BOPD dry basis) (see Section 2.4.1).

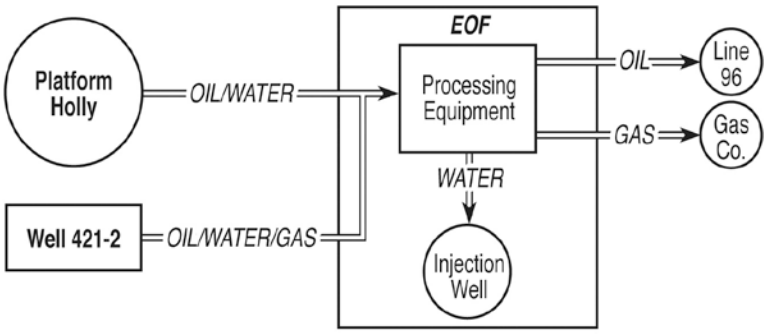


Illustration 2-1. *Production from PRC 421 would commingle with production from Venoco's Platform Holly after entering the EOF for separation into oil, gas, and water streams, with the water stream disposed of via injection into Well WD-1.*

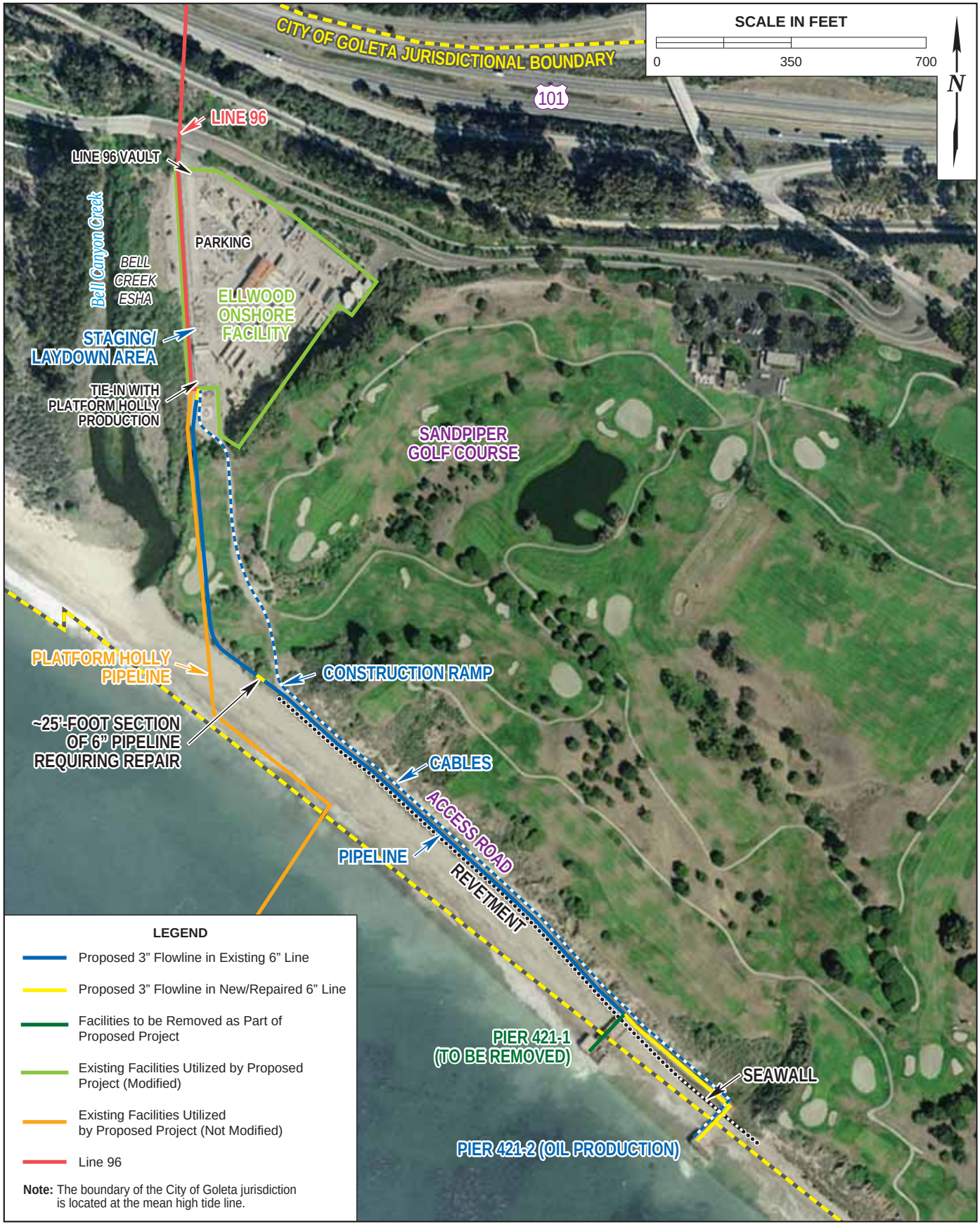
- Project Life. The Project would not extend the life of the EOF; in the event that Platform Holly production ceases and Platform Holly is decommissioned, PRC 421 production would also cease and its facilities would be decommissioned.

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.



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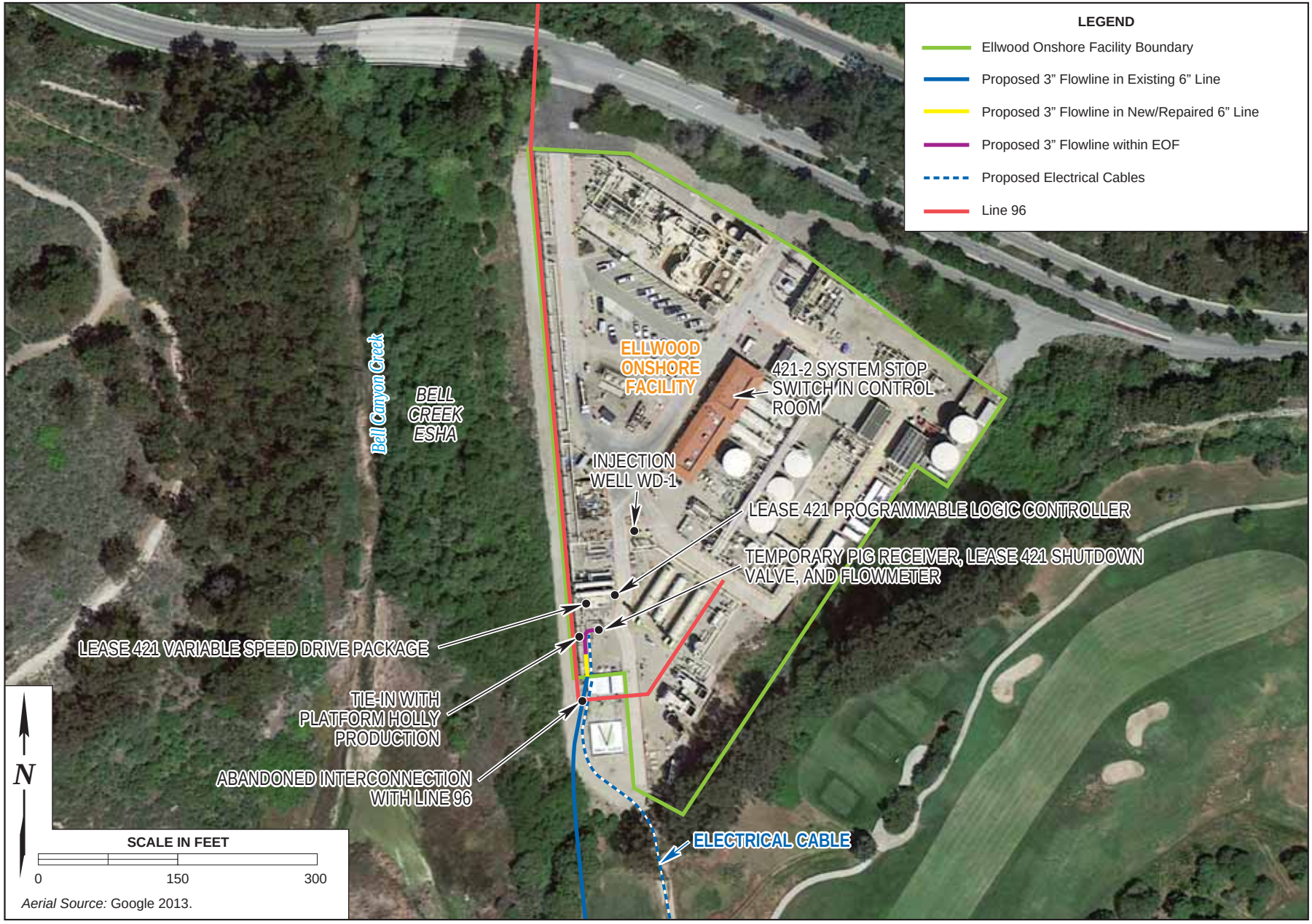
Project Components [Revised]

FIGURE 2-2



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Project Components – EOF Details [Revised]

FIGURE 2-3

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_2S. 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.

Physical Description of Proposed Project/Project Components

Pier 421-2

Well 421-2 would be returned to service as an oil production well. For the well to function safely, a number of upgrades would need to be made, including installation of the following recommissioning activities described further below.

- A new electrical submersible pump (ESP) approximately 2,000 feet below ground level inside the casing of Well 421-2 and associated stainless steel enclosures;
- A new power cable from the EOF to the ESP;
- A new power cable from the EOF to Pier 421-2 to power metering, well instrumentation, and control systems.
- Well safety equipment;
- Connecting piping and installation of a pig launcher connection;
- Production metering and process monitoring equipment within the EOF;
- Provisions for process monitoring and control between Pier 421-2 and the EOF;
- New wood-plank decking and replacement railings on around the perimeter of the Pier 421-2 deck for safety and aesthetic purposes;
- A communication system, including a cable between Pier 421-2 and the EOF;
- A surveillance camera mounted on Pier 421-2 that would monitor the piers and would provide live video feed displayed in the EOF Control Room;
- One new 3-inch oil flowline (inside the upgraded existing 6-inch line) connecting Pier 421-2 to the EOF for processing;
- Repair of an existing buried produced liquid pipeline; and
- Reactivation of Well 421-2.

Use of an ESP would eliminate the previous surface pumping equipment and its associated noise. Two stainless steel electrical equipment enclosures would be located at the wellhead: one to house the wellhead safety control panel (including high/low pressure sensors, hydraulic reservoir, and other necessary actuation equipment); and the second electrical box to house the utility power transformer and receptacle as well as house the electronics associated with the metering and communication of safety signals. The wellhead safety control panel and electrical panel are each expected to measure 48 cubic feet in size. The electrical panel would also house the electrical service receptacle, an auxiliary stop switch to be used by well servicing personnel, and would include a tamper switch to alert staff at the EOF of possible tampering (i.e., vandalism). A surveillance camera would be mounted on Pier 421-2 to monitor the pier. The live video feed would be displayed in the EOF control room.

The south (ocean facing) side of the Pier 421-2 caisson was previously repaired under emergency permits in 2010 to address integrity issues caused by the deteriorated caisson wall. The repair was carried out by installing a new wall face on the south side and a portion of the east and west sides of the caisson. Fifteen steel piles were installed for the south wall repairs. As part of the proposed Project, the north wall, as well as the remaining portions of the east and west walls would be repaired (Figure 2-4).

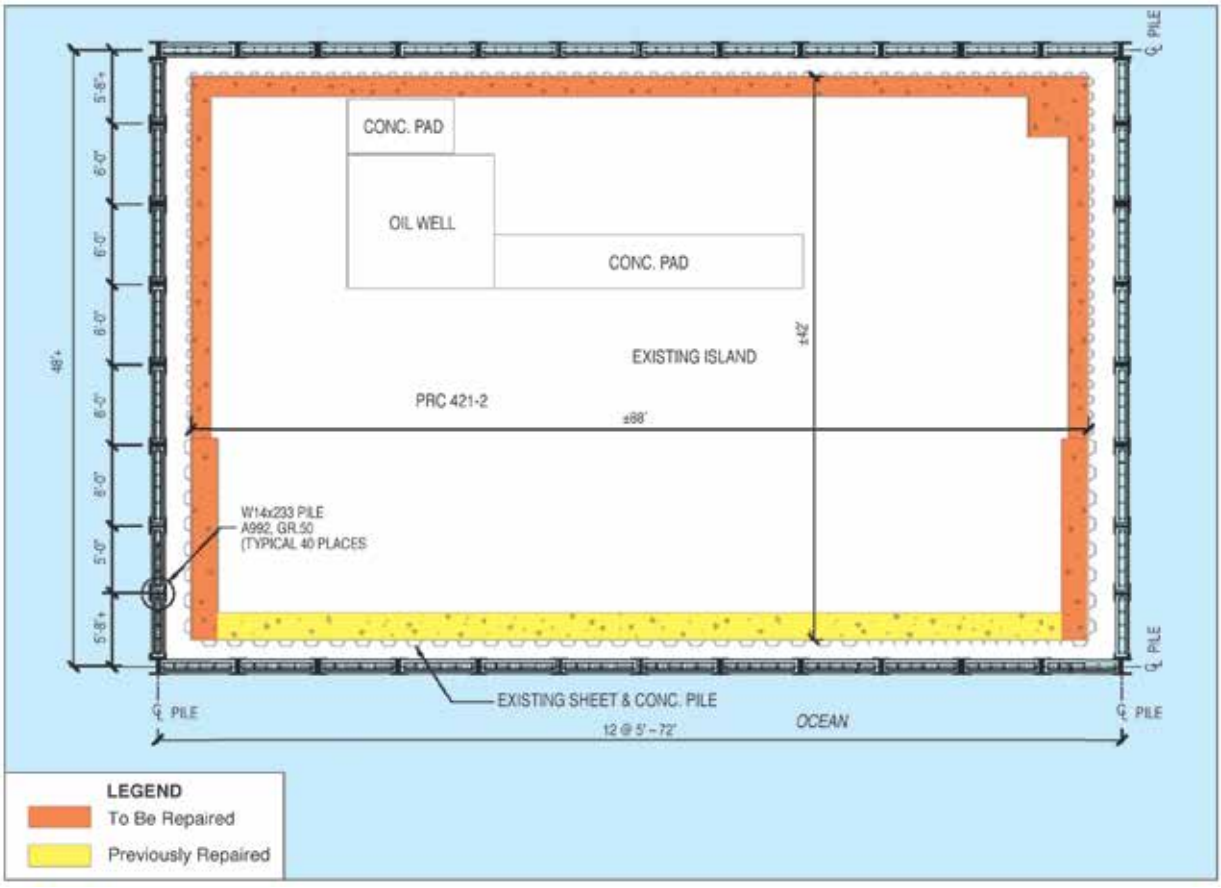

Figure 2-4. Proposed Caisson Repairs At Pier 421-2

The addition of 25 steel piles, spaced 6 feet apart, would be installed into 25-foot-deep holes drilled into the Monterey shale bedrock around the caisson. An auger/core-type drilling rig will be used to drill holes for the piles. A 45-ton crane would place the piles into the holes, then concrete will be pumped into the holes to set the piles. The crane would also install the new wall, which would consist of pre-cast concrete panels installed in between the steel piles. Concrete would be poured in the space between the new concrete panels and the existing caisson. Major equipment required to accomplish the above repair work includes: a 45-ton mobile crane, an auger/core-type drilling rig, semi-trucks, welding truck, power pack, ready-mix concrete trucks, concrete pump truck, flatbed trucks, Cat 320 excavator, Cat 950 loaders, backhoes, dump trucks, roll off waste bins and transport trucks, motor grader, vacuum truck, 1-ton tool truck, pick-up trucks, fuel truck, water truck, jack hammer, water pump, air compressor, portable lighting and concrete saw, miscellaneous carpentry, concrete and welding equipment.

Pier 421-1

As proposed, once production has begun and is being processed in the EOF, Well 421-1 would be decommissioned and Pier 421-1 would be removed. Section 2.6 below provides details regarding the decommissioning and removal plan.

Pipelines

PRC 421 production would be delivered through a replacement pipeline from Pier 421-2 north and west to the EOF. The existing pipeline terminates at an abandoned interconnection with Line 96 in an existing gravel access road between Bell Canyon Creek on the west and the EOF on the east, leaving the PRC 421 6-inch pipeline temporarily disconnected from the product transport system. From the abandoned interconnection with the Line 96, a new 5025-foot-long piping connection would be constructed to inside the EOF fenceline. At the EOF fencelineend of the new pipeline segment, the 3-inch piping would continue to the north into the EOF, to connect with the 8-inch Platform Holly production header for processing. This connection point would occur downstream of the existing Platform Holly oil pig receiver, located well inside of the EOF where the Platform Holly oil pipeline changes into an 8-inch header. The PRC 421 pipeline would tie into this existing 8-inch header above ground.

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.)*

Within the EOF, this line would include high and low pressure safeties and a shutdown valve. Connections would be provided to deploy a temporary pig receiver for intermittent pipeline cleaning and inspection of the 3-inch flowline (Illustration 2-2). A ‘pig’ is a term used in the

context of pipelines and refers to a pipeline inspection gauge to perform various maintenance operations on a pipeline. Without stopping the flow of product in a pipeline, the pig is inserted into a 'pig launcher' (or 'launching station'). The launcher/launching station is then closed and the pressure-driven flow of the product in the pipeline is used to push the pig along down the pipe until it reaches the receiving trap (i.e., the 'pig receiver').

Downstream of the pipeline shutdown valve located within the EOF, the emulsion produced from Well 421-2 would flow through a multiphase flow meter for proper allocation of the commingled oil, gas and water. This flowmeter and its related electronics would fit within an area approximately 45 cubic feet in size. The production line would then connect to the 8-inch-diameter production header from Platform Holly, which carries an emulsion of oil and water.

An existing 6-inch ~~outer-diameter~~ pipeline currently connects PRC 421 to an abandoned interconnection with Line 96. The pipeline extends from Pier 421-1 along a Venoco right-of-way (ROW) approximately 1,300 feet along the old seawall to a point just south of the 12th tee of the Sandpiper Golf Course, turns north into the Platform Holly pipeline ROW, and extends another 500 feet ending just south of and outside of the EOF (Figures 2-2 and 2-3). The pipeline connects to the existing Line 96 pipeline at a valve box located on an easement granted to Venoco that lies just outside the limits of the EOF parcel, south of the heliport. The existing 6-inch pipeline is wrapped and cathodically protected against external corrosion. The 6-inch pipeline leaked in 1994 when it functioned as a pipeline and transported oil from PRC 421 (see Section 2.1.1, PRC 421 Lease and Production History). The leak was repaired and the pipeline was last hydrotested by Mobil in March 1994.

This pipeline has not been in use since the 1994 shut-in and would no longer function as a pipeline, but as a protective sleeve (hereafter referred to as a "line") for the flowline that would be contained within this line. As part of the proposed Project, this existing 6-inch line, which currently terminates at Pier 421-1, would be extended to Pier 421-2. To ensure integrity of the existing 6-inch line between PRC 421 and the abandoned connection point with Line 96, a new internal pipe lining will be installed, as described in detail below under Section 2.3.4, Construction Details. The existing 6-inch line would then be hydrotested to a required 100 pounds per square inch gauge (psig) pressure to confirm it is suitable for leak containment prior to installation of the 3-inch flowline. The impressed current cathodic protection system on the Platform Holly pipelines would be enhanced to include the PRC 421 6-inch line to protect the line against external corrosion. EOF has an active cathodic protection system including four deep well anode beds with rectifiers, distributed around the EOF.

A new 3-inch flowline would be inserted inside the existing 6-inch line. This flowline would be designed with a maximum operating pressure of 275 psig and a minimum

hydrotest pressure of 425 psig and be rated for continuous operation at temperatures up to 130 °Fahrenheit (F). At a minimum, the flowline would hold the indicated test pressure for a period of not less than 8 hours. Hydrotest water would be provided by the Goleta Water District connection located at the EOF and drained back to the EOF when finished. The returned hydrotest water would be introduced into the oil processing system for treatment and disposal.

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

A non-metallic composite pipe would be used for the 3-inch flowline. This pipe is made of a type of high density polyethylene (HDPE) with a layer of metal or fiberglass mesh imbedded within. Because it is non-conductive and immune to galvanic electrochemical effects, this pipe would not corrode like metal piping and is also impervious to many aggressive chemicals as well as scale build-up.

Electric Cables

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

Pier, Pipeline, and Cable Auxiliary Facilities and Features

The proposed Project includes processing of produced oil/gas/water emulsion at the EOF. Proposed modifications that would be required at the EOF are summarized below.

- At the connection point from the 3-inch flowline to the 8-inch production header carrying produced oil from Platform Holly, installation of pressure sensors, pressure gauges, and a flowmeter sensor to monitor production from Well 421-2. The flowmeter and its related electronics would fit within an area approximately 45 cubic feet in size.

- Installation of a programmable logic controller (PLC) near the flowmeter sensor to provide communication with the existing control room at the EOF and control of the PRC 421 well and pipeline.
- Installation of a transformer on a small (approximately 2 feet by 4 feet) equipment foundation to be located at the southwest corner of EOF, near the PLC.
- Installation of buried power and communication cables from the southwest corner of the EOF to the Pier 421-2 wellsite.
- Installation of an electrical motor control panel in the existing Remote Monitoring System in the EOF control room (see Remote Monitoring System for PRC 421 under Section 2.4.2 for further details). Power cable connections would occur within existing conduits in the EOF.
- A security surveillance camera would be mounted on Pier 421-2 and a live video feed will be displayed in the EOF control room.

No alterations would occur to the capacity of the existing emulsion/processed crude heat exchangers, emulsion/waste water heat exchangers, heater treaters or pipelines.

Hydraulic Fracturing not Part of Project

As a condition of approval for the Recommissioning Plan, Venoco will not conduct any well stimulation techniques within PRC 421 using hydraulic fracturing ("fracking"), 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 not included in the environmental analysis for this Project.

2.3 CONSTRUCTION PROCEDURES FOR RECOMMISSIONING PRC 421

Construction details on the proposed repair work on the Pier 421-2 caisson walls are provided above under the Pier 421-2 discussion. Section 2.6 below provides decommissioning and abandonment details for Pier 421-1 that would occur following the start of production from Pier 421-2. Construction to recommission oil and gas production involves the following sequence of events (some tasks may occur concurrently):

- Installation of an ESP with tubing, packer, and subsurface control equipment in Well 421-2;
- Installation of reflective warning tape on top of the pipeline as a safety measure to prevent damage to the pipeline during digging;
- Installation of connections for temporary pig launcher and pig receiver at the EOF;

- Installation of electrical motor control panel, transformer, and power cable connections at the EOF;
- Installation of a surface control equipment at the Well 421-2 wellhead;
- Pigging and clean-up of the existing 6-inch line;
- Cut-out and removal of the two 90-degree bends within the existing 6-inch line and installation of internal liner;
- Installation of 6-inch line extension to 421-2 pier and installation of tie-in piping inside EOF;
- Insertion of new 3-inch flowline within existing 6-inch line;
- Re-joining of existing 6-inch line at area where 90° bends removed;
- Installation of new power cables and a communications cable to be trenched in the existing access road;
- Testing of pipelines and equipment; and
- Work site restoration and cleanup.

2.3.1 Construction Schedule

Recommissioning construction activity is estimated to extend over 90 work days with hours of construction occurring between 7:00 AM and 7:00 PM. The construction activity would be most noticeable during the periods of repairing the Pier 421-2 caisson, inserting the plastic liner and the new nonmetallic composite flowline within the existing 6-inch line, burial of the power cable, and movement of the workover rig to and from Pier 421-2. Each of these operations should be relatively brief. Burial of the new power cable under the access road through the golf course area is expected to take approximately one week. The downhole well work associated with Well 421-2 is expected to take approximately 15 work days. The construction schedule for the decommissioning and abandonment of the Pier 421-1 structure (pier and caissons) will occur after production begins from Pier 421-2 (see Section 2.6.5 below).

2.3.2 Construction Staging Area and Equipment

During the construction phase of the Project, all construction equipment and materials would be staged in an existing easement area located immediately adjacent to the EOF west fence line. A 30-foot by 30-foot helipad at the south end of the EOF could also be used as an additional staging area for vehicles and materials should the need arise. Temporary construction fencing would be placed along the Bell Creek ESHA located immediately west of the EOF access road. The access road between Piers 421-1 and 421-2 would also be used for staging. Temporary construction fencing would be placed around the wetlands located immediately north (bluff side) of the access road, near the

entrance to Pier 421-2 to protect it from construction activities, along the Hollister Avenue to PRC 421 gravel access road to protect the adjacent Bell Canyon Creek riparian habitat, and all other Project-related work areas that are adjacent to native habitats. 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. Equipment anticipated to be necessary for construction activities associated with the 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

2.3.3 Best Management Practices

Best Management Practices (BMPs) would be implemented throughout the construction phase of the proposed Project. As the proponent, Venoco would implement site-specific construction mitigation plans, including a traffic minimization plan and equipment refueling plan. A copy of proposed BMPs is located in Appendix F.

2.3.4 Construction Details

Pier 421-2

Construction activity at Pier 421-2 would consist of installing new production technologies, including the ESP and pipeline improvements. A portable well service rig would be placed over Well 421-2 and the tubing, packers and flow isolation valves that were placed in the well during pressure control operations in 2001 would be removed. The completion work for Well 421-2 would be based upon a program and procedure approved and witnessed by the CSLC and the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR).

Pipeline Installation

Overview

~~One~~ The existing 6-inch pipeline between PRC 421 and the EOF would be extended, repaired, and lined in order to provide protection for a new 3-inch nonmetalic composite flowline ~~within an existing~~ that would run inside the 6-inch pipeline ~~with a new internal~~

~~plastic liner~~ and be used to transport emulsion from PRC 421-2 to the EOF. Between Pier 421-1 and 421-2, a new section of 6-inch pipeline with lining would be installed, replacing the existing 2-inch flowline ~~Pier 421-2 and Pier 421-1~~between the piers. Additionally, a new section of 6-inch pipeline with lining would be installed between the abandoned interconnection with Line 96 just south of the EOF (where the existing 6-inch pipeline ends) to a point inside of the EOF. A 25-foot-long section in the old 6-inch line would be repaired and a liner would be installed in the existing and repaired portions of the 6-inch pipeline. For oil being conveyed to Line 96, a new 3-inch nonmetalic composite flowline and plastic liner would be installed within the existing/new 6-inch line between Pier 421-~~1~~2 and the tie-in within the EOF (Figure 2-2, 2-5).

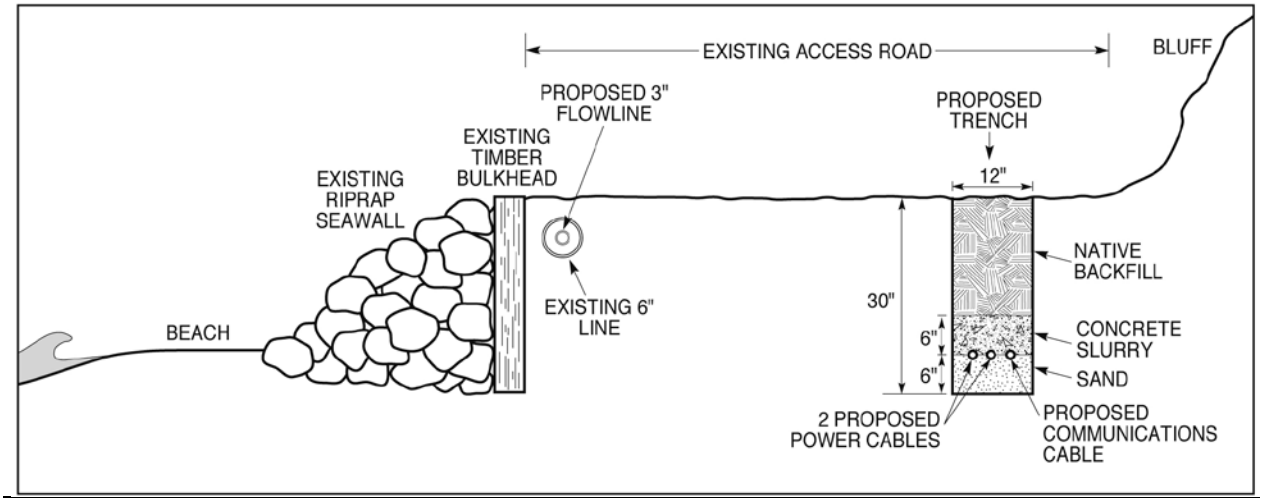

Figure 2-5. Existing Access Road and Proposed Pipeline and Power Cable Corridor

Insertion of the new plastic liner and the 3-inch flowline within the 6-inch line would occur by placing winches and spooling units either at the location of the cut-out miter bends location or at either end of the pipeline. Any field cuts would be made above a portable containment basin with a vacuum truck present to capture any fluid and prevent contamination of the surrounding environment. No trenching would be required other than to expose the ends of the existing 6-inch line and to open up an intermediate point to repair the exposed section of 6-inch line.

Extensions to the 6-inch Line

The 6-inch pipeline would be extended at either end in order to provide protection to the 3-inch flowline between PRC 421-2 and the EOF. The approximately 450-foot-long segment between Pier 421-1 and to the end of Pier 421-2 would be located along the access road, approximately one foot below the surface (Figure 2-5), and along the pier, while the 50-foot segment in the vicinity of the EOF would be located adjacent to the access road just south of the EOF (Figure 2-2). These extensions would occur along and adjacent to the access road and require some trenching, as discussed below.

Repairs to Existing 6-inch Line

The internal pipe coating for the existing 6-inch line would be applied using a process known as "fold and form" sliplining. During this process, a thin-wall, HDPE liner is temporarily deformed into a "heart" shape cross-section, which would then allow direct insertion into the existing 6-inch line. After insertion, the pipe would be "inflated" back to its correct cross-section. The inflation process would be accomplished using low-pressure (less than 100 psig) air or water. In some cases, a heated media, such as hot water, may be used to aid in restoring the final shape of the liner.

Within the existing 6-inch line, at a point close to the location of the 1994 leak after which production from Well 421-2 ceased, there is an exposed section with two 90-degree bends where the protective wrapping has been lost (see Figure 2-2). This section of pipe, approximately 25 feet in length, would be cut out and replaced with new, wrapped 6-inch line. The section would also serve as an intermediate pulling point for both the 6-inch slipline and the internal 3-inch flowline.

A pulling winch would be located at this point and would pull the 6-inch "fold and form" liner from two insertion points. One insertion point would be located in the PRC 421 access roadway, and the other insertion point would be located adjacent to the existing 6-inch line termination point located just outside the EOF fence, alongside the access roadway. After the liner has been pulled through each of the two pipeline segments, it would be inflated to its final size and tested.

Installation of New 3-inch Flowline

In a manner similar to the installation of the 6-inch liner, the 3-inch internal flowline would be pulled into the now-internally lined 6-inch line. Following integrity testing of the newly installed liner, a pulling winch would again be located at the proposed pulling location. The 3-inch flowline would be pulled into the combined existing/new 6-inch line from two directions; one insertion point would be located in the Pier 421 access roadway, and the other insertion point would be located adjacent to the existing 6-inch line termination point located just outside the EOF fence, alongside the access roadway. After the 3-inch flowline is pulled through each of the two pipeline segments, it would be pressure tested. Final assembly would include installation of annular (i.e., ring-shaped) casing end seals and anchors at the ends of the existing 6-inch line.

The final tie-in would take place following successful pressure testing of the 3-inch flowline. Piping would be installed to connect the 3-inch flowline from the existing/new 6-inch line, to an existing flange connection point on the 8-inch production header carrying produced oil from Platform Holly located within the EOF. This connection point is located at the southwest corner of the EOF inside the fence. Pressure sensors and gauges as well as a flowmeter sensor would be installed on this portion of the flowline to monitor production from Well 421-2. A connection for a temporary pig receiver would

also be installed in this location to receive cleaning pigs that may be run in the flowline in the future.

Following installation of the 3-inch flowline, the discontinuous existing 6-inch containment piping at the pipe pulling location would be joined together again, thus providing continuous 100-percent containment. The pipeline system would again be pressure-tested to verify containment piping integrity. DOGGR would be notified to witness pressure testing of the proposed 3-inch flowline.

Installation of New Power and Communication Cables

The new power and communication cables would be buried in a trench at least 24 inches below the existing access road. The trench would be excavated to dimensions of 2,500 feet long, 1 foot wide, and 30 inches deep, and would be designated with power cable markers located along the route on the edge of the existing access road. The cable route would be surveyed and staked within the access road ROW, avoiding adjacent Environmentally Sensitive Habitat Areas (ESHAs). Six inches of sand bedding would be placed into the bottom of the ditch and the two power cables would be placed into the ditch atop the sand, after which the ditch would be backfilled with a concrete slurry mixture to a minimum depth of 6 inches over the cables. The slurry would provide additional protection to the buried cables and provides "early warning" to future parties who may dig along this route. The remainder of the ditch would be filled using materials excavated from the site, and the surface would be restored (Figure 2-5). The estimated area of disturbance associated with cable excavation is 6,250 square feet. Additional excavation would be required to affect repairs to the existing 6-inch line at the 12th green at Sandpiper Golf Course, and to ~~expose piping~~extend the 6-inch pipeline between Piers 421-1 and 421-2 and between the abandoned interconnection with Line 96 just south of the EOF to a point inside of the EOF. Along the access road, a moving construction spread and traffic control procedures would be implemented during trenching so as to minimize congestion, as well as minimize "open hole" length. 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.

An estimated 231 cubic yards (cy) of material would need to be excavated for the cable trench, while approximately 46 cy of sand bedding and 65 cy of slurry would be imported; re-use of excavated material may be possible depending upon its condition. The excavated material would be temporarily stored along the access road adjacent to the trench. Approximately 115 cy of material would be backfill and 120 cy of soil would be exported. Excavation would also be required to repair 25 feet of the existing 6-inch line at the 12th tee area of the Sandpiper Golf Course and to ~~expose piping~~extend the 6-inch pipeline at either end of the existing line: approximately 450 feet along Pier 421-2 and between Piers 421-1 and 421-2, and 50 feet between the abandoned interconnection with Line 96 just south of the EOF to a point inside of the EOF.

Assuming that the amount of excavation and backfill for this other work will be equal, approximately 116 cy of material would be excavated and backfilled at these other locations. After the cable and conduit have been installed, the trench would be backfilled and compacted in conjunction with access road reconstruction. Trenching and backfill would not take more than one week. Inside the EOF, the cables would be routed to tie into the existing systems. Subject to final engineering review and contractor selection, trenchless installation technologies may be used, if appropriate. This offers the potential to reduce the volumes of cut and fill.

Modifications at the EOF

Construction activities at the EOF would include installation of various pressure sensors and gauges, ~~installation of~~ a programmable logic controller (PLC), motor controller, variable speed drive, transformer, and electrical motor control panel (see Remote Monitoring System for PRC 421 under Section 2.4.2 for further details). The PLC and motor controller would be placed in an upgraded electrical cabinet, which is currently near the pig receivers. 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. This equipment would be located within the existing developed footprint of the EOF and no major disturbance of vegetation or substantial grading would be required for their installation. Power cable connections would occur within existing conduits in the EOF. No alterations would occur to the capacity of the existing emulsion/processed crude heat exchangers, emulsion/waste water heat exchangers, heater treaters or pipelines.

2.4 OPERATION, MAINTENANCE, AND SAFETY CONTROLS

2.4.1 Volumes and Throughput from PRC 421 and Line 96

Venoco estimates that, based on current projections and the proposed ESP sizing for Well 421-2, the productive life of Well 421-2 is estimated to be 20 years; production of 421, therefore, would not extend the life of the EOF as Platform Holly is anticipated to remain in production for more than 40 years. Venoco estimates that the instantaneous and monthly average oil production rate at the wellhead would not exceed 500 BOPD and 150 BOPD, respectively, over the life of the well. Oil production from PRC 421 combined with production from Platform Holly would be within the permitted capacity of the EOF which is 13,000 BOPD (production from Platform Holly is currently approximately 5,000 BOPD). The gas production rate is not expected to exceed 70 thousand cubic feet per day (Mcf/d). (The gas production rate was too small to measure during the tests conducted in 2001.) Venoco also anticipates that water breakthrough would occur shortly after the start of continuous production. The water cut would gradually increase until it would no longer be economically viable to produce the well.

However, the price of oil may dictate that the Project would continue to be economically feasible beyond the Applicant's expectation. 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 (Figure 2-6). During the final years of previous production from PRC 421 (late 1980s/early 1990s) the average production rate was between 50 and 60 BOPD.

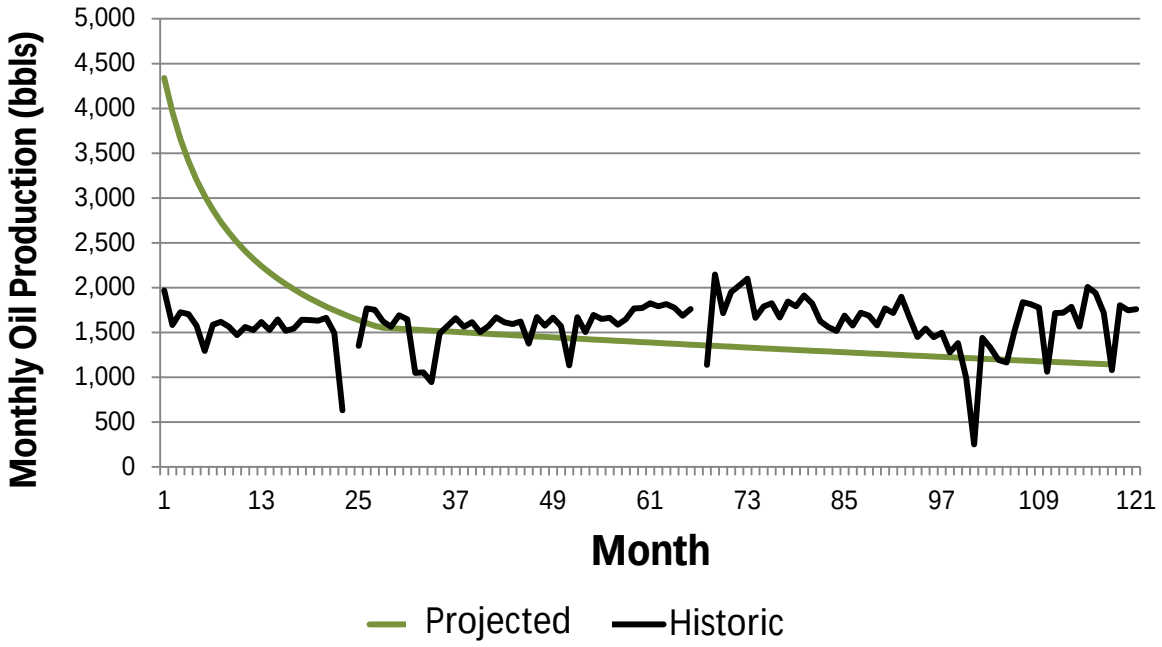

Figure 2-6. Projected and Historic PRC 421 Production

Line 96 has a throughput capacity of 13,000 BOPD, as limited by the processing permit limit at the EOF. The proposed Project would contribute a maximum of 500 BOPD to the Line 96 pipeline in the first year and is expected to taper off as shown in Figure 2-6.

2.4.2 PRC 421 Maintenance and Safety Systems

The proposed Project includes many levels of equipment requirements, testing, maintenance, and safety measures in order to prevent accidental releases to the coastal environment. The main safety monitoring system for PRC 421 would be located at the EOF and would include monitors at Well 421-2. Safety and maintenance measures associated with the Line 96 pipeline, though not a part of the proposed Project, would be used during transportation of PRC 421 oil to the PAAPLP Coastal Pipeline and are also described below.

Remote Monitoring System for PRC 421

Production activities at PRC 421 would be monitored from the EOF via the motor control panel at the EOF using the existing EOF Remote Monitoring System, via a new,

dedicated, Modbus Plus Based, cable link. A PLC would be installed in the Motor Controller and would be placed in an upgraded electrical cabinet that is currently near the pig receivers to monitor and control the PRC 421 production facilities, including the ESP at the well and leak detection and safety shutdown for the PRC 421 pipeline. The PLC would include local control functions, as well as communication to the existing EOF control room for remote monitoring and control. A variable speed drive package consisting of a drive cabinet and a step-up transformer would be located near the pig receivers at EOF to power and control the ESP at the well. This variable speed drive package would be approximately 144 cubic feet in size. A new power/communication cable would run underground from the variable speed drive package at EOF to connect to the ESP and pipeline at Well 421-2. All of the operational systems and safety systems for Well 421-2 would be provided with a real-time monitoring capability at the Remote Monitoring System Operator Interface Terminal located in the EOF control room. Local Alarms and Shutdown Safeties for each well would be displayed at the Remote Monitoring System. The well would have the capability of being shut down remotely from the Operator Interface Terminal and by the EOF Emergency Shutdown. The EOF is staffed 24 hours per day by a minimum of four Operators who are trained in emergency response procedures, including emergencies associated with the pipelines.

Well 421-2

Safety Valves

The wellhead would be equipped with modern safety equipment and follow safety design criteria as specified in API Recommended Practice 14C, *Safety Analysis Function Evaluation (SAFE) of Offshore Petroleum Production Systems*. These standards would provide, at a minimum, for the installation of a sub-surface safety valve (SSSV) and surface safety valve (SSV) on the well.

The oil discharge line would be equipped with high- and low-pressure sensing switches. In the event that these switches report high or low pressure, or in the event that any alarm forces a shutdown of the well, then the SSV and SSSV would automatically close and prevent oil from being brought to the surface. To assure fail-safe operation, these valves would be designed to normally close in the absence of any power or energy to hold them open. The SSV would use a charge of nitrogen or hydraulic fluid to hold it open, and the SSSV would depend upon a hydraulic fluid source to hold it open. In the event of a shutdown scenario requiring closure of the SSV and SSSV valves, a solenoid would release a small amount of nitrogen pressure or hydraulic fluid to a storage tank and the valves would spring closed. A small pump would be provided to allow re-energization of the SSV and the SSSV valves when the well is restarted after a shutdown. The selection of the SSV and SSSV well actuators has been made to maintain a very low surface profile.

At the EOF tie-in with Line 96, a Flow Safety Valve (FSV) would prevent backflow of oil from the pipeline, thus providing protection against uncontrolled oil flow from Line 96.

All surface and subsurface safety valves would be tested monthly with documentation submitted to DOGGR within 5 days, and quarterly testing would be witnessed by a DOGGR engineer to satisfy requirements under California Code of Regulations sections 1774-1774.2 and 1747.

Surveillance at Pier 421-2

A surveillance camera would be mounted on Pier 421-2 to monitor the condition of and activity at the pier. The live video feed will be displayed in the EOF control room. The electrical panel supporting this camera would also house a tamper switch to alert staff at the EOF of possible tampering.

Downhole Pump Monitoring

The downhole ESP would be equipped with a multi-sensor to monitor downhole conditions such as motor load, motor and intake temperature, intake and discharge pressures, and pump vibration. These data would be transmitted over the power feed back to the motor control panel located at the EOF. The motor control panel would incorporate safety switches to automatically shut-in the pump in the event of a deviation from normal operating conditions such as a pipeline rupture or a process interrupt.

Pipelines

Safety Measures for Existing 6-inch Line

The existing 6-inch line would be hydrotested to 100 psig prior to installation of the 3-inch flowline and internally lined with a new plastic coating. The 6-inch line would be protected against external corrosion by enhancing the impressed current cathodic protection system on the Platform Holly pipelines to include the PRC 421 shipping line.

Safety Measures for Proposed 3-inch Flowline

A non-metallic composite pipe would be used for the 3-inch flowline. This pipe is made of HDPE with a layer of metal or fiberglass mesh imbedded within. This type of pipe offers good chemical resistance and excellent flexibility. Because it is non-conductive and immune to galvanic electrochemical effects, it does not corrode like metal piping. It is also impervious to many aggressive chemicals as well as scale build-up.

In the event of a leak from the 3-inch flowline, oil would be contained by the outer 6-inch line. Leak detection would be provided by sensing fluid/pressure accumulation in the annular space between the outer 6-inch line and the 3-inch flowline. The annular fluid/pressure will be continuously monitored at the EOF control room. Upon detection of

fluids in the annular space, or low pressure in the 3-inch flowline, the well pump would be shut-in and the SSSV and SSV would close. It is expected that a complete shut-in would occur within 15 seconds of leak detection.

Double-wall piping would also be used for the exposed sections of the flowlines installed on Pier 421-2; the double-wall design is intended to reduce chances for a spill to occur. The primary carrier flowline on the Pier would also be protected by an outer containment line. This outer containment line would be monitored by the same monitoring system that monitors the 6-inch containment line onshore. The caissons of Pier 421-2 would help contain potential leaks from the wellhead piping. The well cellar would also be equipped with a level switch to detect and provide an alarm regarding the build-up of liquids in the caissons.

Motor Control Panel and Transformer

For security reasons, the motor control panel and transformer would be located at the EOF rather than at Pier 421-2, where they can be more closely monitored. As provided in Section 2.3.4 for specific modifications to the EOF, the electrical motor control panel would be installed in the EOF control room. The transformer would be located at the southwest corner of the EOF, near the PLC.

Inspection Programs

Visual inspections are and would continue to be conducted at the PRC 421 facilities, including the pier, caissons, and roads, twice each day by EOF staff. The well cellar and pipeline ROWs are also inspected at least daily for indications of oil leakage. Inspectors record any deficiencies and report them to Venoco management. Records of inspections are maintained in a log book at the EOF. A leak detection sensor as mentioned previously would be installed and would shut the well down in the event of a pipeline leak. Maintenance activities are expected to be minimal. A production operator would visit the well daily to ensure correct operation.

Facility inspections are performed by several agencies, including the CSLC, Santa Barbara County APCD, Santa Barbara County Fire Department, Santa Barbara County Office of Emergency Management (OEM), and City of Goleta. The California State Fire Marshal (CSFM), City of Goleta, and Santa Barbara County share jurisdiction of Line 96. The CSLC's Mineral Resources Management Division (MRMD), Santa Barbara County OES, and Santa Barbara County APCD all conduct annual inspections of the PRC 421 facilities. Local agencies conduct an annual inspection at the EOF per the facility's Safety, Inspection, Maintenance, and Quality Assurance Program. In addition, the facilities will be subjected to MRMD monthly Safety and Pollution Prevention inspections and five-year Safety and Pollution Prevention audits.

Security Program

Access to Pier 421-2 is restricted via 8-foot-tall chain-link fences that block entry to the production equipment on the piers. The facility gates are kept closed and locked unless access is required. Security is provided to PRC 421 by Venoco staff at the EOF. A private security firm patrol twice daily at irregular intervals.

2.4.3 Oil Spill Response Capability and Emergency Response Equipment

Venoco's Oil Spill Contingency Plan (OSCP) – South Ellwood Oil Field, which is reviewed and approved by the California Department of Fish and Wildlife (CDFW) Office of Spill Prevention and Response (OSPR) and Santa Barbara County OEM, would cover the proposed Project (Venoco 2011). The OSCP details response procedures, training and drills for the covered facilities, and spill response capabilities, and includes a facility-based initial incident response team (IIRT) and a corporate-based sustained incident response team (SIRT) for all on-water, beachfront, onshore, and shallow-water response. Initial oil spill response containment equipment for PRC 421 is stored onboard Platform Holly and at the EOF. Further, in the event of a spill, Venoco contracts for spill response services with Clean Seas and NRC Environmental Services (NRC). Clean Seas has an extensive inventory of spill containment and recovery equipment, response vessels, equipment trailers, vehicles, sorbents, and miscellaneous support equipment. NRC, which is Venoco's primary contractor for onshore and shoreline cleanup, also has sufficient resources and trained personnel to satisfy all Federal and State onshore and shoreline cleanup planning requirements. Equipment available to respond to an oil spill is detailed in the Ellwood OSCP and summarized below.

Vessels and Skimmers	· 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	· 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	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.

2.4.4 Fire Prevention and Preparedness Plan

Venoco's Fire Prevention and Preparedness Plan for the South Ellwood Oil Field Facilities identifies fire protection and suppression equipment that are present and maintained for fire control (Venoco 2003). Venoco personnel use the resources cited in the Emergency Action Plan (EAP) – South Ellwood Field (Venoco 2011) to implement safe and effective response actions for all emergency events including fire. The EAP in conjunction with the OSCP for the South Ellwood Field, Emergency Evacuation Plans, and H_2S Contingency Plans fulfills Occupational Safety and Health Administration (OSHA) requirements for a Fire Prevention Plan as cited in 29 Code of Federal Regulations (CFR) 1910.38(b).

2.4.5 Repressurization Monitoring

As noted in Table 2-1, based on 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. The CSLC staff is concerned that pressure has increased within the Vaqueros Reservoir and could potentially cause unintentional oil releases into the coastal environment. The increased pressure in the reservoir could force a leak from the historic abandoned wells in offshore areas of the reservoir or possibly lead to additional release of oil from a natural seep (see Section 4.2.1 for a detailed discussion of repressurization). Once Venoco is authorized to recommission PRC 421, a static reservoir pressure will be taken from Well 421-2 prior to resumption of production. Static pressure measurements will also be obtained annually during EOF shut-down to be used in the analysis of repressurization.

The crucial information necessary to assess the risk of an accidental release from abandoned wells is the maximum pressure that could occur in the reservoir as a result of aquifer influx (flow of water into the oil reservoir from adjacent aquifer). At the time of discovery in 1928, the reservoir pressure was found to be at normal hydrostatic pressure, not at an abnormally high pressure that sometimes occurs under certain geologic or hydrologic conditions.[5] If it can be determined that the aquifer surrounding the Vaqueros Reservoir causes a pressure no higher than normal hydrostatic pressure, then the concern about potential leakage from older abandoned wells would be resolved. Measurements of static reservoir pressure would be made on a periodic basis during the production operations (at least once a year). The pressure trend would be monitored closely. In case reservoir pressure continues to increase during production, then additional pressure transient testing and analysis may be needed to ascertain and quantify subsurface factors contributing to the pressure increase. Venoco will submit all testing and monitoring procedures for CSLC approval. As the oil production rate 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.

be obtained to estimate the final static reservoir pressure that would develop when production operations cease and the oil field is abandoned.

2.5 LINE 96 PIPELINE (EOF TO PAAPLP COASTAL PIPELINE WEST OF LFC)

The Line 96 pipeline from the EOF to the PAAPLP Coastal Pipeline extends 8.5 miles to the west along the Gaviota Coast from just outside the northwest corner of the EOF. The pipeline crosses north under U.S. Highway 101, then along the north side of the Highway to a site west of LFC where it connects with the regional oil distribution pipeline network via the existing PAAPLP Coastal Pipeline (Figure 2-7).

Figure 2-7. Line 96 Pipeline Route

Line 96 facilities include pig receiver connections, flow metering, and valve connections at the PAAPLP Coastal Pipeline receiving station west of LFC. These facilities allow the injection of treated oil from Platform Holly and potentially PRC 421 into the 24-inch common carrier PAAPLP Coastal Pipeline for transportation to destinations downstream of the Gaviota Pump Station. The PAAPLP Coastal Pipeline extends from LFC to Gaviota as a 24-inch 150,000 BOPD capacity line, and from Gaviota to Pentland in Kern County as a 30-inch, 300,000 BOPD capacity line. The PAAPLP Coastal Pipeline ties into pipelines going south to market destinations at Los Angeles area refineries.

Line 96 begins immediately outside and adjacent to the EOF at a valve box outside the entry gate, downstream of the Lease Automatic Custody Transfer (LACT) meter station and pumps. Approximately 585 feet of the pipeline lies within the Goleta city limits, with the remainder of the 8.5-mile pipeline in unincorporated Santa Barbara County.

Mainline Block Valves (MBV) are located at the start of the pipeline (outside the EOF facility) and at the terminus with PAAPLP Coastal Pipeline (Figure 2-7). Additional block valves are located on the east side of Eagle Canyon Creek, on the east side of Dos Pueblos Creek, near the intersection of Rancho Cañada and El Capitan Ranch Road, and near the intersection of Calle Real and Corral Canyon Road. Check valve stations

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

2.5.1 Operation of the Line 96 Pipeline

Oil, gas, and, water from PRC 421 would be commingled with oil and water from Platform Holly (currently approximately 7,500 BPD of oil and water) within the EOF and processed to remove water, entrained gas and H_2S before being transported through Line 96, and would flow from the EOF to the PAAPLP Coastal Pipeline west of LFC. The Line 96 oil pipeline is owned and operated by Ellwood Pipeline, Inc., a subsidiary of Venoco. Oversight, management, and routine maintenance of the pipeline are undertaken by current staff and contractors of Ellwood Pipeline, Inc. No increase in staffing is proposed or required as part of this proposed Project. Operation of Line 96 is expected to continue until the production life of oil from Platform Holly ends, which is not anticipated until after the Project life.

No oil storage facilities would be available for the production from PRC 421 other than what is already provided for the Platform Holly oil. Therefore, oil produced from the Project would be blended with the Platform Holly oil and continuously transported through Line 96 to the PAAPLP Coastal Pipeline located west of LFC, except where the Platform Holly oil is currently stored at the EOF.

In addition, no oil storage facilities would be available at the PAAPLP Coastal Pipeline location for any oil transported through Line 96. If, for any reason, the PAAPLP Coastal Pipeline system downstream of the EOF were not operating, the available working level in the two 2,000-barrel tanks at the EOF would dictate how long the Applicant could operate before diverting or curtailing production from Platform Holly and PRC 421. At current production from Platform Holly combined with the projected 150 BOPD from PRC 421, storage for ~~approximately~~ less than 1 ~~to 2 day~~s of production could be accommodated.

2.5.2 Maintenance and Safety of Line 96

Line 96 includes a pipeline leak detection system that uses a pressure and temperature-compensated flow-metering system, with meters at each end of the pipeline. In addition, low pressure switches monitor for low pressure in the pipeline. The inlet and outlet flow rates are computed and compared continuously to each other by a PLC computer. In the event of a deviation between the inlet and outlet flows, or a substantial loss of pressure at either end, the pipeline is automatically shut down and blocked in. The

overall accuracy of the system is expected to fall in the +/- 5 percent range over a 4-hour period.

Line 96 is monitored and operated from Venoco's EOF and can be remotely monitored and shutdown from the PAAPLP central control facility in Houston. Both of these facilities provide for continuous monitoring 24 hours per day. The existing LACT meter at the EOF is used as the basis for custody transfer to PAAPLP. The pipeline safety system relies upon a Supervisory Control and Data Acquisition (SCADA) system, which gathers data from remote points for use by automatic controls and safety systems. The data gathered by the SCADA system include operating pressure, temperature, and flow at the points of entry (connection at the EOF) and exit (PAAPLP Coastal Pipeline). The pumps are equipped with devices to sense pressure and measure electrical current and temperature; these devices allow operators to monitor pump performance and provide inputs to the SCADA system. Flow or pressure deviations are analyzed by the leak detection system and an alarm will be sounded should any reported deviations exceed pre-set parameters. The minimum leak detection flow rate is based on a state-of-the-art leak detection system for hourly and 24-hour time periods. The overall accuracy of the system is estimated to fall in the +/- 5 percent range over a 4-hour period, and +/- 1 percent range over a 24-hour period.

Venoco and PAAPLP Coastal Pipeline subscribe to the Underground Service Alert "one call" system that provides a single toll-free number for contractors and individuals to call prior to digging near the pipeline. Upon notification that a contractor or property owner is intending to dig near the pipeline, the horizontal location of the pipeline is marked. Marking is provided within 48 hours of a request. Additionally, a warning tape with the pipeline name is buried approximately 18 inches above the pipeline.

The pipeline route is inspected in accordance with CSFM requirements (U.S. Department of Transportation, 49 CFR Part 195 requires visual inspection 26 times per year) to spot third-party construction or other factors that might threaten the integrity of the pipeline. Additionally, inspections of highway, utility, and pipeline crossing locations are conducted in accordance with State and Federal regulations. The integrity of the pipeline from corrosion is inspected annually at all test locations, quarterly at control points, and more frequently than quarterly at cathodic protection systems to ensure corrosion control. Maintenance pigs for pipeline cleaning are operated as needed.

Block valves are cycled and inspected twice annually, not to exceed 7 months between inspections, to ensure proper operation (per 49 CFR 195.420). The cathodic protection system consists of passive anodes buried along the entire pipeline length. An insulating flange was installed at the PAAPLP Coastal Pipeline tie-in point to isolate the cathodic protection systems of each pipeline. Quarterly, voltage and current readings are recorded for each of the anodes and critical test stations are measured and recorded. Annually, voltage readings at all test stations are measured and recorded. If the data

indicate that potential problem areas exist on the pipeline, voltage readings are taken all along the suspect areas using a technique called a close interval survey. Adjustments are made to the system, as required, when test data indicate that voltage levels are outside of the design limits.

OSCPs developed for facilities involved with the Line 96 pipeline were prepared by Venoco, Ellwood Pipeline, and PAAPLP and were reviewed and approved by appropriate Federal, State, and local agencies (including OSPR) for each company's respective pipelines. An OSCP is required under State and Federal regulations (Senate Bill [SB] 2040 and 40 CFR 300, the Hazardous Substances Pollution Contingency Plan, and the Oil Pollution Act of 1990). It is also required under local regulations under Santa Barbara County Chapter 12, Section 8 and Santa Barbara County Ordinance 3014. The OSCP provides a finalized list of emergency service providers. Venoco has also prepared an EAP to specify measures to be taken in emergency scenarios for its existing facilities. These documents identify the responsible parties for the incident command and the supporting organizations/agencies.

PAAPLP terminal and pump stations have firefighting and other emergency equipment. Firefighting equipment includes carbon dioxide (CO_2) and/or halon fire extinguishers inside the control rooms for electrical fires around panels and switchgear. Dry powder fire extinguishers are located in the station yard for hydrocarbon fires. Fire suppressant foaming agents and related foam generation equipment are also onsite at manned facilities or are otherwise available. In addition, emergency call lists are posted at all stations in case of accident, fire, or explosion.

2.6 DECOMMISSIONING AND REMOVAL OF PIER 421-1

Following the return of oil production from Pier 421-2 into the EOF, the proposed Project includes the decommissioning of Well 421-1 and removal of Pier 421-1, as this well and pier would not be required for resuming operations. Venoco would apply for approval of Well 421-1 decommissioning and abandonment within 90 days of receipt of all permits required for the recommissioning of Pier 421-2. Before decommissioning Well 421-1, Venoco would be required to file a written notice of intent to commence such work with the DOGGR and submit an Abandonment and Restoration Plan covering the decommissioning of the well and facilities (in accordance with Pub. Resources Code, § 3203 and Cal. Code Regs., tit. 14, § 1776, subds. (e) and (f), respectively). All structures to be removed and the underlying sand would be evaluated for the presence of hazardous materials, including polychlorinated biphenyls (PCBs), metals, polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, xylene, asbestos, and other oil-related byproducts. Prior to any well decommissioning or pier removal activities, Venoco would notify the CCC, City of Goleta, County of Santa Barbara Fire Department Fire Prevention Division (FPD), Clean Seas, Santa Barbara County APCD, DOGGR, and CSLC of pending well work.

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

- Installation of onshore work area fencing to exclude the contractor from working in the adjacent ESHAs and to confine the construction activity and related equipment storage to existing disturbed surfaces;
- Plugging of Well 421-1, likely with a combination of cement plugs and mechanical bridge plugs;
- Removal of the 8-foot-tall chain-link fencing and barbed wire that blocks entry to the well-head on Pier 421-1;
- Removal of the caissons that surrounds Pier 421-1. This caisson is a concrete and sheet pile, sand filled structure, approximately 68 feet wide, 42 feet long and 20 feet tall;
- Excavation of caisson foundations and rebar to an appropriate depth below existing grade;
- Final abandonment of the well casing/conductors in accordance with DOGGR regulations and approvals;
- Demolition of pier, including removal of metal railing, wood planking, 20 white steel piles and supporting cross beams, and excavation/removal of pilings, concrete and rebar to an appropriate depth below bedrock;
- Removal of cables;
- Removal of all piping and interconnection between Pier/Well 421-1 and Pier/Well 421-2 and any other ancillary facilities associated with Pier/Well 421-1;
- Sand remediation;
- Reinforcement of seawall at the access road and placement of rock boulder rip rap for approximately 75 feet on the seaward side of seawall to match existing rip rap currently on both sides of pier;
- Redistribution of sand to restore natural contours of the beach; and
- Work site restoration, habitat restoration, and cleanup.

2.6.1 Site Preparation

A temporary ramp near the west end of the existing PRC 421 access road would be used to facilitate beach access (Figure 2-2). This ramp has been used for equipment beach access on various PRC 421 pier repair projects in the past. The upper portion of the ramp is intact; however, the lower portion would need to be reconfigured by repositioning existing armor rock and moving local beach sand. No new material would

be necessary to re-establish the ramp. Depending on wave and tide action, beach sand may occasionally need to be placed onto the ramp to fill gaps in the armor rock.

A laydown area would be established in the pipeline ROW, a gravel access road, immediately east of Bell Canyon Creek and west of the EOF (see Figure 2-2). Temporary fencing would be placed adjacent to the Bell Canyon Creek ESHA, or along the edge of the existing gravel access road, to protect the creekside vegetation. Temporary construction fencing would also be placed around the wetland located near the entrance to Pier 421-1 (and Pier 421-2 if this area is used for equipment staging) immediately north (bluff side) of the access road to prevent access by Project personnel, equipment, and staging of material. Silt fencing would be installed on the south (ocean side) of the access road for its entire length to protect from soil runoff toward the ocean. Additional temporary storage for small items would also take place along the access road and potentially on Pier 421-2. Equipment staging and temporary storage would also occur along a temporary laydown area just west of the EOF, the access road, and on the deck of Pier 421-2.

2.6.2 Pile Removals

Steel piles that support both the pier and caisson extend approximately 25 feet into the underlying bedrock (Monterey Shale). These piles would be cut after excavation to an appropriate depth using an external thermal cut. The sand area in which the piles would be removed would be covered with a heavy tarp material in order to collect any of the rusted pile flakes and slag material from the handling and cutting operations. A powered man lift would be the primary mechanism for lifting personnel up to the point at where the top of the pile would be cut from the beams. Scaffolding may also be installed, as required. Thermal cutting would be the main mechanism for making the pile cuts. Pneumatic grinders and hand saws would be used for dressing the cuts. If excessive seawater is encountered during the excavation operations, a gasoline powered or air powered pump would be used to lower the water to a sufficient level to allow a cut to be made at an appropriate depth below the sand level. Removal of sand to expose the piles would be done with a small tracked excavator or backhoe / loader supplemented with hand digging. The excavated holes would be backfilled by the excavator or backhoe/loader and supplemented with hand filling operations. Additional or different equipment may be used depending on the contractor selected.

2.6.3 Disposal of Materials

Approximately 400 cy of cement, rebar and metal material would be removed from Pier 421-1. In 2006 as part of a caisson well repair project at Pier 421-1, hazardous materials testing was conducted for the Lease 421-1 Caisson Wall Repair (05-132-DP). Sediment test results indicated non-detectable levels of chemicals, such as xylenes, benzene, toluene and ethylbenzene, asbestos, as well as sulfides. Other parameters

such as total petroleum hydrocarbons (TPH), toxicity and pH were within acceptable limits as determined by the FPD and in conformance with the California Ocean Plan and Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System standards. During testing undertaken for a 2001 project to repair leaks at the facility during a routine inspection, hydrocarbons in the soil at depths of approximately 20 feet were detected under Pier 421-1. Due to the historical use of the facility and time passed since previous testing, additional testing of all structures to be removed and sand would be necessary prior to demolition activities at the pier to identify and characterize any hazardous substances within the structures and sand and characterize the source, distribution and magnitude of these substances.

Material removed from Pier 421-1 would be recycled when possible and all other material would be disposed of at appropriate facilities. Contaminated soil and related material would be analyzed to determine its material profile prior to disposal; this material would be disposed of at either Clean Harbors' Buttonwillow landfill west of Bakersfield or Waste Management's Altamont landfill in Livermore. Wood products that are contaminated would be disposed of by Clean Harbors, along with Ellwood's non-hazardous oil field debris material.

Venoco would prepare a Removal and Remediation Action Plan (Action Plan) for the safe removal of any contaminated materials. Final Action Plan approval would be required by OSPR, CSLC, RWQCB, and the City of Goleta.

2.6.4 Worksite Restoration and Cleanup

After completion of well decommissioning, pier removal, and remediation as required and set forth in the Action Plan, the beach would be restored to the profile of the adjacent beach area. Surplus construction materials or equipment would be removed from the work site and the lay down area. All waste would be profiled to determine the proper method of disposal. Following removal of the Pier, a gap in the rock revetment at the base of the bluff would be present and would be filled in with approximately 70 feet of armor rock. The access road through the golf course may require minor maintenance to restore it to pre-construction condition, or whatever is required in the existing easement that Venoco has with the landowner. The equipment access ramp to the beach would be returned to its pre-construction condition. Maintenance to restore the PRC 421 pier access road to pre-construction condition would be performed.

2.6.5 Schedule, Major Equipment, Logistics and Public Beach Access

Decommissioning is estimated to take approximately 30 days, not including any remediation that might be necessary. This assumes a crew being able to work on the beach for a 6-hour period each day between high tide and low tide windows. Although the actual work schedule may vary, work would typically be scheduled during daylight hours (7:00 AM until 7:00 PM), Monday through Saturday. On rare occasions, should

tides dictate, work may extend until 10:00 PM. Venoco would coordinate with Sandpiper Golf Course and Bacara Resort and Spa management personnel to minimize any interference with golf course or resort operations. This may require scheduling of equipment and material deliveries to and from the site outside of the normal work hours (i.e., pre-staging of materials before dawn).

Major equipment required may include the following (additional or somewhat different equipment may be needed depending on unidentified site conditions and contractor(s) 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.

Equipment would be removed from the beach and returned to the staging area at the end of each workday and during high tides. Trenches would be filled in before the end of each workday. No refueling of equipment would be allowed on the beach.

A workforce of approximately 10 contractors and Venoco personnel would be on-site at any given time. Workers would park personal vehicles at the EOF or the temporary laydown area west of the EOF. Workers not involved in moving equipment and tools would either walk or use golf carts to cross the golf course to access the Project site.

Public access to the beach would be available during well decommissioning activities, but lateral access would be interrupted during pier removal. Signs notifying the public of dates of construction operations would be posted at access points, and during potentially hazardous activities construction personnel would be stationed on each side of the pier with the designated role to prevent public transit of the Project site.

2.6.6 Monitoring and Safety Precautions

As part of the Integrated Environmental Quality Assurance Program for Oil and Gas Projects (EQAP), EQAP monitors under contract with the Santa Barbara County Energy Division would be present throughout the removal work to monitor pre- and post-Project conditions of vegetation, landforms, and fauna, as well as to ensure Project-related activities are carried out in an environmentally sound manner. Daily EQAP reports and a final EQAP report would be submitted by these monitors.

Before initiation of, and during, well work, spill prevention measures would be in place, equipment locations would be designated in the Action Plan, a vacuum truck and Clean Seas boat and equipment would be on location, and tubing and equipment pulled from the well would be laid down with lining in place and bundled/wrapped to prevent contamination. Venoco would be required to have an approved Spill Contingency Plan and a Fuel and Lubricant Drip Mitigation Plan in place. These plans would include: an approved refueling procedure to be followed if any equipment must be refueled on site, drip pans and fuel sorbent pads for applicable equipment; and provisions to inspect hoses and containers to ensure they are free of cracks or signs of deterioration.

2.7 FUTURE PLANS AND ABANDONMENT OF PRC 421

CSLC lease conditions require Venoco to decommission all facilities associated with PRC 421 at the end of the production life and restore the area to its natural condition. Decommissioning and abandonment of Pier 421-1 and Well 421-1 are described in Section 2.6. Future decommissioning activities of PRC 421 would generally include removal of Pier 421-2 and all associated facilities, including the well, the ESP, and electrical equipment. Decommissioning of PRC 421 would also likely involve removal of the seawall, beachside access road, pipelines and power cables within the access road, abandonment in place of the 1,800 feet of 6-inch pipeline connecting PRC 421 to the EOF, and removal of the transformer and electrical lines connecting PRC 421 to the EOF. Site cleanup including soil remediation may also be required as hydrocarbon contamination has been identified at the pier approach area of Pier 421-2.

Final decommissioning and abandonment of PRC 421 is not a part of the current Project as it would occur after the Project's life, would require preparation of separate environmental documentation in compliance with the California Environmental Quality Act (e.g., a MND or Environmental Impact Report), and would be subject to local, State, and Federal regulations that are in effect at the time of decommissioning. Specifics on decommissioning and hazardous materials investigations would be addressed in an Abandonment and Restoration Plan submitted to the CSLC, CCC, and City of Goleta. As required by Federal and State laws and local regulations, Venoco would be responsible for cleanup and remediation of any potential contamination that could have resulted from the operation of PRC 421; therefore, Phase I and Phase II hazardous materials site investigations would also be required prior to sediment removal. Preparing a full environmental analysis on decommissioning activities at this time is not warranted due to the estimated production life of the Project and there is no pending application that fully describes the scope of decommissioning. Environmental conditions are also likely to change from current conditions and advancement in technologies or new methodologies for removing the pier structures may also become available.

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