5.12 Cultural Resources

Humans have been living along the Santa Barbara coast for more than 10,000 years. The analysis of cultural resources, including both prehistoric and historic sites, can provide valuable information about the cultural heritage of both local and regional populations. Prehistoric sites range from small lithic scatters left behind by early stone-tool makers to the remains of large village sites found along the coast. Historic resources include small adobe homes as well as large historic districts encompassing numerous architectural structures and acres of land. Although cultural resources are primarily found on land, submerged resources such as shipwrecks, archaeological sites, and isolated artifacts are also known to occur in the waters off California.

5.12.1 Environmental Setting

5.12.1.1 Prehistoric and Historic Setting

The proposed project area was part of the territory occupied by speakers of the Chumash Purisimeño language at the time of European contact. Purisimeño, a subgroup of the Chumash language family, takes its name from the Mission La Purísima Concepción, founded in 1787 (Glassow 1996). Early historians and ethnographers have left behind little information about the Purisimeño Chumash, who have often been considered similar to the better known Barbareño, Inezeño, and Ventureño Chumash located in the Santa Barbara, Santa Ynez, and Ventura areas.

The chronological sequence developed by Chester King for the Santa Barbara Channel region is generally applicable to the territory of the Purisimeño Chumash. This scheme divides regional prehistory into three major periods: the Early Period, beginning ca. 8,000 years before present (B.P.), the Middle Period, beginning ca. 3,350 B.P., and the Late Period beginning ca. 800 B.P. (King 1974, 1979, 1981). Post-Pleistocene changes in climate and environment are reflected in the local archaeological record by approximately 8,000 B.P., the beginning of the Early Period. The Early Period of the Santa Barbara Channel mainland was originally defined by Rogers (1929), who called it the "Oak Grove" Period. The diagnostic feature of this period is the milling stone, which was used to grind hard seeds into flour. Toward the end of the Early Period, there is evidence of sea mammal procurement (Glassow et al., 1990) and the introduction of mortars and pestles for acorn production (Glassow, 1996).

The Middle Period (3,350 to 800 B.P.) is characterized by larger and more permanent settlements. Materials from Middle Period sites reflect a greater reliance on marine resources and include marine shells, fish remains, fishhooks, and harpoons. Toward the end of this period the plank canoe was developed, making ocean fishing and trade with the Channel Islands safer and more efficient (Arnold 1987). Terrestrial resources continued to be exploited as evidenced by the presence of contracting-stemmed and corner-notched projectile points from Middle Period sites (Bamforth 1984) and carefully shaped mortars (Glassow, 1996).

The Late Period (800 to 150 B.P., or approximately A.D. 1150 to 1800) was a time of increased social and economic complexity. The population increased, and permanent and semi-permanent villages clustered along the Santa Barbara Channel and on the Channel Islands. Trade networks, probably controlled by village chiefs, expanded and played an important part in local Chumash culture, reinforcing status differences and encouraging craft specialization. Terrestrial as well as

marine resources were exploited. Acorns were processed using stone pestles and mortars, and deer were hunted with the bow and arrow. During this period there was an increase in the number of residential base camps and in the diversity of site settings.

Ethnohistoric data concerning Chumash settlements are most thorough in the vicinity of Mission San Luis Obispo. Some of the larger villages were apparently occupied all year, while some of the small villages were probably occupied only part of the year since residents regularly visited with relatives at neighboring settlements.

Archaeological information has revealed some distinctions between the Purisimeño and their neighbors to the south (Glassow 1996; SAIC 1991). The Purisimeño north of Point Conception relied more on shellfish and terrestrial mammals than on fish and marine animals. There is currently no firm evidence that the Purisimeño manufactured or used the plank canoe, which was very important to the Barbareño and Ventureño Chumash. In addition, Purisimeño population density was lower, and villages tended to be smaller.

Spanish influence in the region began in A.D. 1542, when the mariner Juan Cabrillo explored the California coast. The first Spanish expedition through what is now VAFB occurred in 1769, when the small Chumash Indian village of *Nocto* was noted near Point Arguello. The first Spaniards settling in the area were associated with two missions constructed in the Santa Ynez Valley: Mission la Purísima Concepción in 1787 and Mission Santa Ynez in 1804. These missions were the centers of Spanish influence in the region and affected native patterns of settlement, culture, trade, industry, and agriculture. Following the Mexican Revolution of 1821, California became part of the Republic of Mexico. Legal secularization in Mexico later resulted in confiscation of mission lands, which were then granted or sold for farming and ranching.

Secularization of lands and a focus on cattle raising marked the Rancho Period. The shift from stock raising to farming and more intensive land uses marks the advent of the American Period. Major forces of regional change during the last 100 years have been the railroads, maritime shipping, agribusiness concerns, the military, and the oil industry. Although oil development was occurring before the turn of the century, its rapid expansion and significant effect on the local economy began in the early 1900s. The military also became important to the local economy with the establishment of Camp Cooke in the 1940s, which later became VAFB and the headquarters for the 30th Space Wing.

5.12.1.2 Offshore Cultural Resources

The identification of offshore cultural resources within the project area was conducted in conjunction with the 1985 Point Pedernales EIR/EIS, which evaluated the construction of Platform Irene and the offshore pipeline route. This investigation included a review of literature and historic accounts relevant to the study region as well as available geophysical data (e.g., side-scan sonar, magnetometer and sub-bottom profiles) to locate potentially significant cultural resources within the project area. Construction of the offshore pipeline followed mitigation measures stipulated by the Minerals Management Service (MMS) by avoiding all potentially significant cultural resources. Therefore, there are no known potentially significant cultural resources within the original construction corridor of the offshore pipeline.

There are no known shipwrecks within 4 miles of Platform Irene, according to a recent Marine Cultural Resource Inventory for a proposed telecommunications system (SAIC 2000). This study reviewed the California State Land Commission's (CSLC) shipwreck database, U.S. Department of the Interior MMS's shipwreck database, and various other regional and local archives (see Figure I-13 of SAIC 2000). There is one shipwreck reported in the CSLC database about one mile south of the pipeline landfall site. No other submerged cultural resources are recorded in the project area.

5.12.1.3 Cultural Resources along the Pipelines from Landfall to LOGP

A site records and literature search at the Central Coastal Information Center (CCIC) at the University of California, Santa Barbara (UCSB) was performed on January 25, 2001 (SAIC 2001) to identify all recorded archaeological sites and surveys within a ¼ mile corridor of either side of the existing pipeline from its onshore presence near Valve Site #1 to the LOGP. A supplemental records search was performed at the CCIC on August 16, 2006. At least 30 cultural resource studies have been conducted within this 1/2-mile corridor, including 18 surveys, six testing and evaluation projects, one data recovery mitigation project, and one archaeological monitoring project. Of these studies, 12 were directly related to Union Oil Company's construction of Platform Irene, the LOGP, and the pipeline that connects the two. The area surrounding the existing pipeline, therefore, has been thoroughly studied.

According to the CCIC, 39 prehistoric sites, four historic sites, and one site with prehistoric and historic remains are located within a 1/2-mile corridor along the existing pipeline from landfall to the LOGP (44 total sites; see Table 5.12.1). Half of the sites are located within 200 feet of the existing pipeline and many fall within its original right-of-way. Of the 22 sites located within 200 feet of the existing pipeline, archaeological excavations were conducted at 20 of them to evaluate site significance and/or to conduct data recovery mitigation investigations associated with the Union Oil Pipeline Project (see Table 5.12.1). Most of these tested sites were determined to be potentially significant historic resources based on the CEQA guidelines outlined below (see Section 5.12.2).

Table 5.12.1 Archaeological Sites Within a ½-Mile Corridor Along the Existing Pipeline from Landfall to LOGP

Site	Within 200 ft of Existing Pipeline	Tested[1]	Site Significance[2]	Brief Site Description
SBA-0580	-	-	-	Prehistoric site with hammerstones and chert cobbles
SBA-0687	X	X	P	Middle Period deposit; possibly reoccupied small camp
SBA-0689	X	X	P	Multi-component site with diverse assemblage
SBA-0912	-	-	-	Light surface scatter of flaked stone and shell
SBA-0913	X	X	P	Low-density surface & subsurface deposits; possible hunting camp
SBA-0914	X	X	P	Two loci, representing two brief site occupations (low-density)
SBA-0915	-	-	-	Light surface scatter of flaked stone
SBA-1040	X	-	-	High density shell midden; possible village site
SBA-1742	-	X	P	Reoccupied Early Period site; probably seasonal base camp
SBA-1743	X	X	P	Low-density site; partially disturbed by fuel break
SBA-1744	-	-	-	Moderate-density scatter of flaked stone material

Table 5.12.1 Archaeological Sites Within a ½-Mile Corridor Along the Existing Pipeline from Landfall to LOGP

Site	Within 200 ft of Existing Pipeline	Tested[1]	Site Significance[2]	Brief Site Description
SBA-1761	-	-	-	Light surface scatter of flaked stone and shell
SBA-1762	X	X	P	Low-density deposit of flakes and shell
SBA-1860	X	X	P	Prehistoric deposit; possibly a small temporary campsite
SBA-1888	X	X	P	Moderately dense and diverse deposit; mainly Late Period single component site
SBA-1889	-	-	-	Light surface scatter of flaked stone
SBA-1890	-	-	-	Light surface scatter of flaked stone and shell
SBA-1891	X	X	P	Moderate-density shell and flake stone deposit; possible habitation site
SBA-1896	X	X	P	Subsurface prehistoric deposit; possibly briefly occupied campsite
SBA-1909	-	-	-	Low-density deposit of flaked stone
SBA-1910	X	X	N	Redeposited site material with prehistoric & modern debris
SBA-1917	X	X	P	Low-density, low diversity deposit; probably reused short term camp
SBA-1991	X	X	P	Four loci; only Locus A tested (low-density deposit)
SBA-1992	X	X	P	Low-density scatter within a disturbed context
SBA-1993	X	X	P	Low-density deposit within a disturbed context
SBA-1994	-	X	P	Low-density flake deposit with non-cultural shell
SBA-1995	X	X	N	Small, low-density site within a disturbed context
SBA-1996	X	X	P	Low-density prehistoric deposit associated with stabilized coastal dune
SBA-2120/H	X	X	P	Subsurface low-density prehistoric temporary camp; also 1940's debris
SBA-2126	X	X	P	Buried, low-density prehistoric deposit; possible reoccupied small camp
SBA-2225H	-	-	-	Brick retaining wall and historic debris
SBA-2263	-	X	-	Two loci; probably representing temporary camps
SBA-2264H	X	X	N	Collection of industrial debris; probably remains of a steam-driven oil pumping station
SBA-2265	-	X	-	Two loci; probably representing temporary camps
SBA-2362H	-	-	-	Corral/pasture with historic debris
SBA-2487	-	-	-	Light surface scatter of flaked stone and shell
SBA-2634H	-	-	S	Shipwreck of side-wheel steamer, "Yankee Blade"; off Destroyer Rock (NRHP listing)
SBA-2695	-	-	N	Low-density complex lithic scatter
SBA-2877	-	-	-	Sparse lithic scatter on a coastal terrace
SBA-2878	-	-	-	Sparse lithic and shell scatter on a coastal terrace
SBA-2881	X	-	-	Light density lithic scatter on a west-facing knoll
SBA-3173	-	-	-	Light surface scatter of flaked stone
SBA-3408	-	-	-	Light surface scatter of flaked stone
SBA-3420	-	-	-	Light surface scatter of flaked stone

1. Investigated during site significance archaeological testing (URS Corporation 1986) and/or data recovery mitigation investigations (SAIC 1991) associated with the Union Oil Pipeline project.

2. Determined significant (S), potentially significant (P), not significant (N), unknown significance or not evaluated (-) based on report information (URS Corporation 1986, SAIC 1991) or site record forms.

In addition to the 44 archaeological sites, 26 isolated artifacts have been recorded within the 1/2-mile corridor and consisted of flaked stone tools or debris, a steatite fragment, a sandstone cobble, a sandstone hammerstone, and a historic brass pipe valve cover (see Table 5.12.2). All but three of the artifacts were located and collected during construction monitoring of the Union Oil Pipeline Project. There is also potential for unrecorded archaeological sites in areas adjacent to the Santa Ynez River that could be buried within the floodplain by alluvial sediments since the sites were occupied. These floodplain areas are considered highly sensitive for cultural resources based on the number of archaeological sites recorded in similar environmental contexts.

Table 5.12.2 Artifacts Sites Within a ½-Mile Radius of the Existing Pipeline from Landfall to LOGP

Isolate	Within 200 ft of Existing Pipeline	Artifact	Associated Project
ISO-053	X	*Monterey chert biface*	Union Oil Pipeline
ISO-054	X	Steatite fragment	Union Oil Pipeline
ISO-055	X	Monterey chert chopper	Union Oil Pipeline
ISO-056	X	Monterey chert flake	Union Oil Pipeline
ISO-057	-	Monterey chert flake	Union Oil Pipeline
ISO-058	X	Monterey chert flake	Union Oil Pipeline
ISO-059	X	Non-cultural mudstone	Union Oil Pipeline
ISO-060	X	Sandstone hammerstone	Union Oil Pipeline
ISO-061	X	Chert drill	Union Oil Pipeline
ISO-062	X	Brass pipe valve cover	Union Oil Pipeline
ISO-063	X	Monterey chert flakes (2)	Union Oil Pipeline
ISO-064	X	Chert core/hammerstone	Union Oil Pipeline
ISO-065	X	Monterey chert hammerstone	Union Oil Pipeline
ISO-066	X	Franciscan chert projectile point	Union Oil Pipeline
ISO-067	X	Monterey chert flakes (2)	Union Oil Pipeline
ISO-068	X	Monterey chert flake	Union Oil Pipeline
ISO-069	X	Monterey chert blade	Union Oil Pipeline
ISO-070	X	Monterey chert core	Union Oil Pipeline
ISO-071	X	Sandstone cobble	Union Oil Pipeline
ISO-072	-	Monterey chert flake	Union Oil Pipeline
ISO-073	X	Monterey chert flake	Union Oil Pipeline
ISO-077	-	Chert biface (not collected)	Union Oil Pipeline
ISO-242	X	Chert flake (not collected)	Cable Replacement and Fiber Optics
ISO-243	-	Chert flake (not collected)	Cable Replacement and Fiber Optics
ISO-245	X	Chert projectile point (not collected)	Union Oil Pipeline
ISO-528	X	Franciscan chert core	Central Coast Aqueduct Project

There are no known historic standing structures, National Historic Landmarks (NHL), California State Historical Landmarks (CHL), or listings on the National Register of Historic Places (NRHP) or the CCIC's Historic Property Data File within a 1/2-mile corridor around the existing pipeline from landfall to the LOGP. No other known historic architectural resources are located within the 1/2-mile corridor along the existing pipeline from landfall to the LOGP, so no historic architectural resources would be affected by the project.

5.12.1.4 Cultural Resources along the Pipeline from LOGP to the Summit Pump Station (ConocoPhillips)

A site records and literature search at the CCIC at UCSB was performed on April 19, 2001 (SAIC 2001) to identify all recorded archaeological sites and surveys within a 1/2-mile corridor around the existing pipeline from the LOGP to the Summit Pump Station. A supplemental records search was performed at the CCIC on August 16, 2006. At least 49 cultural resource studies have been conducted within this 1/2-mile corridor, including 33 surveys, eight testing and evaluation projects, one data recovery mitigation project, two impact analyses, and two archaeological monitoring projects. Of these studies, three were directly related to the Union Oil Pipeline Project, and two were associated with replacing a small portion of the existing pipeline near the Summit Pump Station. According to the CCIC, most of the existing pipeline route from the LOGP to the Orcutt Pump Station has been previously surveyed for cultural resources. However, most of the existing pipeline route from the Orcutt Pump Station to the Summit Pump Station (approximately 17 miles) has never been surveyed for cultural resources, as this pipeline was built before CEQA review was required.

According to the CCIC, 18 prehistoric sites, nine historic sites, and two sites with prehistoric and historic remains have been recorded within a 1/2-mile corridor around the existing pipeline from the LOGP to the Summit Pump Station (see Table 5.12.3). Seven of these sites are located within 200 feet of the existing pipeline, including six that may fall within its original right-of-way. According to site record information, only six of the 29 archaeological sites within the 1/2-mile corridor have been previously evaluated for site significance (see Table 5.12.3).

Table 5.12.3 Archaeological Sites Within a ½-Mile Corridor Along the Existing Pipeline from LOGP to the Summit Pump Station

Site	Within 200 ft of Existing Pipeline	Tested[1]	Site Significance[3]	Brief Site Description
SLO-0097	-	-	-	Prehistoric habitation site
SLO-0141H	-	-	-	Dana Adobe built between 1841 & 1849 (NRHP-listed)
SLO-0525	-	-	-	Bedrock mortar and prehistoric midden
SLO-0753	-	-	-	Low-density lithic scatter
SLO-0804	-	-	-	Possibly ethnohistoric Chumash village of Nipomo
SLO-0805	-	-	-	Low-density lithic and shell scatter
SLO-0806	-	-	-	Low-density lithic and shell scatter
SLO-0807	-	-	-	Low-density lithic and shell scatter
SLO-1238	-	-	-	Low-density lithic scatter
SLO-1258	-	-	-	Low-density lithic scatter
SLO-1291	-	-	-	Low-density lithic scatter
SLO-1301	-	-	-	Low-density lithic scatter
SLO-1318H	X	-	-	Concrete pier foundation of a hay barn & associated debris
SLO-1319H	X	-	-	Part of the Pacific Coast Railroad bed
SLO-1320H	X	-	-	Part of the Pacific Coast Railroad bed
SLO-1618	-	-	-	Low-density shell scatter
SLO-1620	-	-	-	Low-density lithic scatter
SLO-1725	-	-	-	Low-density lithic scatter

Table 5.12.3 Archaeological Sites Within a ½-Mile Corridor Along the Existing Pipeline from LOGP to the Summit Pump Station

Site	Within 200 ft of Existing Pipeline	Tested[1]	Site Significance[3]	Brief Site Description
SLO-1726	-	-	-	Prehistoric quarry site and small shell scatter
SLO-1765	-	X[2]	P	Possible Early Period residential base camp
SLO-1803	-	-	-	Bedrock mortar site
SBA-1810	X	X[1]	P	Low-density lithic deposit
SBA-1970H	-	X[1]	N	Light scatter of bottle glass, porcelain, & Pismo clam
SLO-2030H	X	-	-	Scatter of historic debris (possibly associated with NRHP-listed Dana Adobe)
SLO-2031H	-	-	-	Historic quarry site (possibly associated with NRHP-listed Dana Adobe)
SBA-2121/H	X	X[1]	N	Historic debris and subsurface prehistoric site
SBA-2122/H	-	X[1]	N	Collapsed metal water tank, agricultural debris, & a prehistoric flake tool
SBA-2123H	-	X[1]	N	Historic artifacts in drainage
SBA-2124H	X	-	-	Historic artifact scatter

[1] *Investigated during site significance archaeological testing (URS Corporation 1986) and/or data recovery mitigation investigations (SAIC 1991) associated with the Union Oil Pipeline Project.*

[2] *Investigated during the Central Coastal Aqueduct Pipeline project.*

[3] *Determined significant (S), potentially significant (P), not significant (N), unknown significance or not evaluated (-) based on report information (URS Corporation 1986, SAIC 1991) or site record forms.*

There are no known NHL, CHL, or listings on the CCIC's Historic Property Data File within the 1/2-mile corridor along the existing pipeline from the LOGP to the Summit Pump Station. There is one listing on the NRHP, the Dana Adobe, which falls within the 1/2-mile corridor. The Dana Adobe was built in the 1840's near Nipomo Creek, approximately 1,000 feet from the existing pipeline. Two of the archaeological sites noted above (CA-SLO-2030H and -2031H) may be associated with the occupation of the adobe.

5.12.2 Regulatory Setting

Cultural resources include prehistoric and historic archaeological sites, districts, and objects; standing historic structures, buildings, districts, and objects; and locations of important historic events, or sites of traditional/cultural importance. Section 15064.5 (CEQA Guidelines, revised April 20, 2001) indicates a project may have a significant environmental effect if it causes "substantial adverse change" in the significance of an historical resource. Historical resources are defined in CEQA Guidelines section 15064.5 as the following:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in the California Register of Historical Resources (Pub. Res. Code §5024.1, Title 14 CCR, section 4850 et seq.).

2. A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code §5024.1, Title 14 CCR, section 4852) including the following:

    a. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
    b. is associated with the lives of persons important in our past;
    c. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
    d. has yielded, or may be likely to yield, information important in prehistory or history.

The California Coastal Commission (CCC) is responsible for implementing the policies of the Coastal Act of 1976, including those pertaining to cultural resource investigations conducted for impact analysis purposes pursuant to CEQA, NEPA, and the National Historic Preservation Act (NHPA). If any project-related direct impacts on cultural resources occur in the coastal zone, then they are subject to Coastal Commission Guidelines. According to the Coastal Act, "where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required" (Pub. Res. Code § 30244).

Santa Barbara County also has policies (ordinances, General Plan, and CEQA Guidelines) that echo CEQA and reflect local policy on the preservation and enhancement of historical resources.

5.12.3 Significance Criteria

Section 15064.5 (CEQA Guidelines, revised October 26, 1998) indicates a project may have a significant environmental effect if it causes "substantial adverse change" in the significance of an "historical resource" or a "unique archaeological resource" as defined or referenced in CEQA Guidelines section 15064.5[b, c] (1998). Such changes include "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines 1998 section 15064.5 [b]).

Under CEQA, an impact on cultural resources is considered significant, therefore, if it adversely affects a resource that is listed in or eligible for listing in the California Register of Historical Resources or is otherwise considered a unique or important archaeological resource. In general, a project may have an adverse effect on a cultural resource if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5;
- Cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;

- Disturb any human remains, including those interred outside of formal cemeteries; or
- Cause substantial physical damage to a resource considered to be important under the county guidelines.

Guidelines for Santa Barbara County follow many of the same criteria as CEQA. A significant resource:

a) possesses integrity of location, design, workmanship, material, and setting;

b) is at least 50 years old; and

c) is associated with a person or event that is important, was designed by an important person, is associated with a style, has outstanding design, conveys a sense of time and place, and is able to yield information important to a community or traditional way of life.

The guidelines also identify levels of significance, ranging from exceptional to little. Integrity also is rated by levels ranging from pristine to fair.

5.12.4 Impact Analysis for the Proposed Project

Impacts of this project on cultural resources are primarily associated with ground disturbance from new construction and accidental spills. New construction is limited to upgrades in pipeline systems (i.e., pump installation at Valve Site #2 and associated power line poles) and the potential need for pipeline maintenance and repair. The proposed project also includes modifications to the LOGP, but these modifications would not involve ground disturbance and, therefore, would not impact cultural resources.

5.12.4.1 Offshore Facilities

The proposed Tranquillon Ridge Project involves directional drilling of a maximum of 30 wells from Platform Irene into California State Lands, using extended-reach technology. No impacts on cultural resources would occur because access to the wells would be entirely through underground approach, several thousand feet below the ocean floor. Therefore, no mitigation measures are required.

Oil and gas from the wells would be transported to the LOGP for processing and distribution via the existing pipelines from Platform Irene offshore to landfall near Wall/Surf Beach. Since no new construction is necessary, no impacts on cultural resources would occur. Therefore, no mitigation measures are required.

5.12.4.2 Onshore Facilities

Impact #	Impact Description	Phase	Residual Impact
CR.1	Pipeline maintenance and repair would result in ground disturbance and potential impacts on cultural resources.	*Extension of Life*	*Class II*

There are 22 recorded archaeological sites located within 200 feet of the existing oil pipeline between landfall and the LOGP. Although these sites were previously disturbed by the construction of the existing pipeline, most are determined to be a potentially significant historic resource. No new modifications are proposed for this pipeline, but pipeline maintenance and repair, if needed, would result in ground disturbance and potentially significant impacts on any

cultural resource in the affected areas. The proposed project would extend the life of the existing Point Pedernales project, thus extending the need for repair and maintenance activities along the pipeline by 20 years above that of the existing PXP project. Impacts on a potentially significant cultural resource would be considered significant.

Mitigation Measures

CR-1 PXP shall prepare and submit grading plans showing all ground disturbances within 200 feet of a recorded archaeological site. The grading plans shall be submitted to P&D prior to issuance of coastal development permit or land use clearance for grading.

All ground disturbance within 200 feet of a recorded archaeological site shall be monitored by a County-qualified archaeologist and, if prehistoric, by a Native American observer, unless the resource has been previously determined to have no potential for significance because it is re-deposited, an isolated occurrence, modern, or otherwise lacks data potential.

CR-2 PXP shall revise grading plans to include note for protocols to follow during unexpected discovery of archaeological resources. The grading plans shall be submitted to P&D prior to issuance of coastal development permit or land use clearance for grading. Prior to construction all crew members shall receive training on unanticipated cultural resource discovery protocols.

In the event of an unanticipated cultural resource discovery during construction, all ground disturbances within 200 feet of the discovery shall be halted or re-directed to other areas until the discovery has been documented by a county-qualified archaeologist, and its potential significance evaluated consistent with Santa Barbara County Cultural Resource Guidelines. Resources considered significant shall be avoided by project redesign. If avoidance is not feasible, the cultural resource shall be subject to a Phase 3 data recovery mitigation program (with Native American monitoring, if applicable), consistent with Santa Barbara County Cultural Resource Guidelines.

CR-3 If pipeline maintenance and repair are planned on a segment of the unsurveyed pipeline route, then a Phase 1 archaeological surface survey shall be conducted prior to land use clearance for grading to identify any cultural resources that may be affected. If a cultural resource is encountered during the survey, it shall be documented by a County-qualified archaeologist and its potential significance evaluated in terms of applicable criteria prior to maintenance and repair work. Resources considered significant shall be avoided or subject to a Phase 3 data recovery program (with Native American monitoring, if applicable), consistent with Santa Barbara County Cultural Resource Guidelines.

Residual Impact

With implementation of the above mitigation measures, the residual impact is considered to be *significant but mitigable (Class II).*

Impact #	Impact Description	Phase	Residual Impact
CR.2	Modifications to Valve Site #2 and installation of power poles would result in ground disturbance and potential impacts on cultural resources.	*Construction*	*Class II*

Modifications to Valve Site #2, located between landfall and the LOGP, would include installing: three new booster pumps; additional electrical transformers; switchgear, and associated power lines; and a transformer station to serve the pumps. All modifications to Valve Site #2 involving ground disturbance would be accommodated within the existing footprint of Valve Site #2, in an area that was previously disturbed during initial construction of the station and with no known cultural resources. The proposed Onshore Water Resources Mitigation Measure OWR-1, which would involve the construction of a berm around Valve Site #2, would occur within the existing disturbed area. Due to the lack of recorded sites and previous disturbance at this location, no impacts on cultural resources would occur.

Power line installation to Valve Site #2 would involve ground disturbance from constructing a new transformer station, installing new power poles, and a minor amount of backhoe trenching.

The proposed transformer station would be located in a farm field on the northwest corner of Renwick and Ocean Avenues. This location has been previously surveyed and there are no known cultural resources present. Therefore, impacts on cultural resources are not expected.

Approximately 13 to 15 power poles spaced 350 to 400 feet apart would be installed for the proposed 5,600 foot-long power line that would connect the new transformer station to the power pole line along the pipeline right-of-way and Terra Road. The proposed power line would be placed along Renwick Avenue and the east side of 13th Street within existing road shoulders. The new power poles would cause ground disturbance up to 10 to 12 feet deep. The route of the proposed power line that is located along the roadways was previously surveyed by County-qualified archaeologists, and there are no known cultural resources present within the corridor. Due to the absence of archaeological sites within the corridor, no impacts on cultural resources would occur.

Approximately three to five proposed power poles would be installed to support the proposed power line crossing of the Santa Ynez River. The new power poles would cause ground disturbance up to 10 to 12 feet deep. Approximately 300 feet of backhoe trenching would also be needed for undergrounding the power line under the VAFB power line immediately north of the river. Although there are no recorded cultural resources within the proposed power pole locations or within the small trenching area, there is a potential for unrecorded sites because these areas have never been surveyed for cultural resources. Areas adjacent to the Santa Ynez River are considered highly sensitive for cultural resources based on the number of archaeological sites recorded in similar environmental contexts. It is possible that ground disturbance associated with the proposed power poles or the proposed trenching could result in significant impacts on unknown cultural resources. Impacts on a potentially significant cultural resource would be considered potentially significant.

Approximately 600 feet of backhoe trenching would be needed for undergrounding the power line under 13th Street to connect the line with power poles along the pipeline right-of-way. The trenching locations were previously surveyed by County-qualified archaeologists, and there are

no known cultural resources present at either location. However, it is possible that ground disturbance associated with the power line undergrounding and power pole locations could result in significant impacts to unknown cultural resources buried in the floodplain. Impacts on a potentially significant cultural resource would be considered potentially significant.

Most of the proposed ground disturbances would occur in areas without recorded archaeological sites resulting in less than significant impacts on cultural resources; however, the remote potential for encountering unknown cultural deposits exists. If these remains were unexpectedly disturbed, impacts could be potentially significant, depending on the type of resource impacted and the condition of the resource. The proposed pole line across Santa Ynez River and trenching in the area immediately adjacent to the river would be in the areas that have not been previously surveyed. Therefore, there is a potential for significant impact to cultural resources.

Mitigation Measures

Mitigation Measures CR-2 (described above) and CR-4 (below) would be applicable.

CR-4 A Phase 1 archaeological surface survey shall be conducted at unsurveyed areas of ground disturbance associated with installation of the power pole line across the Santa Ynez River and proposed trenching areas prior to land use clearance to identify any cultural resources that may be affected during construction. If a cultural resource is encountered during the survey, it shall be shall be avoided by power pole and/or trench relocation. If archaeological site avoidance is technologically infeasible due to topographic or engineering constraints, the site's potential significance shall be evaluated pursuant to Santa Barbara County Cultural Resource Guidelines and CEQA Guidelines Section 15064.5 criteria. Resources considered significant and unavoidable shall be subject to a Phase 3 data recovery program (with Native American monitoring, if prehistoric), consistent with Santa Barbara County Cultural Resource Guidelines, and if located on VAFB, shall incorporate the investigation methodology reviewed and approved by VAFB environmental management staff. To comply with VAFB requirements, any trenching or excavation in a floodplain on VAFB shall require archaeological monitoring.

Residual Impact

Potential impacts on unknown cultural resources could occur, but implementation of the above mitigation measures would minimize potential impacts by avoiding any significant resources identified during an intensive archaeological survey by power pole and/or trench location redesign, or by mitigating the impacts through a data recovery program. Due to the limited size of a given power pole and trench excavation area, it is reasonable to assume that they could be feasibly relocated to avoid most archaeological site areas. After application of mitigation measures the residual impact would be less than significant. Therefore, Impact CR.2 is considered to be *significant but mitigable (Class II).*

Impact #	Impact Description	Phase	Residual Impact
CR.3	Containment and cleanup activities associated with an accidental oil spill would result in ground disturbance and potential impacts on cultural resources.	*Increased Throughput Extension of Life*	*Class I*

The proposed project would extend the expected life of the onshore oil pipelines and would increase oil throughput from Platform Irene to the Summit Pump Station, which would amplify the magnitude of a potential spill. A pipeline leak or rupture would potentially lead to an oil spill anywhere along the onshore pipeline route, and activities related to oil spill containment and cleanup would potentially impact cultural resources. Impacts on a potentially significant cultural resource would be considered significant.

The nature of oil spill containment and cleanup activities and their potential for impacting cultural resources are inferred from the OSRP prepared by PXP for operations on Platform Irene and the Point Pedernales 20-inch oil pipeline (PXP, November 2004). Containment activities that would potentially affect cultural resources include the use of heavy earth moving equipment (e.g., graders, scrapers, front-end loaders) or manual excavation to remove oil-contaminated material. Soil removal by manual or mechanized means poses potential significant impacts on any cultural resource in the affected areas. Water flooding is another cleanup method whereby subsurface oil is forced to the surface by water pumped into the groundwater table. Although drilling holes for water flooding would potentially impact sites, flooding (in most cases) would be preferable to soil removal because it is likely that drilling would result in relatively low levels of subsurface disturbance. Staging areas for containment and cleanup equipment as well as vehicle and heavy equipment access and parking should not result in heavy subsurface impacts unless the area must be graded for equipment access. Significant impacts on surface assemblages may occur.

Mitigation Measures

CR-5 The Oil Spill Response Plan (OSRP) shall be revised to include procedures for minimizing impacts on cultural resources during oil spill containment and cleanup activities. These procedures shall include contacting a County-qualified archaeologist and Native American monitor in the event of a spill. To the extent possible, heavy earth moving equipment or manual excavation shall be minimized at archaeological sites. If unanticipated cultural resources are discovered during containment and cleanup activities, then a county-qualified archaeologist shall document the discovery at the earliest time it is deemed safe to do so. It is possible that post-cleanup archaeological excavations (with Native American monitoring, if applicable) shall be necessary to help mitigate impacts from the containment/cleanup ground disturbances. The revised OSRP shall be submitted to P&D prior to issuance of coastal development permit or land use clearance for grading.

Residual Impact

Implementation of the above mitigation measure would ensure that impacts from an oil spill would be minimized to the extent possible. However, certain impacts to significant cultural resources during or as the result of an oil spill cleanup might not be feasibly reduced to an adverse but not significant level. Although the likelihood of an accidental oil spill is low, there is a potential for *significant unavoidable adverse impacts* on cultural resources. Therefore, even after application of mitigation measures, the residual impact would be significant.

Impact #	Impact Description	Phase	Residual Impact
CR.4	Pipeline repair associated with an accidental produced water spill from the pipeline would result in ground disturbance and potential impacts on cultural resources.	*Extension of Life*	*Class II*

The proposed project would extend the expected life of the onshore produced water pipeline. A pipeline leak or rupture would potentially lead to a produced water spill, but, unlike an oil spill, no containment and cleanup activities that would involve ground disturbance would be needed. Pipeline repair would result in ground disturbance and potentially impact cultural resources, as described under Impact CR.1. Impacts on a potentially significant cultural resource would be considered significant.

Mitigation Measures

Mitigation Measures CR-1 and CR-2 would be applicable.

Residual Impact

With implementation of the above mitigation measures, the residual impact is considered to be *significant but mitigable (Class II).*

5.12.5 Impact Analysis for the Alternatives

Detailed descriptions of the various alternatives have been provided in Chapter 3.0, Alternatives. This section provides a discussion of the cultural resource impacts of the various alternatives.

5.12.5.1 No Project Alternative

Scenarios 2 and 3. As discussed in Section 3.2, under the No Project Alternative Scenarios 2 and 3, production of the federal portion of the Tranquillon Ridge field would and would not occur, respectively. However, no extension of life of Point Pedernales facilities (Platform Irene, pipelines, and LOGP) is assumed under either scenario. Under ~~the No Project Alternative~~ Scenario 2, only the portion of the Tranquillon Ridge Field in Federal waters would be developed, to the extent allowed by the existing Point Pedernales Project permits. With ~~the No project Alternative~~ either Scenario 2 or 3, modifications to Valve Site #2 and associated power lines would not be constructed. ~~This alternative~~ Neither Scenario 2 nor 3 would ~~not~~ extend the life of the Point Pedernales facilities, and oil throughput rates would be comparable to existing conditions. Therefore, there would be no new impacts on cultural resources, and no mitigation measures would be required.

Options for Meeting California Fuel Demand. The relative impacts to cultural resources associated with the various options for meeting California fuel demand are summarized in Table 5.12.4.

5.12.5.2 VAFB Onshore Alternative

Cultural resource impacts of the onshore drilling alternative would result from the disturbance of historic and pre-historic sites or paleontological resources by the construction and maintenance of facilities, and by containment or cleanup activities necessitated by accidents. There may also be adverse effects of industrial development and activity on the aesthetic qualities of culturally significant sites and landscapes.

Table 5.12.4 No Project Alternative Comparison to Options for Meeting California Fuel Demand, Cultural Resources

Source of Energy		Impacts
Other Conventional Oil & Gas		
	Domestic onshore crude oil and gas	Likely to displace, rather than eliminate, spill related impacts. Development of new production could have increased construction impacts depending on resources present on-site.
	Increased marine tanker imports of crude oil	Likely to displace, rather than eliminate, spill related impacts.
	Increased gasoline imports[1]	Likely to displace, rather than eliminate, spill related impacts.
	Increased natural gas imports (LNG)	Likely to displace, rather than eliminate, spill related impacts.
Alternatives to Oil and Gas		
	Fuel Demand Reduction: increased fuel efficiencies, conservation, electrification[2]	
	Alternative transportation modes	Proposed project impacts would be eliminated.
	Implementation of regulatory measures	Proposed project impacts would be eliminated.
	Coal, Nuclear, Hydroelectric	Proposed project impacts would be eliminated; however, coal, nuclear, and hydroelectric infrastructure development could introduce construction and operation impacts.
	Alternative Transportation Fuels	
	Ethanol/Biodiesel[3]	Proposed project oil spill impacts would be reduced. Potential ethanol/biodiesel spill impacts could occur. Potential increased construction impacts because of new plant construction.
	Hydrogen[2]	Oil spill impacts would be eliminated. Potential construction related impacts due to hydrogen delivery infrastructure development.
	Other Energy Resources[2]	
	Solar[2,4]	Would greatly reduce oil spill impacts to cultural resources. Potential increased construction impacts because of solar facility infrastructure construction.
	Wind[2,4]	Would greatly reduce oil spill impacts to cultural resources. Potential increased construction impacts because of wind facility infrastructure construction.
	Wave[2,4]	Would greatly reduce oil spill impacts to cultural resources. Potential increased construction impacts because of wave facility infrastructure construction.

Footnotes:
1. Pipeline and tanker truck import from out-of-State assumed.
2. Assumes that Tranquillon Ridge production would not be replaced with other petroleum-based energy supply.
3. Assumes ethanol and biodiesel used as blends only and therefore would reduce, but not eliminate Tranquillon Ridge or equivalent production.
4. Assumes, large centralized facilities.

The same impacts and mitigation measures that apply to the proposed project would also apply to the existing onshore PXP facilities whose operation would be prolonged by the onshore drilling alternative. These impacts would be predominantly to sites that have been previously disturbed by the construction and operation of the existing facilities. That disturbance was largely mitigated as required by the original Point Pedernales project approvals. The primary difference between the proposed project and this alternative is the potential for adverse effects on previously unaffected cultural sites and landscapes.

To assist the evaluation of the impacts associated with the construction and operation of new facilities under the onshore drilling alternative, record searches were performed at the Central Coastal Information Center (CCIC) on August 16, 2006 and at VAFB on August 23, 2006. From the resulting mapped and textual information, summarized in Table 5.12-54, there are at least 109 known archaeological sites within 0.5 miles of alternative facilities, and 44 sites that may be considered significant or potentially significant, within 200 feet of the areas potentially subject to disturbance by the onshore drilling alternative. The number of sites potentially affected is a minimum estimate because previously undiscovered sites are likely to exist in the affected areas.

To facilitate comparisons, the following section parallels that of the proposed project in terms of the types of impacts to cultural resources, uses the same numbering for those impacts, and concludes whether the impacts would be less than, similar to, or more severe than those of the proposed project. Impacts that are qualitatively different are assigned new numbers.

Table 5.12.54 Archaeological Sites Within a ½-Mile Corridor Around the VAFB Onshore Alternative Construction Footprint

Site	Within 200 ft of Scenario 1 or DPA[1]	Tested	Site Significance[2]	Brief Site Description[3]
SBa-0212				NA
SBa-0246				NA
SBa-0530	x	x	P	Light to heavy density shell midden, some small animal bones and moderate chert chippings
SBa-0531	x	x	P	Some fossilized tree and root, moderate levels of chert chipping waste and scattered surface artifacts
SBa-0533				NA
SBa-0534	x	x	S	Trace to moderate density chipping fragments (Monterey chert)
SBa-0536		x	P	Fossil forest area, as well as cultural remains
SBa-0537	x			NA
SBa-0538				NA
SBa-0539		x	S	Light to moderate density shell midden and chipping detritus as well as human remains
SBa-0549	x	x	P	Trace to heavy density chipping detritus and some cultural artifacts
SBa-0668				NA

Table 5.12.54 Archaeological Sites Within a ½-Mile Corridor Around the VAFB Onshore Alternative Construction Footprint

Site	Within 200 ft of Scenario 1 or DPA[1]	Tested	Site Significance[2]	Brief Site Description[3]
SBa-0669		x	P	Light density shell midden and light density chipping detritus
SBa-0670	x	x	S	Light to moderate density shell midden, chipping detritus and some animal bones
SBa-0671		x	P	Light density shell scatter and trace fire cracked rock
SBa-0672				NA
SBa-0673		x	P	Surface shell deposits and trace chipping detritus
SBa-0674	x	x	P	Light density chipping fragments
SBa-0675				NA
SBa-0676	x	x	P	Low densities of prehistoric and cultural remains present due to transplantation
SBa-0677		x	P	Dense deposit of shellfish and lithic debitage
SBa-0678		x	S	Light to heavy density chipping fragments and cultural artifacts
SBa-0679		x	P	Light to moderate density chipping detritus and some cultural artifacts
SBa-0680	x	x	P	Chert flakes and some small mammal bones
SBa-0681	x	x	P	surface distribution of chipping detritus
SBa-0682	x	x	P	Chipping waste and small artifacts
SBa-0683		x	P	Trace amounts of flake and scattered artifacts remains
SBa-0684		x	P	Trace density of chipping detritus, trace amounts of shell and some mammal bone
SBa-0685				NA
SBa-0686				NA
SBa-0689		x	P	Trace density of chipping detritus (surface scatter)
SBa-0773H	x			NA
SBa-0915		x	P	Light density flake
SBa-0921	x	x	P	Light surface density chipping waste of Monterey chert
SBa-0922		x	P	Trace surface chipping detritus
SBa-0923	x	x	P	Moderate density surface chipping waste (Monterey chert)
SBa-0924				NA
SBa-0925				NA
SBa-0931	x	x	P	Various cultural remains and debitage as well as trace amounts of shell
SBa-0932	x			NA
SBa-0933				NA

Table 5.12.54 Archaeological Sites Within a ½-Mile Corridor Around the VAFB Onshore Alternative Construction Footprint

Site	Within 200 ft of Scenario 1 or DPA[1]	Tested	Site Significance[2]	Brief Site Description[3]
SBa-0946				NA
SBa-1119		x	P	Moderate amount of mytilus, trace barnacle and trace chipping detritus
SBa-1120	x	x	P	Light, scattered shell
SBa-1121			P	Trace shell (weathered) and trace chert flakes
SBa-1122	x	x		Light density moderately weathered shell
SBa-1123				NA
SBa-1124	x	x	P	Two intact shells recovered from site, nothing else
SBa-1125H	x	x	P	Flakes and some marine shell
SBa-1126	x			NA
SBa-1127				NA
SBa-1128	x	x	S	Marine terrace with no shell and some chert flakes
SBa-1129	x	x	S	Marine terrace with some shell and weathered burnt bone
SBa-1130				NA
SBa-1144H	x	x	P	Cypress trees and some automobile parts
SBa-1145H		x	P	Intact historical refuse features present
SBa-1166	x			NA
SBa-1680				NA
SBa-1761		x	P	Some shell and low density flake
SBa-1815	x	x	P	Many chert flakes and some tools
SBa-1816		x	P	Chert flakes, some shell and charcoal
SBa-1819H		x	P	Model-T car parts dump with some scattered trash and broken glass
SBa-1891		x	P	Moderate density shell and flake deposit
SBa-1908	x	x	P	Trace chert flakes
SBa-1940				NA
SBa-2126	x	x	P	Deposits of lithics and shell unearthed by trenching
SBa-2146		x	P	Trace chert flakes and localized concentrations of shell
SBa-2147		x	P	Light to moderate Monterey chert flakes and some tools
SBa-2148	x	x	P	Small scatter of shellfish, fire affected rock and cultural remnants
SBa-2154		x	P	Low density scatter of Monterey chert flakes
SBa-2229		x	P	Flaked stone artifacts, marine shell and some bone remains
SBa-2230	x	x	P	Trace cultural remnants and unmodified cobble
SBa-2231H	x	x	P	Trace density of lithic debitage, some projectile point fragments and historical

Table 5.12.54 Archaeological Sites Within a ½-Mile Corridor Around the VAFB Onshore Alternative Construction Footprint

Site	Within 200 ft of Scenario 1 or DPA[1]	Tested	Site Significance[2]	Brief Site Description[3]
				artifacts
SBa-2325	x			NA
SBa-2333				NA
SBa-2412	x	x	P	Light scatter of Monterey chert, and small mammal bones
SBa-2425				NA
SBa-2500				NA
SBa-2611				NA
SBa-2612	x	x	P	Some shell scatter and cultural artifacts recovered
SBa-2833				NA
SBa-2840	x			NA
SBa-2841	x			NA
SBa-2916				NA
SBa-2917				NA
SBa-2918H		x	P	Historic structure foundation and some cultural remnants
SBa-2920H	x			NA
SBa-2921				NA
SBa-2930				NA
SBa-2931				NA
SBa-2932				NA
SBa-2933				NA
SBa-2934				NA
SBa-2940	x			NA
SBa-2941	x			NA
SBa-2942	x	x	P	Sparse lithic scatter and some flake
SBa-2943				NA
SBa-2944		x	P	Sparse lithic scatter and some low density flake
SBa-2945				NA
SBa-2946H	x	x	P	Trash scatter with remnants of a corral structure
SBa-2947				NA
SBa-2948		x	P	Sparse lithic scatter and moderate density flake/debitage
SBa-2949				NA
SBa-2949				NA
SBa-2950				NA
SBa-2950				NA
SBa-2952	x			NA
SBa-2953	x			NA

Table 5.12.54 Archaeological Sites Within a ½-Mile Corridor Around the VAFB Onshore Alternative Construction Footprint

Site	Within 200 ft of Scenario 1 or DPA[1]	Tested	Site Significance[2]	Brief Site Description[3]
SBa-3107H	x	x	P	Large scatter of historical artifacts associated with the demolition of 2 structures

1: Within 200 feet of pipeline scenario 1 or drilling/production area (see VAFB alternative description in Section 3.3.3).
2: P indicates potential significance in the absence of other documentation; S indicates determined significant
3: NA indicates site description not available

Impact CR.1 – Pipeline Maintenance and Repair: As for the proposed project, Impact CR.1 (Class II) and corresponding Mitigation Measures CR-1 through CR-3 would apply to maintenance and repair actions for all existing facilities that would continue to operate under this alternative. However, additional impacts would occur because of the large number of "new" (previously unaffected) sites that would be present along the alignment of new pipelines (see Table 5.12-54). It is assumed that these impacts would be *significant but mitigable (Class II)*, but the need for a greater level of mitigation, including new surveys, monitoring, evaluation, data recovery and/or avoidance measures should be recognized. Overall, the impacts of pipeline maintenance and repair would be substantially greater for this alternative than for the proposed project.

Impact CR.2 – Installation of Power Poles: The installation of power poles for the onshore drilling alternative would entail many more poles, and hence more extensive ground disturbance than for the proposed project. Numerous sites are known to exist along the corridor that would be used for construction; additional sites could be discovered during construction. Corresponding Mitigation Measures CR-2 and CR-4 would apply as for the proposed project, and the impacts are considered *significant but mitigable (Class II)*. However, the impacts would be quantitatively greater, affecting a larger number of sites, than for the proposed project.

Impact CR.3 – Oil Spill Containment and Cleanup Activities: As for the proposed project, the onshore drilling alternative would have a continuing risk of oil spills, with resulting incidental impacts on cultural resources due to ground disturbance during spill containment and cleanup actions. However, the likelihood of an oil spill affecting cultural resources would be greater because of the additional 10 miles of new pipeline. Mitigation Measure CR-5 would also apply to this alternative, but new procedures and contingencies applicable to the variety of new sites potentially affected would need to be incorporated into the OSRP. As for the proposed project, the residual impacts are considered *significant and unavoidable (Class I)*, due to the impossibility of protecting potentially significant cultural resources while conducting emergency response to an oil spill. Compared to the proposed project, many more new sites would be at risk from oil spills. Hence, the impact would be substantially more severe than for the proposed project.

Impact CR.4 – Produced Water Spill: Impacts associated with the risk of produced water spills along the new pipeline route would be similar to those discussed for the proposed project, and similarly mitigated by Mitigation Measures CR-1 and CR-2. However, the impacts would be quantitatively greater because of the greater length of pipelines and the greater likelihood of

impact to an archaeological site. These impacts are considered *significant but mitigable (Class II)*.

Impact #	Impact Description	Phase	Residual Impact
CR.5	Disturbance or destruction of cultural sites that may contain significant or potentially significant cultural materials due to the construction of new drilling/production/processing facilities, ~~and~~ pipelines, power lines, tie-in station, and electrical substations.	*Construction*	*Class I or II*

As presented in Table 5.12-5~~4~~, there are 44 archaeological sites that are considered significant or potentially significant along the VAFB Onshore Alternative pipeline and power line alignments, drilling/production site, tie-in station, and electrical substations. Construction may remove or destroy cultural materials, and would alter the spatial relationships and context of those materials. Because of the extent of grading and excavation required to construct the new facilities, there would be a high potential for the destruction of cultural materials and alteration of their context, which may not be fully mitigable by measures implemented after the fact. Given prevailing substrates of unconsolidated sand on old dunes, in close proximity to the coastline as well as sources of fresh water, the potential for undiscovered, buried cultural materials to exist is high. Sedimentary deposits containing paleontological materials are also likely to be encountered. Although Mitigation Measures CR-1 through CR-4 would apply in principle, a comprehensive cultural resources mitigation plan would be needed to provide maximum feasible mitigation. The general requirements for such a plan are described below. The residual impacts are considered *significant and unavoidable (Class I)* or *significant but mitigable (Class II)* depending upon the significance and integrity of the sites. An example of a Class I impact would be the destruction of a site with human remains due to both the archaeological importance and the importance to Native Americans in the region. A Class II impact could occur to sites that are neither unique or of exceptional significance (per Santa Barbara County, Cultural Resources Guidelines). Without more intensive analysis at these sites, all sites that are not clearly insignificant have been considered to be significant. However, without additional analyses, it is not possible at this time to determine the level of significance.

Mitigation Measure

CR-6 Prior to the approval of a Final Development Plan for the onshore drilling alternative, a comprehensive cultural resources mitigation plan shall be submitted to the County of Santa Barbara and the Vandenberg Air Force Base Cultural Resources Program Manager for review and approval. The plan shall include at minimum the following elements:

1. A complete inventory of previously known sites, their characteristics, and potential significance that may exist within 200 feet of potential ground disturbance.
2. Results of a Phase I archaeological survey covering all previously unsurveyed areas within 200 feet of identified construction footprints and corridors.
3. Procedures for monitoring during construction, the evaluation of newly discovered cultural or paleontological materials, and mitigation through avoidance, in situ preservation, research, or data recovery, as warranted before

construction is allowed to continue. These procedures shall incorporate Native American representation.

Residual Impact

With implementation of the above mitigation measure, the residual impact is considered to be *significant and possibly unavoidable (Class I or II).* Without a more intensive analysis based on actual construction plans and initial evaluations of cultural sites, including evaluation of the level of significance, it cannot be assumed that impacts would be fully mitigable.

Impact #	Impact Description	Phase	Residual Impact
CR.6	Aesthetic impacts on VAFB cultural sites and landscapes.	*Construction and Operation*	*Class III*

This impact would be unique to the onshore drilling alternative and is due to industrial equipment and activity which may degrade the public's experience of cultural sites and the landscape as a whole. For Native Americans in particular, the region has unique spiritual importance. Under CEQA Guidelines Section 15064.5, a substantial adverse change in the significance of an archaeological or historical resource is considered significant. Given that there is considerable development in the surrounding coastal region, including existing roads, the railroad, and launch facilities, and limited public accessibility, the impact of new construction is considered adverse but not significant.

Mitigation Measures

No mitigation measures have been identified for this impact.

Residual Impact

Impact CR.6 is considered *adverse but not significant (Class III).*

5.12.5.3 Casmalia East Oil Field Processing Location

For the Casmalia Alternative, Impact CR.1, pipeline maintenance and repair, Impact CR.2, installation of power poles, Impact CR.3, oil spill clean up activities, and Impact CR.4, produced water spill, would be more severe than the proposed project, because of the additional length of pipeline. Impact CR.5, destruction of VAFB cultural sites and Impact CR.6, VAFB cultural sites and landscapes, do not apply to the Casmalia Alternative.

Impact CR.5 - Facility and Pipeline Construction: Building a new processing site, the Casmalia East Site near Orcutt, and trenching for a new pipeline from this processing site to the LOGP would result in extensive ground disturbance that would not occur under the proposed project. Four recorded archaeological sites are located within 200 feet of the proposed pipeline route, and there are potential unrecorded sites because approximately seven miles of the proposed pipeline and the site of the new processing facility have never been surveyed for cultural resources. This new construction would likely result in potentially significant but mitigable impacts on cultural resources along the pipeline route and at the new facility location. Impacts on cultural resources would be much greater than the proposed project due to the extensive ground disturbance involved with this alternative.

Mitigation Measures

Mitigation Measures CR-1, CR-2, CR-3, CR-4 and CR-5 would be applicable, along with the following measure:

CR-7 A Phase I archaeological surface survey shall be conducted along the new pipeline right-of-way and at the location of the new processing site prior to land use clearance to identify any cultural resources that may be affected during construction. If a cultural resource is encountered during the survey, it shall be documented by a County-qualified archaeologist and its potential significance evaluated in terms of applicable criteria prior to any construction activities. Resources considered significant shall be avoided or subject to a Phase 3 data recovery program (with Native American monitoring, if applicable), consistent with Santa Barbara County Cultural Resource Guidelines.

Residual Impact

Potential impacts on recorded and unknown cultural resources could occur, but implementation of the above mitigation measures would minimize potential impacts by avoiding any significant resources identified during an intensive archaeological survey, or by mitigating the impacts through a data recovery program, when appropriate. After application of mitigation measures, Impact CR.5 would be considered *significant but mitigable (Class II).*

5.12.5.4 Alternative Power Line Routes to Valve Site #2

For the power line routing alternatives, Impact CR.1, pipeline maintenance and repair, Impact CR.3, oil spill clean up activities, and Impact CR.4, produced water spill, would be the same as for the proposed project. Impact CR.5, facility and pipeline construction, and Impact CR.6, VAFB cultural sites and landscapes, do not apply to the power line routing alternatives. The applicability of Impact CR.2, installation of power poles, to each of the power line alternatives is discussed below.

Alternative Power Line Route – Option 2a

Proposed ground disturbances associated with Power Line Option 2a would be the same as Impact CR.2 of the proposed project, except Power Line Option 2a would involve ground disturbance from constructing a new substation and installing new power poles to connect it to the existing power pole line along the pipeline right-of-way. The proposed substation would be located in a farm field north of Ocean Avenue and west of an abandoned road. This location has been previously surveyed by County-qualified archaeologists, and there are no known cultural resources present. Due to the absence of archaeological sites at this location, no additional impacts on cultural resources would occur.

Approximately 15 to 20 power poles would be installed for the proposed power line that would connect the new substation to the power pole line along the pipeline right-of-way. The proposed power line would be placed within a hay field, across the Santa Ynez River, and then parallel to an existing VAFB power pole line. The proposed power line would be approximately 6,400 feet in length and have new power poles placed every 350 to 400 feet. The new power poles would cause ground disturbance up to 10 to 12 feet deep. Although there are no known cultural resources present along the proposed power pole line route, unknown sites could be present because only portions of this route have been intensively surveyed by County-qualified

archaeologists. Areas adjacent to the Santa Ynez River are considered highly sensitive for cultural resources based on the number of archaeological sites recorded in similar environmental contexts. It is possible that ground disturbance associated with the proposed power poles could result in significant impacts on unknown cultural resources as for the proposed project (see Impact CR.2). Impacts on a potentially significant cultural resource would be considered potentially significant but mitigable.

Mitigation Measures

Mitigation Measures CR-1, CR-2, CR-3, CR-4, and CR-5 would be applicable to Power Line Option 2a.

Residual Impact

Potential impacts on unknown cultural resources could occur, but implementation of the above mitigation measures would minimize potential impacts by avoiding any significant resources identified during an intensive archaeological survey by power pole location redesign, or by mitigating the impacts through a data recovery program. Due to the limited size of a given power pole excavation area, it is reasonable to assume that the pole locations could be feasibly relocated to avoid most archaeological site areas. The residual impact for cultural resource impacts associated with this alternative would be considered to be *significant but mitigable (Class II)*.

Alternative Power Line Route – Option 2b

Ground disturbances associated with Power Line Option 2b would be the same as Option 2a except that the proposed power line would cross the Santa Ynez River by directional boring under the river instead of being hung on new power poles. The directional bore would involve excavating two bore pits, one on each side of the river, and then boring under the river to a minimum depth of 50 feet. There are no known cultural resources along this river segment, and the depth of the bore should take it under any potentially unrecorded sites along the riverbed. However, proposed bore pit areas have not been subject to an intensive survey by County-qualified archaeologists, and areas adjacent to the Santa Ynez River are considered highly sensitive for cultural resources based on the number of archaeological sites recorded in similar environmental contexts. It is possible that ground disturbance associated with the proposed bore pits could result in significant impacts on cultural resources (see Impact CR.2). Impacts on a potentially significant cultural resource would be considered potentially significant but mitigable. Additional impacts for this alternative (CR.1, CR.3, and CR.4) would be same as the proposed project impacts.

Mitigation Measures

Mitigation Measures CR-1, CR-2, CR-3, CR-4 and CR-5 would be applicable.

Residual Impact

Potential impacts on unknown cultural resources could occur, but implementation of the above mitigation measures would minimize potential impacts by avoiding any significant resources identified during an intensive archaeological survey by bore pit location redesign, or by mitigating the impacts through a data recovery program. Due to the limited size of a bore pit excavation area, it is reasonable to assume that the bore pit locations could be feasibly relocated

to avoid most archaeological site areas. The residual impact for cultural resource impacts associated with this alternative would be considered to be *significant but mitigable (Class II)*.

Underground Power Line along Terra Road

Impact #	Impact Description	Phase	Residual Impact
CR.7	Trenching along Terra Road would result in ground disturbance and potential impacts on cultural resources.	*Construction*	*Class II*

Proposed ground disturbances associated with this alternative would be the same as Impact CR.2 of the proposed project, except installing a power line from Valve Site #2 to a new transformer would involve one to three miles of trenching along Terra Road. Four potentially significant archaeological sites (CA-SBA-913, -1917, -689, and -2126) are located within this road right-of-way and would be impacted by the proposed trenching. Impacts on a potentially significant cultural resource would be considered *significant but mitigable (Class II).* Impacts on cultural resources would be greater than the proposed project, because the trench would require more ground disturbance than the proposed project's power poles.

Impacts CR.1, CR.3, CR.4 would be same as the proposed project impacts.

Mitigation Measures

Mitigation Measures CR-1, CR-2, CR-3, CR-4 and CR-5 would be applicable, along with the following measure:

CR-8 Avoid impacts on known cultural resources by rerouting the trench so that no ground disturbance occurs within 200 feet from established site boundaries of CA-SBA-913, -1917, -689, and -2126. PXP shall submit plans that demonstrate avoidance of known cultural sites prior to issuance of coastal development permit or land use clearance for grading.

Residual Impact

With implementation of the above mitigation measures, the residual impact would be less than significant and Impact CR.7 would be considered *significant but mitigable (Class II).*

5.12.5.5 Replacement of Oil Emulsion Pipeline from Platform Irene to LOGP

For the Emulsion Pipeline Replacement Alternative, Impact CR.1, pipeline maintenance and repair, Impact CR.3, oil spill clean up activities, and Impact CR.4, produced water spill, would be the same as the proposed project. Impact CR.6, VAFB cultural sites and landscapes, and Impact CR.7, trenching along Terra Road, do not apply to the Emulsion Pipeline Replacement Alternative.

Impact CR.1 - Pipeline Maintenance Ground Disturbance: As a new pipeline would be installed with this alternative, pipeline maintenance related ground disturbances would be reduced over those of the proposed project because the integrity of the pipeline would be improved over the existing pipeline, which has a history of corrosion problems. Although highly reduced, maintenance may still be needed for the new pipeline, therefore, Impact CR.1 would be the same as for the proposed project, and Mitigation Measures CR-1 through CR-4 would still apply.

Impact CR.2 – Installation of Power Poles**:** ~~The installation of power poles would be the same as the proposed project, which would result in *significant but mitigable impacts (Class II)* with application of Mitigation Measures CR-2 and CR-4.~~ As the new pipeline would be able to operate at higher pressures, installation of the modifications to Valve Site #2 would not be required. Therefore, ~~this portion of~~ Impact CR.2 would be eliminated under this alternative.

Impacts CR.3 and CR.4 – Spill Related Impacts to Cultural Resources**:** The probability of an oil spill occurring would be slightly less for this alternative. However, as the new pipeline would be the same size as the current pipeline, spill volumes would remain the same. Therefore, these two impacts would be applicable to this alternative (Class I and Class II, respectively). Mitigation Measure CR-5 would be applicable.

Impact CR.5 – Facility and Pipeline Construction: There are 29 recorded sites within ½ mile of the existing PXP pipeline corridor. However, because the new emulsion line would be placed within the same corridor of the existing PXP pipelines and this corridor has been previously disturbed by construction activities associated with the existing pipelines, it is unlikely that any new cultural sites would be disturbed and, therefore, this impact would be significant but mitigable.

Impact #	Impact Description	Phase	Residual Impact
CR.8	Offshore oil emulsion pipeline replacement would result in seafloor disturbance and potential impacts on cultural resources.	*Construction*	*Class II*

This alternative involves replacing the existing offshore oil emulsion pipeline with a new pipeline from Platform Irene to landfall instead of using the existing pipeline as per the proposed project. The offshore pipeline is approximately 10.1 miles long and has a landfall approximately 1/2 mile north of the Santa Ynez River. The existing offshore pipeline would be removed prior to the installation of the new emulsion pipeline. The new pipeline would be installed on the seafloor adjacent to the current pipeline corridor alongside the existing three pipelines and power line. In the surf zone (shore to 4,000 feet offshore), divers would use hand held "air jets" to pump seawater under the pipeline to displace the sand and bury the pipeline to a depth of three to six feet.

There are no known potentially significant cultural resources within the original construction corridor of the offshore pipeline. No impacts to cultural resources, therefore, are expected from seafloor disturbance within the original pipeline construction corridor. If seafloor disturbance occurs adjacent to the original construction corridor, it is possible that construction activities would impact unrecorded cultural resources. Impacts on a potentially significant cultural resource would be considered potentially significant but mitigable.

Mitigation Measures

The following mitigation measure is proposed:

CR-9 The original offshore construction corridor shall be mapped and labeled on appropriate offshore Project maps. All seafloor disturbances from construction activities associated with the new pipeline shall be confined within the original pipeline construction corridor to avoid impacts on potentially significant cultural resources.

Applicant shall submit plans that demonstrate avoidance of known cultural sites prior to issuance of coastal development permit or land use clearance for grading.

Residual Impacts

With implementation of the above mitigation measures, the residual impact would be less than significant and Impact CR.8 would be considered *significant but mitigable (Class II).*

Impact #	Impact Description	Phase	Residual Impact
CR.9	Onshore oil emulsion pipeline removal and replacement would result in ground disturbance and potential impacts on cultural resources.	*Construction*	*Class II*

This alternative involves replacing the existing onshore oil emulsion pipeline between landfall and the LOGP with a new pipeline instead of using the existing pipeline as per the proposed project. The new onshore pipeline would be installed in the same corridor as the existing pipelines, using the same right-of-way that was used for the initial pipeline installation. Normally a 100-foot wide right-of-way would be required during construction to accommodate clearing and right-of-waying, ditching, hauling, and stringing, welding, and traffic. The right-of-way can be reduced to 40 feet for distances up to 200 feet to avoid impact to a localized environmental concern (i.e., archaeological site, cluster of trees).

There are 22 recorded archaeological sites located within 200 feet of the existing oil pipeline between landfall and the LOGP. Although these sites were previously disturbed by the construction of the existing pipeline, most are determined to be a potentially significant historic resource. Oil pipeline removal and replacement would result in ground disturbance and potential impacts on any cultural resource in the affected areas. Impacts on a potentially significant cultural resource are considered to be *significant but mitigable (Class II).* Impacts on cultural resources would be greater than the proposed project due to the extensive ground disturbance involved with this alternative.

Mitigation Measures

Mitigation measures CR-1 and CR-2 would be applicable along with the following measures:

CR-10 The normal 100-foot wide right-of-way shall be reduced to a 40-foot wide right-of-way when within 200 feet of a recorded archaeological site unless the resource has been previously determined to have no potential for significance because it is re-deposited, an isolated occurrence, modern, or otherwise lacks data potential. PXP shall submit plans that demonstrate avoidance of known cultural sites prior to issuance of coastal development permit or land use clearance for grading.

CR-11 Develop a Cultural Resources Monitoring Plan to prepare for archaeological and Native American monitoring activities during construction. This plan shall be submitted to P&D prior to issuance of coastal development permit or land use clearance for grading. PXP shall arrange for archaeological monitoring as per the construction monitoring plans.

Residual Impacts

With implementation of the above mitigation measures, the residual impact would not be significant and Impact CR.9 would be considered *significant but mitigable (Class II).*

5.12.5.6 Alternative Drill Muds and Cuttings Disposal

Inject Drill Muds and Cuttings into Reservoir

Impacts on cultural resources would be the same as the proposed project.

Transport Drill Muds and Cuttings to Shore for Disposal

Impacts on cultural resources would be the same as the proposed project.

5.12.6 Cumulative Impacts and Mitigation Measures

Cumulative projects that could impact the current analysis include the potential offshore oil and gas projects discussed in Sections 4.2~~1~~ and 4.2~~2~~3, and the onshore development projects outlined in Section 4.4. The cumulative impacts of these potential off- and onshore development projects are discussed separately below.

5.12.6.1 Offshore Oil and Gas Projects

No impacts to offshore cultural resources from construction and routine operation would occur from the proposed project. Therefore, the proposed project would have no incremental contribution to cumulative impacts associated with cultural resources under normal operating conditions.

As presented in Sections 4.2 and 4.3, there area several potential offshore oil and gas development projects that could occur in the proposed project area. These future energy projects would increase the potential for accidental oil spills, although the chance of an oil spill is still remote. Similar to the proposed project, pipeline maintenance and repair, as well as containment and cleanup of potential oil spills, have the potential to impact recorded and unrecorded cultural resources. Most adverse impacts on cultural resources from pipeline replacement and repair could be mitigated to less than significant levels through implementation of mitigation measures such as those addressed and recommended in this document. However, an oil spill clean-up may lead to a significant and unavoidable impact on cultural resources if a significant cultural resource was affected by the clean-up activities.

Most adverse impacts on cultural resources from future offshore energy projects would be mitigated to a less than significant level through mitigation measures such as those discussed in this document; however, it is possible that impacts from an oil spill cleanup would not be feasibly lowered to a less than significant level. Due to the cumulative impact on cultural resources of the other future probable energy projects in combination with the proposed project, there is a potential for significant cumulative impacts to occur. The proposed project's contribution to this cumulative impact, although unlikely, would also be potentially significant.

5.12.6.2 Onshore Projects

As outlined in Section 4.4, there are several proposed development projects located in the Lompoc and Orcutt/Santa Maria area that would involve various amounts of ground disturbance. Some of this development would occur on previously undisturbed land (i.e., no previous ground disturbance), and are considered archaeologically sensitive (e.g., near waterways where prehistoric populations may have lived). Ground disturbance associated with these development projects have the potential to impact both recorded and unrecorded cultural resources; however, it is anticipated that adverse impacts on significant cultural resources could be mitigated to less than significant levels. Therefore, no cumulative impacts to cultural resources would be expected from these potential onshore development projects, and the proposed project would not incrementally add to any potential cumulative impacts.

5.12.7 Mitigation Monitoring Plan

Mitigation Measure	Mitigation Requirements and Timing	Method of Verification	Timing of Verification	Party Responsible For Verification
CR-1	PXP shall prepare and submit grading plans showing all ground disturbances within 200 feet of a recorded archaeological site. The grading plans shall be submitted to P&D prior to issuance of coastal development permit or land use clearance for grading. All ground disturbance within 200 feet of a recorded archaeological site shall be monitored by a County-qualified archaeologist and, if prehistoric, by a Native American observer, unless the resource has been previously determined to have no potential for significance because it is re-deposited, an isolated occurrence, modern, or otherwise lacks data potential.	Grading Plan review. EQAP monitoring.	Throughout ground disturbance activities.	SBC P&D
CR-2	PXP shall revise grading plans to include note for protocols to follow during unexpected discovery of archaeological resources. The grading plans shall be submitted to P&D prior to issuance of coastal development permit or land use clearance for grading. Prior to construction all crew members shall receive training on unanticipated cultural resource discovery protocols. In the event of an unanticipated cultural resource discovery during construction, all ground disturbances within 200 feet of the discovery shall be halted or re-directed to other areas until the discovery has been documented by a county-qualified archaeologist, and its potential significance evaluated consistent with Santa Barbara County Cultural Resource Guidelines. Resources considered significant shall be avoided by project redesign. If avoidance is not	Grading Plan review. Crew Training sign-in log. EQAP monitoring.	Prior to (crew training) and throughout ground disturbance activities.	SBC P&D

Mitigation Measure	Mitigation Requirements and Timing	Method of Verification	Timing of Verification	Party Responsible For Verification
	feasible, the cultural resource shall be subject to a Phase 3 data recovery mitigation program (with Native American monitoring, if applicable), consistent with Santa Barbara County Cultural Resource Guidelines.			
CR-3	If pipeline maintenance and repair are planned on a segment of the unsurveyed pipeline route, then a Phase 1 archaeological surface survey shall be conducted prior to land use clearance for grading to identify any cultural resources that may be affected. If a cultural resource is encountered during the survey, it shall be documented by a County-qualified archaeologist and its potential significance evaluated in terms of applicable criteria prior to maintenance and repair work. Resources considered significant shall be avoided or subject to a Phase 3 data recovery program (with Native American monitoring, if applicable), consistent with Santa Barbara County Cultural Resource Guidelines.	PXP shall submit results of Phase 1 survey to P&D.	Plan review. Any recommendations resulting from Phase 1 report to apply throughout ground disturbance activities.	SBC P&D
CR-4	A Phase 1 archaeological surface survey shall be conducted at unsurveyed areas of ground disturbance associated with installation of the power pole line across the Santa Ynez River and proposed trenching areas prior to land use clearance to identify any cultural resources that may be affected during construction. If a cultural resource is encountered during the survey, it shall be shall be avoided by power pole and/or trench relocation. If archaeological site avoidance is technologically infeasible due to topographic or engineering constraints, the site's potential significance shall be evaluated pursuant to Santa Barbara County Cultural Resource Guidelines and CEQA Guidelines Section 15064.5 criteria. Resources considered significant and unavoidable shall be subject to a Phase 3 data recovery program (with Native American monitoring, if prehistoric), consistent with Santa Barbara County Cultural Resource Guidelines, and if located on VAFB, shall incorporate the investigation methodology reviewed and approved by VAFB environmental management staff. To comply with VAFB requirements, any trenching or excavation in a floodplain on VAFB shall require archaeological monitoring.	PXP shall submit results of Phase 1 surveys to P&D.	Plan review. Any recommendations resulting from Phase 1 report to apply throughout ground disturbance activities.	SBC P&D

Mitigation Measure	Mitigation Requirements and Timing	Method of Verification	Timing of Verification	Party Responsible For Verification
CR-5	The Oil Spill Response Plan (OSRP) shall be revised to include procedures for minimizing impacts on cultural resources during oil spill containment and cleanup activities. These procedures shall include contacting a County-qualified archaeologist and Native American monitor in the event of a spill. To the extent possible, heavy earth moving equipment or manual excavation shall be minimized at archaeological sites. If unanticipated cultural resources are discovered during containment and cleanup activities, then a county-qualified archaeologist shall document the discovery at the earliest time it is deemed safe to do so. It is possible that post-cleanup archaeological excavations (with Native American monitoring, if applicable) shall be necessary to help mitigate impacts from the containment/cleanup ground disturbances. The revised OSRP shall be submitted to P&D prior to issuance of coastal development permit or land use clearance for grading.	Revised OSRP review. EQAP monitoring during spill clean up	Revised OSRP review. During spill clean-up	SBC P&D
CR-6 (VAFB Onshore Alternative only)	Prior to the approval of a Final Development Plan for the onshore drilling alternative, a comprehensive cultural resources mitigation plan shall be submitted to the County of Santa Barbara and the Vandenberg Air Force Base Cultural Resources Program Manager for review and approval. The plan shall include at minimum the following elements: 1. A complete inventory of previously known sites, their characteristics, and potential significance that may exist within 200 feet of potential ground disturbance. 2. Results of a Phase 1 archaeological survey covering all previously unsurveyed areas within 200 feet of identified construction footprints and corridors. 3. Procedures for monitoring during construction, the evaluation of newly discovered cultural or paleontological materials, and mitigation through avoidance, in situ preservation, research, or data recovery, as warranted before construction is allowed to continue. These procedures shall incorporate Native American representation.	Review of cultural resources mitigation plan.	Any recommenda-tions resulting from Phase 1 report to apply throughout ground disturbance activities.	SBC P&D VAFB

Mitigation Measure	Mitigation Requirements and Timing	Method of Verification	Timing of Verification	Party Responsible For Verification
CR-7 (Casmalia Alternative only)	A Phase 1 archaeological surface survey shall be conducted along the new pipeline right-of-way and at the location of the new processing site prior to land use clearance to identify any cultural resources that may be affected during construction. If a cultural resource is encountered during the survey, it shall be documented by a County-qualified archaeologist and its potential significance evaluated in terms of applicable criteria prior to any construction activities. Resources considered significant shall be avoided or subject to a Phase 3 data recovery program (with Native American monitoring, if applicable), consistent with Santa Barbara County Cultural Resource Guidelines.	PXP shall submit results of Phase 1 surveys to P&D.	Plan review. Any recommenda-tions resulting from Phase 1 report to apply throughout ground disturbance activities.	SBC P&D
CR-8 (Under-ground Power Line Alternative only)	Avoid impacts on known cultural resources by rerouting the trench so that no ground disturbance occurs within 200 feet from established site boundaries of CA-SBA-913, -1917, -689, and -2126. Applicant shall submit plans that demonstrate avoidance of known cultural sites prior to issuance of coastal development permit or land use clearance for grading	Grading Plan review. EQAP monitoring.	Plan review. Avoidance throughout ground disturbance activities.	SBC P&D
CR-9 (Emulsion Pipeline Replacement Alternative only)	The original offshore construction corridor shall be mapped and labeled on appropriate offshore Project maps. All seafloor disturbances from construction activities associated with the new pipeline shall be confined within the original pipeline construction corridor to avoid impacts on potentially significant cultural resources. Applicant shall submit plans that demonstrate avoidance of known cultural sites prior to issuance of coastal development permit or land use clearance for grading.	Plan review.	Plan review. Avoidance throughout ground disturbance activities.	SBC P&D
CR-10 (Emulsion Pipeline Replacement Alternative only)	The normal 100-foot wide right-of-way shall be reduced to a 40-foot wide right-of-way when within 200 feet of a recorded archaeological site unless the resource has been previously determined to have no potential for significance because it is re-deposited, an isolated occurrence, modern, or otherwise lacks data potential. Applicant shall submit plans that demonstrate avoidance of known cultural sites prior to issuance of coastal development permit or land use clearance for grading.	Plan review. EQAP monitoring.	Plan review. Avoidance throughout ground disturbance activities.	SBC P&D

Mitigation Measure	Mitigation Requirements and Timing	Method of Verification	Timing of Verification	Party Responsible For Verification
CR-11 (Emulsion Pipeline Replacement Alternative only)	Develop a Cultural Resources Monitoring Plan to prepare for archaeological and Native American monitoring activities during construction. This plan shall be submitted to P&D prior to issuance of coastal development permit or land use clearance for grading. Applicant shall arrange for archaeological monitoring as per the construction monitoring plans.	Plan review. EQAP monitoring.	Plan review. Throughout ground disturbance activities.	SBC P&D

5.12.8 References

Arnold, J.E. 1987. Craft Specialization in the Prehistoric Channel Islands, California. *University of California Publications in Anthropology, No. 18*: Berkeley, CA.

Bamforth, D. B. 1984. Analysis of Chipped Stone Artifacts. In Archaeological Investigations on the San Antonio Terrace, Vandenberg Air Force Base, California, in Connection with the M-X Facilities Construction. Chambers Consultants and Planners. Submitted to U.S. Army Corps of Engineers, Los Angeles District.

Central Coastal Information Center. 2006. Record Search. August 16.

Glassow, M. A. 1996. Purisimeño Chumash Prehistory: Maritime Adaptations along the Southern California Coast. *Harcourt Brace College Publishers*: Fort Worth, TX.

Glassow, M.A.,et al. 1990. Archaeological Investigations on Vandenberg Air Force Base in Connection with the Development of Space Transportation System Facilities, Volume I.

King, C.D. 1974. The Explanation of Differences and Similarities among Beads Used in Prehistoric and Early Historic California. In Antap, California Indian Political and Economic Organization. Edited by L.J. Bean and T.F. King. *Ballena Press Anthropological Papers, v 2*. Pp. 75-92.

____. 1979. Beads and Selected Ornaments. In Final Report: Archaeological Studies at Oro Grande, Mojave Desert, California. Edited by C. Rector, J. Swenson, and P. Wilke. Archaeological Research Unit, University of California, Riverside.

____. 1981. The Evolution of Chumash Society: A Comparative Study of Artifacts Used in Social System Maintenance in the Santa Barbara Channel Region before A.D. 1804. Ph.D. dissertation, Department of Anthropology, University of California, Davis.

Rogers, David. 1929. Prehistoric Man of the Santa Barbara Coast. Santa Barbara Museum of Natural History, Santa Barbara.

Science Applications International Corporation (SAIC). 1991. Western Chumash Prehistory: Resource Use and Settlement in the Santa Ynez River Valley. Santa Barbara,CA.

____. 2000. Marine Cultural Resource Inventory and Avoidance Plan for Global West Fiber Optic Cable Project. Prepared for Global Photon Systems, Inc.

____. 2001. Site Record Search Results for Tranquillon Ridge project (housed at SAIC).

Torch Operating Company. 2000. Oil Spill Response Plan for Operations on Torch Platform Irene and Point Pedernales 20-inch Wet Oil Pipeline.

URS Corporation. 1986. Phase II Archaeological Investigations and Mitigation Planning. Prepared for Union Oil Company of California, Santa Maria Basin Pipeline and Platform Irene Project.

VAFB (Vandenberg Air Force Base). 2006. Record Search. August 23.