Environmental Assessment Platform Edith to Platform Elly Cable Installation Project

Beta Offshore



Prepared on behalf of the Bureau of Safety and Environmental Enforcement by:

Bureau of Ocean Energy Management Pacific OCS Region Environmental Analysis Section 770 Paseo Camarillo, 2nd Floor Camarillo, Ca 93010 May 2012 On October 1, 2011, the Bureau of Ocean Energy Management, Regulation and Enforcement (formerly the Minerals Management Service) was reorganized into two new bureaus: the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE). The BSEE, as the approving bureau for the project analyzed in this National Environmental Policy Act (NEPA) document, served as lead NEPA agency, with BOEM as a supporting agency. The BSEE issues the Record of Decision and, if appropriate, the Finding of No Significant Impact (FONSI). BOEM provided NEPA support by developing the Environmental Assessment (EA) including, for each resource, the impacting factors, impact discussions, cumulative impact discussions, conclusions and mitigations. The mitigations included in the EA were cooperatively developed by BSEE and BOEM.

Environmental Assessment May 23, 2012

Proposed Action: The Bureau of Safety and Environmental Enforcement (BSEE) concurrence with the Beta Offshore's proposal to install a power cable between Platform Edith and Platform Elly in the Beta Unit, offshore Los Angeles County, California.

Operator: Beta Operating Company, LLC (hereafter Beta Offshore)

Area: Leases OCS-P 0296 and OCS-P 0300, Beta Unit, offshore Los Angeles County, California

Responsible Agency: Bureau of Safety and Environmental Enforcement, Pacific OCS Region, Office of Field Operations

Abstract: The Bureau of Safety and Environmental Enforcement (BSEE) proposed action is to concur with Beta Offshore's proposal to install a 34.5 kV alternating current (AC) submarine power cable approximately 2.6 km (8,500 ft) long, 0.1 m (4.36 in) diameter in 49 to 77 m (161 to 255 ft) water depths on Leases OCS-P 0296 and OCS-P 0300. This new power cable will supply electricity to offshore oil and gas facilities within the Beta Unit (Platforms Elly, Ellen, and Eureka) and reduce Beta Offshore's reliance on diesel generators. It is estimated that all offshore installation activities will take approximately 42 days to complete, with actual cable installation activities taking 3 days. The work is expected to commence and be completed sometime during the second and third quarter of 2012. The Bureau of Ocean Energy Management (BOEM) on behalf of BSEE examined the following environmental resources in this Environmental Assessment (EA): Air Quality, Water Quality, Benthic Resources, Marine and Coastal Birds, Fishes and Essential Fish Habitat, Marine Mammals and Sea Turtles, Cultural Resources, Commercial Fishing, and Marine Transportation. The primary potential impacting agents are: air emissions, sedimentation, discharges, lighting, and space-use conflicts. Projects and activities considered in the cumulative analysis include: offshore energy projects, marine shipping and tankering, greenhouse gas emissions, commercial fishing, marine protected areas, and point source and nonpoint source discharges. No significant impacts are anticipated as a result of the proposed action.

Related Environmental Documents:

- State Lands Commission, Port of Long Beach, and the United States Geological Survey (SLC, PLB, and USGS). 1978. EIR-EA Shell OCS Beta Unit Development. Volumes I-IV.
- Minerals Management Service (MMS). 1982. Environmental Assessment, Plan of Development/Production, Proposed Platform Edith, Lease OCS-P 0296, Beta Area, San Pedro Bay, Offshore Southern California.

In addition to the project description (Beta Offshore, 2012), Beta Offshore submitted a set of DVDs containing a remotely operated vehicle survey of the seafloor, including sonar sweeps, which were used to detect seafloor anomalies such as hard bottom. A map was also submitted which depicted the project area, the proposed location of the new power cable, known hard bottom areas, and the location of existing power cables, pipelines, and other features.

The EA is available:

On the Web:http://www.boem.gov/Environmental-Stewardship/Environmental-Assessments-Pacific-Region.aspxBy Mail:Bureau of Safety and Environmental Enforcement
Pacific OCS Region
Attn: Platform Edith to Platform Elly Power Cable
Installation Project EA (2012)
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1.0 INTRODUCTION

1.1 The Proposed Action

On January 31, 2012, Beta Offshore submitted an application for the Platform Edith to Platform Elly Cable Installation Project to the Bureau of Safety and Environmental Enforcement (BSEE) for evaluation and concurrence. The proposed activities involve installing a 34.5 kV alternating current (AC) submarine power cable approximately 2.6 km (8,500 ft) long, 0.1 m (4.36 in) diameter in 49 to 77 m (161 to 255 ft) water depths on Lease OCS-P 0296 and OCS-P 0300. This new power cable will supply electricity to offshore oil and gas facilities within the Beta Unit (Platforms Elly and Eureka), and reduce Beta Offshore's reliance on diesel generators. It is estimated that offshore installation activities will take approximately 42 days to complete. The work is expected to commence and be completed sometime during the $2^{nd} - 3^{rd}$ quarters (May – June) of 2012.

1.2 Purpose and Need

Beta Offshore's need is to meet current and future energy needs at their offshore facilities and allow for continued development and production of oil and gas resources to achieve an equitable return on investment from the Beta Unit. Beta Offshore's purpose is to reduce the amount of diesel fuel required to power the platforms and reduce air emissions from the combustion of diesel fuels.

The purpose of the BSEE is to balance orderly and optimal energy resource development with protection of the human, marine, and coastal environment consistent with the requirements of the 1978 Outer Continental Shelf Lands Act (OCSLA), as amended. The OCSLA directs the Secretary of the Department of the Interior to establish policies and procedures that expedite exploration and development of the OCS in order to achieve national energy goals, assure national security, reduce dependence on foreign sources, and maintain a favorable balance of payments in world trade. The Secretary's responsibilities under OCSLA have been delegated to the BSEE. In addition, this project continues to reduce dependence on foreign energy sources, which has led to an unfavorable balance of payments and a less secure national economy. A secondary benefit is the collection of royalties, bonuses, and rents. These monetary benefits represent a significant source of revenue for the Federal government.

1.3 Decisions to be made by BSEE and Other Agencies

<u>BSEE</u>. The BSEE must decide whether the project is technically and environmentally sound, including proposed actions submitted by Beta Offshore, and any modified actions or additional mitigations applied by BSEE to the project. The BSEE must then concur with the proposed project.

<u>U.S. Army Corps of Engineers (USACE)</u>. The USACE must decide whether to issue a Rivers and Harbors Act Section 10 authorization. This will authorize Beta Offshore to conduct work within, or which will affect, navigable waters of the United States, in this case the San Pedro Shelf. The BSEE provided the USACE with information on consultations with the National Marine Fisheries Service, so that the USACE can issue a Rivers and Harbors Act Section 10 authorization (see Section 4, Consultation, Coordination, and Communication).

<u>National Marine Fisheries Service (NMFS)</u>. The NMFS must decide whether to issue an opinion on the potential effects of the project on marine mammals and sea turtles. The BSEE asked NMFS via an email dated August 31, 2010, for their concurrence with BSEE's determination

that the proposed project would have no effect on marine mammals and sea turtles. Via response e-mails, dated September 7, 2010, and April 4, 2012, NMFS concurred with the no effect determination. (see Section 4, Consultation, Coordination, and Communication).

The NMFS must also decide whether the proposed project would have an effect on Essential Fish Habitat (EFH). In two previous communications, NMFS concurred with BSEE's determination that the proposed project would have no appreciable effect on EFH via e-mails dated September 13, 2010, and March 30, 2011. NMFS stated that while the project would adversely affect EFH via disturbances to the benthos and increased turbidity in the immediate vicinity of the cable, they concurred that the impacts would be temporary and minimal and that no additional EFH conservation recommendations were necessary to avoid, minimize, or otherwise offset the impacts to EFH. The currently proposed plan of the cable installation project presents no change in potential impacts to EFH compared to earlier versions reviewed by NMFS. (see Section 4, Consultation, Coordination, and Communication).

<u>South Coast Air Quality Management District (SCAQMD)</u>. The SCAQMD has been collaborating with Beta Offshore and SCAQMD has determined the cable laying vessel to be exempt from its rules and regulations and the stationary internal combustion powered equipment to be utilized in the power cable installation will be currently on existing SCAQMD permits.

1.4 Description of the Proposed Project

1.4.1 Background Information and Description of Existing Facilities

Four offshore oil and gas platforms are in the Beta Unit, which is between 8 and 9 miles offshore Long Beach, Calif. Platforms Elly, Ellen, and Eureka and a series of connecting pipelines and power cables are operated by Beta Offshore. Platform Edith is operated by DCOR, LLC. Platforms Ellen and Elly were installed in 1980 on Lease OCS-P 0300. Platform Eureka was installed in 1984 on Lease OCS-P 0301. Electricity for the three platforms is generated at Platform Elly using diesel power generators. Platform Eureka has two submarine power cables connected to Platform Elly. Platform Ellen has cables connected to Platform Elly via a bridge between the platforms.

Platform Edith, installed in 1983, on Lease OCS-P 0296, has a submarine power cable connected to the onshore power grid. The submarine cable supplies all of the platform's electricity needs and has some excess capacity.

1.4.2 Project Description

Beta Offshore proposes to install a 34.5 kV AC submarine power cable from Platform Edith to Platform Elly offshore Long Beach, California. This new power cable will allow Platform Elly to share an existing power cable that runs from Platform Edith to shore and reduce Beta Offshore's reliance on diesel power generators.

The proposed cable will be approximately 2.6 km (8500 ft) long, 0.1 m (4.36 in) in diameter and will be positioned in water depths ranging from about 49 to 77 m (161 to 255 ft) deep. The cable will be laid on top of the seafloor using a barge towed by two vessels that will not require anchoring.

Two separate phases are projected for the project. Phase I is the I-Tube installation, consisting of 29 days to conduct marine growth removal and installations of the risers (I-Tubes). Phase II is the power cable installation lasting approximately 13 days, with the actual cable deployment expected to be 3 days (see Figure 1.4.1). Total project duration for all phases of the proposed project is estimated at 42 days. Additional activities on the platform (not described in the

construction activities below) involve modifications to the electrical infrastructure of Platforms Edith and Elly. Detailed descriptions of the project vessels are contained in Appendix A.

<u>Construction Activities</u>. The power cable installation activities are anticipated to require the following steps; some of the description of the activities in each step may change slightly or the order of the steps may change depending on actual conditions encountered during the installation:

- Deploy temporary pre-set anchors and buoys near both platforms for tie-off of the cable lay barge.
- Mobilize dive equipment for I-Tube installation to Platforms Edith and Elly.
- Perform marine growth removal in areas where new I-Tube and cable clamps will attach to the platforms.
- Install I-Tubes and cable riser clamps at both platforms.
- Install air tugger and padeye to be used to pull the cable up through the I-Tube at Platform Edith.
- Install cable termination fixture at both platforms.
- Mobilize installation barge, tug boat(s), and dive support vessel.
- Position barge, with tug assist, off of the west side of Platform Elly.
- Moor barge to the platform via springlines.
- Transfer pulling line at the top of the I-Tube to the crane cable (Platform Elly west crane).
- Put ROV (diver if necessary) in water at Platform Elly and establish communications.
- Pull submarine cable up I-tube on Platform Elly and secure at termination box on the +45' deck.
- Disconnect platform tie-offs and pay-off cable while moving barge on mooring lines with tug assist.
- Once clear of Platforms Elly and Ellen, disconnect mooring lines and proceed to Platform Edith.
- Follow designated route while maintaining desired bottom tension of cable on seabed.
- Upon arrival at Platform Edith, turn barge so that stern faces platform.
- Moor barge to the platform via springlines.
- Lay out required length of cable on seabed in order to reach platform termination.
- Cut cable to required length, seal ends, and attach pulling grip.
- Transfer pulling line at the top of the I-Tube to the tugger cable.
- Pull submarine cable up I-tube on Platform Edith and secure inside termination box.
- Conduct cable acceptance tests.
- Seal the cables in the termination boxes.
- Compile as-built information and conduct post-lay ROV survey.
- Demobilize personnel and equipment.
- Recover project-specific moorings.
- Develop and assemble as-built documentation and report.



Figure 1.4.1. Proposed Power Cable Installation

1.5 Environmental Resources Considered

Environmental Resources Included in the Environmental Assessment (EA). A multi-step process was followed in completing this EA. The first step involved conducting an initial screening analysis to determine the resources that are in the project area and potentially could be impacted by the proposed activities. This was accomplished by reviewing the marine and coastal resources that were considered in the original environmental documents (SLC, PLB, and USGS 1978; MMS, 1982) as well as more recent information on resources within the project area.

Based on this examination and review of the proposed project, the following environmental resources could be potentially impacted:

- Air Quality: Potential adverse impacts due to emissions from cable installation activities, support vessels, and associated equipment. Beneficial impacts will result from a significant reduction of diesel-fuel powered emissions through the long-term electrification of the facility.
- Water Quality: Potential impacts due to disturbance of sediments during the cable laying processes and discharges of wastes from the cable installation and support vessels.
- Benthic Resources: Potential impacts due to disturbance of seafloor habitats.
- Fishes and Essential Fish Habitat: Potential impacts from disturbance of sediments and from electromagnetic fields (EMFs) emitted from power cables.
- Marine and Coastal Birds: Potential impacts from nighttime lighting.
- Marine Mammals and Sea Turtles: Potential disturbance from cable-laying activities.
- Cultural Resources: Potential impacts from cable-laying activities.

- Commercial Fishing: Potential impacts due to (a) preclusion from fishing grounds, (b) damage and loss of fishing gear, and (c) lost fishing time due to (a) and/or (b).
- Marine Transportation: Potential impacts due to an increase in vessel traffic associated with the proposed project.

Environmental Resources Not Included in the EA. The following resources were not included for analysis in this EA because they are not in the project area and/or would not be affected by the activities: Cultural Resources; Intertidal, Wetland and Shallow Subtidal Resources; Recreational Fishing; Recreation and Tourism; Marine Protected Areas, Sanctuaries and Preserves, and Environmental Justice. Details regarding this determination are outlined below.

<u>Cultural Resources.</u> The proposed power cable installation will occur within existing pipeline corridors and in an area that has been disturbed from previous construction activities. Previous surveys in the Project area have not identified any cultural resources within the area of potential effect (APE). A recently completed survey (October 2010) also did not identify any potential cultural resources within the APE. An inquiry was made to the California State Historic Preservation Office (SHPO) on August 9, 2010, in order to determine if formal consultation would be necessary for this Project. A follow-up conversation took place on August 18, 2010. Since the APE is located solely in Federal waters, it was determined that no consultation would be necessary. Therefore, the proposed Project will not impact any cultural resources.

<u>Intertidal, Wetland, and Shallow Subtidal Resources</u>. Intertidal, wetland, and shallow subtidal resources were not included for analysis in this EA because they would not be affected by the proposed project. The project is occurring offshore in Federal waters at depths greater than 30 m (100 ft). If oil or other discharges were released from any project vessel, they would not be of a quantity large enough to reach and impact these resources.

<u>Recreational Fishing</u>. Low levels of fishing activity occur in the project area, and project vessels are unlikely to exclude recreational fishers from the project area.

<u>Recreation and Tourism</u>. Recreation and tourism were not included for analysis in this EA because they are not likely to be affected by the proposed project due to offshore location of the project, the small geographic footprint of the project, and its short duration.

<u>Marine Protected Areas, Sanctuaries, and Preserves</u>. Marine protected areas, sanctuaries, and preserves were not included for analysis in this EA because they would not be affected by the proposed project. The project is occurring offshore in Federal waters at depths greater than 30 m (100 ft). If oil or other discharges were released from a project vessel, they would not be of a quantity large enough to reach and impact these resources.

<u>Environmental Justice</u>. Impacts on Environmental Justice in minority and low-income populations were considered for this analysis in accordance with Executive Order 12898. The onshore areas that may be affected by the proposed project are the staging areas located at the Port of Los Angeles (POLA) and the communities immediately surrounding the POLA. Minority and low-income populations in these areas were identified using the Council of Environmental Quality's *Guidance for Agencies on Key Terms in Executive Order 12898*. U.S. Census Bureau data indicate that significant minority and low-income populations are present in the POLA area. However, due to the limited scope, short duration, and negligible impacts of the proposed project at the staging area, the project is not expected to cause any adverse effects in the POLA area. Therefore, there will be no disproportionately high adverse human health or environmental effects on the minority and low-income populations.

1.6 Projects and Activities Considered in the Cumulative Analysis

A cumulative impact analysis has two parts: (1) development of a cumulative scenario, specific to the proposed project area, and an assessment of cumulative impacts from past, present, and reasonably foreseeable projects, and (2) an analysis of the expected impacts from the proposed project when added incrementally to the cumulative scenario developed above. This section provides a brief description of projects that have been considered in the analysis of cumulative impacts in this EA. A project or other anthropogenic or natural event with which the proposed project could have cumulative impacts was evaluated using the following criteria (40 CFR 1508.7):

- The project/event should be reasonably foreseeable, which is defined as those for which formal applications have been approved, submitted, or are pending; and
- The project/event could have impacts in space (geographically) that co-occur with the proposed project; or
- The project/event could have impacts in time (temporally) that co-occur with the proposed project.

Two types of projects were considered: (1) existing, approved, and pending energy projects and (2) other non-energy projects and activities that occur or may occur in the vicinity of the proposed project. All of the projects described are located in the San Pedro Bay and San Pedro Channel area, offshore of Los Angeles County.

Offshore Energy Projects. Oil and gas activities on existing Federal OCS leases are described below but are limited to activities occurring on existing platforms. No new offshore energy projects are reasonably foreseeable this time.

Activities Occurring on Existing Federal Platforms. There are 23 oil and gas platforms located on the Federal OCS. Four of the platforms are located offshore of Los Angeles County (see Section 1.4.1). Activities that could overlap with the proposed project are limited to drilling as well as routine production operations at the Beta Unit platforms and accidental oil spills from these platforms. The Beta Unit has not drilled new wells since 1997 and has plans to resume drilling operations following the installation of the power cable. Routine operations involve air emissions, discharges of permitted effluents, and transportation of personnel and supplies by crew and supply boats and helicopters. Accidental oil spills could occur during the short timeframe of the proposed project and will be responded to according to Beta Offshore's approved Oil Spill Response Plan (Pacific Energy Resources, Ltd., 2009).

Routine operations at the four platforms in the Beta Unit could overlap temporally and spatially with the proposed project. The main discharges occurring from Edith are occasional produced water discharges (most are reinjected) and small amounts of sewage. Sewage discharges from Edith average 4 to 6 bbl/day, including both domestic and sanitary wastes. Sewage is injected into the formation with the produced water on Platforms Ellen and Elly, while sewage discharges from Platform Eureka average from 15 to 18 bbl/day.

Already emplaced infrastructure includes three operating submarine power cables, two from Platform Eureka to Platform Ellen, and one from Platform Edith to shore. Additional infrastructure includes 2 pipelines between Eureka and Elly and a pipeline to shore.

<u>State Offshore Energy Projects</u>. Offshore Los Angeles County, there are three platforms in State waters: Emmy, Esther, and Eva. Routine operations at these platforms are not expected to overlap spatially with the proposed project due to the limited footprint of the cable installation, and so are not considered further in this analysis. Additionally, the Chevron El Segundo Marine

Terminal Lease Renewal is located offshore Los Angeles County, but it is not expected to overlap spatially with the proposed project due to the limited footprint of the cable installation, and so is not considered further in this analysis.

Non-Energy Projects and Activities.

Marine Shipping and Tankering. Emission sources from shipping and tankering operations traversing the south coast are not regulated by Federal, State, or local air authorities and may combine with emissions from the proposed project to affect onshore air quality. Approximately 80 percent of the vessels calling on the Ports of Los Angeles and Long Beach are of foreign registry and most use engines produced outside the United States (CARB, 2000). On July 24, 2008, the CARB adopted a regulation requiring ocean-going vessels within 24 miles of California's coastline to use lower-sulfur marine distillates. Both U.S.-flagged and foreign-flagged vessels are subject to the regulation which is the most stringent and comprehensive requirement for marine fuel-use in the world.

<u>Greenhouse Gas Emissions</u>. There are industrial, commercial, and residential projects in the project area that contribute to cumulative impacts due to the release of greenhouse gas (GHG) emissions. The Draft GHG Emissions Inventory (CARB, 2008), estimates that the annual CO_2E for all GHGs produced in California in 2004 was 468.8 million metric tons.

<u>Commercial Fishing</u>. Fish and shellfish populations in southern California waters support many commercial fisheries throughout the year; more than 100 taxa appear in the most recent landing data (CDFG, 2008a). Gear used to harvest marine species includes include trawl, hook-and-line, longline, handline, stick gear, troll, hand rake, purse seine, drum seine, trap, and drift and set gill nets. Commercial fishing activities may disturb seafloor habitats and negatively affect fish populations.

<u>Marine Protected Areas</u>. The 1999 Marine Life Protection Act (MLPA) directed the State of California to design and manage a network of marine protected areas (MPAs) in order to protect marine life and habitats, marine ecosystems, and marine natural heritage, as well as improve recreational, educational, and study opportunities provided by marine ecosystems. This process has replaced the previous system of reserves and ecological reserves that were not standard in regulation or nomenclature. The MPAs include State marine reserves, State marine parks, and State marine conservation areas that confer different levels of restrictions on recreational and commercial fishing (CDFG, 2008b). The south coast study region (Point Conception to the California/Mexico border, including offshore islands) is the third MLPA study region to undergo the regional marine MPA planning and design process. This regional process started in the summer of 2008 and is ongoing.

<u>Point Source Discharges</u>. The nearest municipal sewage discharge is from the Orange County Sanitation District near Huntington Beach, whose outfall extends about 11 km (7 mi) from shore. The 0.6 km (1 mi) of the outfall is a diffuser with over 500 holes in it and it terminates in about 61 m (200 ft) of water. The end of the diffuser is about 11 km (7 mi) from the project area. In 2004, a total of 320 million gallons per day (mgd) were discharged through the diffuser. Sixty-seven percent, or 159 mgd, were treated at the secondary level (SCCWRP, 2006), the rest of the effluent (77 mgd) was treated at the advanced primary level.

<u>Nonpoint Source Discharges</u>. The nearest rivers are the Dominguez Channel and the Los Angeles River which empty into the Los Angeles Harbor complex, and the San Gabriel and Santa Ana Rivers which empty into the ocean near Seal Beach and Huntington Beach, respectively. All of these rivers are typical for southern California in that they flow intermittently, except during the winter months when rain falls into the watershed and courses down to the sea, carrying sediment and pollutants into the ocean. During the dry months, a variety of pollutants enter the mostly dry stream beds. Pollutants associated with these river plumes include metals (e.g., zinc, copper, lead, nickel, and cadmium), polyaromatic hydrocarbons, and enterococcal bacteria (e.g., *E. coli*). During the first strong storm of the winter season, those pollutants are flushed into the ocean. Known as "first flush", the highest levels for pollution would occur during this time. Plumes from these rivers have been tracked by satellite and have been shown to move as much as 24 km (15 mi) from the coast and thus, potentially into the project area.

Sedimentary material from these rivers could be deposited in the project area, particularly during periods of high flow. However, the amount of sediment potentially carried by the plumes into the project area decreases due to the rapid settling near the river mouths.

1.7 Summary of Actions to Avoid or Reduce Impacts to the Environment

Table 1.7.1 lists the potential impacts, impacting agents, actions proposed to reduce environmental impacts of the project, and the residual impact levels expected after the actions have been implemented. In all cases, the residual impact levels are insignificant.

Description of Potential Impacts	Impacting Factor	Mitigation Measures to Reduce Environmental Impacts of the Project	Residual Impact Level
Various Potential Impacts All Resources	Power Cable Installation Activities	 ROV Survey An ROV survey will be conducted prior to power cable lay activities. The ROV will fly the proposed route of the power cable to check for obstructions, crossing locations or anomalies to ensure a clear path to the proposed route and to confirm the absence of features and document biological organisms. During cable laying activities, if the ROV pilot observes any potential cultural resources, all seafloor disturbing activities will cease within 1,000 feet of the discovery and the BSEE Pacific OCS Regional Director (RD) will be notified within 72 hours of discovery. The RD will determine whether further investigation is required and inform Beta Offshore how to proceed. After the power cable is secure and laid on bottom the divers and/or ROV will do a final survey of the power cable near the platform to confirm there are no suspensions, twist or loops enroute. An as-built power cable installation survey will be conducted simultaneously during the cable deployment from the lay barge with the proposed ROV system. The ROV shall confirm the actual touchdown position of the cable as it is deployed and record high resolution video documentation of the cable aly. Both as-built cable position and video will be included in the Final Report deliverables. The visual inspection of the power cable will be recorded on DVDs. Post-installation ROV video survey that continuously shows the newly installed cable in the final sea bottom location will be used to verify the as-built condition and to confirm there are no suspensions, twist or loops and confirm sea floor cleanup. Survey will show the seafloor condition on either side of the cable. If a bottom disturbance such as a scar is observed, the location must be recorded, and the ROV will follow and document the depth and length. Video equipment and subsequent survey tapes shall have a visual resolution capacity that allows BSEE analysts to assess condition of seafloor relevant to environmental compl	

Table 1.7.1. Summary of Potential Impacts, Impacting Agents, Mitigation Measures, and Residual Impact Level

Description of Potential Impacts	Impacting Factor	Mitigation Measures to Reduce Environmental Impacts of the Project	Residual Impact Level
		 submit a Compliance Monitoring Plan to BSEE that will: Ensure that all required environmental mitigations are accurately identified and described; Identify effective monitoring approaches for implementation of the plan; Ensure that monitoring personnel identified in the compliance plan are properly trained and that this training is documented in the plan; Demonstrate how environmental mitigations will be measured and documented in terms of effectiveness; Include a tracking system and schedule (including specific due dates for deliverable reports, plans, etc.) for all environmental mitigations required for the project; and A master list of environmental mitigations will be maintained including due dates and compliance documentation related to the proposed activities. Plans and Procedures At all times, project vessels will operate using the highest level of navigational safety and operate within established vessel traffic lanes. Traffic Corridors - Project vessels will follow currently used direct pathways from the ports to the platforms. Plans, Permits and Procedures – Beta Offshore will submit copies of all major permits, approvals, plans and procedures for the installation activities to BSEE at least 30 days or as soon as available prior to start of offshore activities. Deviations from Plans and Procedures – Beta Offshore will provide notification and submit to DFG Office of Spill Prevention and Response (OSPR) non-tanker vessel spil plan requirements. The plan must be submitted to BSEE at least 30 days prior to start of offshore installation activities. In addition, Beta Offshore will require project personnel and procedures and procedures installation activities. In addition, Beta Offshore will require project personse plan that is consistent with CDFG office of Spill Prevention and Response (OSPR) non-tanker vessel spil plan requirements. The plan must be submitted to BSEE at least 30 d	

Description of Potential Impacts	Impacting Factor	Mitigation Measures to Reduce Environmental Impacts of the Project	Residual Impact Level
		associated with the cable installation. Logs will be maintained on all project vessels that identify the date, time, location, depth, and description of all items lost overboard. Vessel operators will minimize potential for items to be lost overboard by securing loose items, where feasible. Vessel operators will place name of vessel on all items on deck that have the potential to be lost overboard.	
		Training	
		 Wildlife and Fisheries Training – Beta Offshore will show the Wildlife and Fisheries Training video (Pacific Operators Offshore, 2009) to all personnel participating in installation activities. If any personnel cannot understand English, Beta Offshore shall provide a translator. All personnel on installation activity will attend the training and sign a log indicating completion of training; Training will be conducted prior to commencement of installation activities. Any personnel arriving after initial training completed will be 	
		Notifications	
		 Posting of Notices – A document that shows and describes the proposed activities will be posted at the Harbor Master's office at the Ports of Los Angeles, Long Beach, Anaheim Bay and Newport Bay. That document will provide information on the proposed activities, contact information for project vessels and personnel and will have a map depicting the ocean area affected. Installation Notification – Beta Offshore will provide notice to BSEE and other interested agencies at least 48 hours before the start of installation activities and within 72 hours of the completion of all installation 	
		 activities. Notice to Mariners – At least 15 days prior to in-water activities, Beta Offshore's will submit a Notice to Mariners to the 11th District, U.S. Coast Guard and, as required, to the Captain of the Port. This notification will specify vessel and personnel contact information, scope of the proposed actions, location, and the anticipated duration of the activities. 	
		Reports	
		 Daily Agency Report – Beta Offshore to provide daily report of repair activity status to BSEE during the offshore repair activities. Post-installation report – Within 90 days of the completion of the offshore 	

Description of Potential Impacts	Impacting Factor	Mitigation Measures to Reduce Environmental Impacts of the Project	Residual Impact Level
		 installation activities, Beta Offshore will submit to BSEE and other interested agencies, a report containing the following as-built maps/drawings: The first map/drawing will show the final and exact location of the newly installed cable, envelope of operations, and location of adjacent infrastructure; The second map/drawing will show all infrastructure and known obstructions related to operations in the Beta Unit in both State and Federal waters including all offshore platforms, moorings, anode sleds, known debris items, power cables and pipelines and landfall sites of power cables and pipelines and pipeline survey results, bottom scarring and any notable features seen on the video (time index all to match the video and the photographs); Include on all maps/drawings the accuracy (or error) in +/- feet of the feature locations; Submit a copy of all maps and drawings digitally in three formats: Adobe Acrobat (PDF), ArcGIS shapefiles (SHP) and Autocad drawing (DWG) files for each individual layer group. ArcGIS and Autocad digital files shall be compatible with ArcGIS 9.2; Maps/georeferencing should be oriented to the North American Datum of 1983 (NAD 83) coordinate system based on latitude and longitude; Raw data of all points should be submitted as ASCII files that are labeled, and include locations to 5 decimal places oriented to NAD 83 coordinate system based on latitude and longitude; Post-installation arrative confirming completion of the work in accordance with the following: Compliance Summary that includes a listing of the actions and mitigation narative confirming completion of the work in accordance with the following: Compliance Summary that describes actions taken by Beta 	

Description of Potential Impacts	Impacting Factor	Mitigation Measures to Reduce Environmental Impacts of the Project	Residual Impact Level
		 Offshore to consult with and mitigate any impacts to the commercial fishing industry resulting from the proposed project; Design and execution plans with a description of any field changes, with justification for the changes; Any accidents or spills affecting the OCS waters and the corrective measures taken; and Any other extraordinary conditions that occurred during the course of the installation activities. Post Emissions Report - At the conclusion of the project, Beta Offshore will prepare and submit a report to the BSEE (copy SCAQMD) summarizing the total actual emissions, including all internal combustion engines and other combustion devices used, the estimated duration of their use, the fuel consumed or hours run and the total calculated emissions. 	
<u>Environmental</u> Resources			
<u>Oil Spills</u>			
Incidental spillage of oil, lubricating oil, hydraulic fluids, and waste oil	Petroleum hydrocarbons	• Please see Plan and Procedure mitigations in the All Resources section above.	Insignificant
Air Quality Potential violation of ambient air quality standards due to emissions during project activities	Air emissions due to the use of propulsion and stationary combustion equipment	 Prior to and during project activity, equipment will be maintained according to manufacturer's specifications. Project-related vessels will comply with the Vessel Speed Reduction Plan, and maintain a speed limit of 12 knots within 40 nm of Point Fermin Lighthouse. Project-related vessels will comply with goals set in the Clean Air Action Plan (CAAP), and use Marine Oil Gas fuel containing ≤0.2 percent sulfur in main engines during departures and arrivals at the POLA/POLB, within 40 nm of Point Fermin and while at berth. All diesel powered equipment used during the project will be fueled with a diesel fuel containing sulfur content of 15 ppm or lower. 	Insignificant
Water Quality	Discharge of treated		Incignificant
Degradation from increased	Discharge of treated	• All support vessel discharges will comply with the requirements of the	insignificant

Description of Potential Impacts	Impacting Factor	Mitigation Measures to Reduce Environmental Impacts of the Project	Residual Impact Level
turbidity	sewage from the installation and support vessels	Clean Water Act under the United States Coast Guard (USCG) regulation. This includes proper treatment and monitoring of support vessel effluents such as sewage, cooling water, ballast and bilge water. An onboard oil separation system will be used as required by the USCG to limit effluent oils to 15 ppm. Sewage treatment plant onboard each support vessel will be USCG-approved.	
Benthic Resources			
Degradation of seafloor by laying of cable	1. Short-term increase in sediment and organic material in water column during installation activities	• Please see ROV mitigations in the All Resources section above.	Insignificant
	2. Direct physical disturbance to seafloor habitats including both soft and hard bottom	• During cable laying activities, if the ROV pilot observes any rocky outcrop, the vessel is to adjust to avoid the rocky outcrop and the BSEE Pacific OCS Regional Director (RD) will be notified within 72 hours of discovery. The RD will determine whether further investigation is required and inform Beta Offshore how to proceed.	Insignificant
Fishes and Essential Fish Habitat (EFH)			
Degradation from EFH and increased turbidity	1. Electromagnetic effects from power cable on fishes.	• Power cable shielding – Before offshore installation activities begin, Beta Offshore must provide evidence to BSEE that the submarine power cable they will use for the proposed project possesses technical shielding capabilities that prevent incidental electric fields produced during power transmission from propagating into the marine environment.	Insignificant
	2. Short term increase in sediment and organic material in water column during installation activities	• Please see ROV mitigations in the All Resources section above.	Insignificant

Description of Potential Impacts	Impacting Factor	Mitigation Measures to Reduce Environmental Impacts of the Project	Residual Impact Level
<u>Marine and Coastal</u> <u>Birds</u>			
Disruption of bird behavior due to project-generated noise	1. Cable lay vessels	• No noise mitigations required.	Insignificant
Attraction of Birds to artificial lighting	2. Artificial lighting associated with the Cable lay barge	 Lighting will be directed inboard and downward to reduce the potential for seabirds to be attracted to the work area. Where possible, all cabin windows will be equipped with shades, blinds or shields that block exiting light. A log of all seabirds found onboard vessels will be maintained with the status and health of birds on retrieval and release. The log will be provided to the BSEE when the project has been completed. If an injured bird is discovered on a vessel, the bird will be transported on the next returning work vessel to an approved wildlife care facility. Make every effort to maintain a distance of 300 feet from aggregations of feeding or resting marine birds. Minimize attraction of predatory and scavenging birds that could prey upon small seabirds attracted to lights by containing and removing garbage and food waste on the vessel. 	Insignificant
Marine Mammals and Sea Turtles Disturbance or injury of marine mammals or sea turtles	1. Ship strike	 Incident Notification – Beta Offshore must immediately notify the local NMFS marine mammal and sea turtle stranding coordinator should any incidents involving marine mammals or sea turtles occur. 	Insignificant
	2. Noise	• No noise mitigations required.	

Description of Potential Impacts	Impacting Factor	Mitigation Measures to Reduce Environmental Impacts of the Project	Residual Impact Level
Commercial Fishing			
Project vessel traffic may preclude fishers from fishing grounds or generate space- use conflicts	1. Preclusion and/or space-use conflicts	• Fishing Impacts and Conflicts – Beta Offshore will consult with local commercial fishers, as appropriate, during the planning stages and installation activities to identify and mitigate any unanticipated impacts regarding the cable installations. If conflicts with commercial fishing operations in the Beta Unit develop during this project, Beta Offshore shall make all reasonable efforts to satisfactorily resolve any issues with affected fishers.	Insignificant
Damage to fishing gear from marine vessel traffic, the new cable or from marine debris	2. Damage or loss of fishing gear	• Please see Plan and Procedure mitigations in the All Resources section above.	Insignificant
Marine Transportation			
Marine vessel traffic could interfere with commercial and recreational vessels that transit through the area and use local ports	Interference with commercial and recreational vessels	• Please see Plan and Procedure mitigations in the All Resources section above.	Insignificant

2.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

2.1 Oil Spills

Accidental discharges of petroleum (including diesel fuel) from project vessels or the accidental release of contaminated fluids may occur during the cable laying activities. The operation of the primary cable installation barge, tow vessels and the supply and crew vessels supporting it would involve the use of petroleum hydrocarbons, including small volumes of lubricating oils, hydraulic fluids and waste oils. Spillage of these materials on any vessel could result in their release to the marine environment. No spill larger than a few gallons is expected from this project.

Any incidental spillage of lubricating oil, hydraulic fluids, or waste oil would result in an insignificant impact to the marine environment due to the small volume of such spills, the onsite oil spill response capability and other spill response resources in the immediate area.

Response procedures for an incident include mobilization of an onsite response team at the platforms, and, if necessary, callout of vessels from the Marine Spill Response Corporation (MSRC) Oil Spill Response Cooperative. Prevention of and response to unauthorized discharges from project activities occurring on the platforms (Edith and Elly) will be achieved through implementation of those facilities' approved Oil Spill Response Plans (for Platform Edith, the DCOR Oil Spill Response Plan for the Santa Barbara and San Pedro Channels (DCOR, 2007); for Platform Elly the Beta Offshore Oil Spill Prevention and Contingency Plan (Pacific Energy Resources, Ltd., 2009¹). Further, Beta Offshore has committed to require all project-related vessels to develop and maintain an oil spill response plan (see Section 1.6 and proposed commitment below).

On October 4, 2010, Beta Offshore submitted, via email, an analysis to then BOEMRE concerning the potential damage to an existing oil pipeline between Platform Edith and Platform Elly should the power cable drop on the pipeline during installation. They presented calculations that the oil pipeline integrity could withstand an impact equivalent to 52 m (170 ft) of the cable distributed over a 3.23 square cm (0.5 square in) area of the pipeline. Thus, BSEE does not foresee an oil spill occurring due to the improbable event of the power cable being dropped onto the existing pipeline.

The following commitment by Beta Offshore, submitted as part of the project, will help to reduce the potential effects of oil spills due to the project activities:

• All project-related vessels will be required to develop and maintain an oil spill response plan that is consistent with California Department of Fish and Game Office of Spill Prevention and Response non-tanker vessel spill plan requirements.

2.1.1 Conclusions

Due to the short project time-frame, the lack of a source of a spill larger than a few gallons, and the capability of a response to a spill of any size by Beta Offshore's on-site spill response organization, oil spills are not further analyzed in this document.

¹ This Plan was approved by BSEE prior to the selling of the Beta Complex properties to Beta Offshore. Beta Offshore has adopted this Plan until such time as they are required to update it.

2.2 Air Quality

2.2.1 Affected Environment

The climate, meteorology, air quality, and air quality trends of the South Coast Air Basin (SCAB) have been described in detail in several planning and environmental documents and are best summarized in the South Coast Air Quality Management District (SCAQMD) 2007 Air Quality Management Plan (SCAQMD, 2007). The SCAB can be described as having a Mediterranean climate characterized by warm, dry summers and mild winters. The Pacific Ocean influence results in mild, year round temperatures along coastal areas, with inland areas experiencing a wider range of temperatures. The unique combination of prevailing wind conditions, generated by a persistent offshore high pressure system (Pacific High), and the surrounding mountain ranges, results in variations of airflow which are conducive to the formation and retention of air pollutants.

The Federal government has established ambient air quality standards to protect public health (primary standards) and, in addition, has established secondary standards to protect public welfare. The State of California has established separate, more stringent ambient air quality standards to protect human health and welfare. California and National standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulate matter 10 microns (PM_{10}), suspended particulate matter 2.5 microns ($PM_{2.5}$) and lead. In addition, California has standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles.

The Federal attainment status of the Los Angeles, SCAB is found in 40 CFR 81.305. Currently, the SCAQMD is in attainment for the carbon monoxide, nitrogen dioxide and sulfur dioxide National Ambient Air Quality Standards (NAAQS). The Los Angeles, SCAB is considered nonattainment for the California Ambient Air Quality Standards (CAAQS) 8-hour ozone; and the PM_{10} 24-hour and annual arithmetic mean air quality standards. The attainment status is considered unclassifiable/attainment for the Federal $PM_{2.5}$ standard (Table 2.2.1).

Pollutant	State Status	National Status
Ozone (1-hour)	Nonattainment	Not Subject
Ozone (8-hour)	Unclassified	Extreme
		Nonattainment
Carbon Monoxide	Attainment	Attainment
Nitrogen Dioxide	Nonattainment*	Attainment
Sulfur Dioxide	Attainment	Attainment
PM10	Nonattainment	Serious Nonattainment
PM2.5	Nonattainment	Nonattainment

 Table 2.2.1. Los Angeles, South Coast Air Basin Attainment Status

* In 2007, the Air Resources Board lowered the 1-hour NO2 standard from 0.25 parts per million (ppm) to 0.18 ppm and established a new annual standard of 0.030 ppm. Based on data for 2006-2008, the South Coast Air Basin violates the State annual NO2 standard. Source: State Status from CARB, 2006. National Status from EPA, 2010.

In 2007, the Air Resources Board lowered the 1-hour NO_2 standard from 0.25 parts per million (ppm) to 0.18 ppm and established a new annual standard of 0.030 ppm. Based on data for 2006-2008, the SCAB violates the new State annual NO_2 standard.

Section 328 of the 1990 Clean Air Act Amendments (CAAA) transferred authority for air quality on the OCS to the EPA. On September 4, 1992, the EPA Administrator promulgated requirements (40 CFR Part 55) to control air pollution from OCS sources to attain and maintain Federal and State air quality standards and to comply with CAAA provisions for the Prevention of Significant Deterioration. The promulgated regulations require OCS sources to comply with applicable onshore air quality rules in the corresponding onshore area (COA). SCAQMD adopted *Rule 1183; Outer Continental Shelf (OCS) Air Regulations* on March 12, 1993 to implement and enforce the requirements of 40 CFR Part 55. The Beta Offshore proposed power cable project is located in the OCS, offshore Los Angeles County within the SCAB. The Beta Offshore facilities include three OCS platforms - Ellen, Elly, and Eureka and a series of connecting pipelines. Platforms Ellen, Elly, and Eureka are currently permitted and within the jurisdiction of the SCAQMD.

Section 176(c) of the CAA known as the General Conformity Rule states that a federal agency cannot issue a permit for or support an activity within an air quality nonattainment or maintenance area unless the agency determines it will conform to the most recent EPA-approved State Implementation Plan (SIP). This means that projects using federal funds or requiring federal approval must not: (1) cause or contribute to new violations of a national ambient air quality standard (NAAQS); (2) interfere with provisions in the applicable SIP for maintenance of any NAAQS; (3) increase the frequency or severity of any existing violations of any standard; or (4) delay the timely attainment of any standard. Based on the present attainment status of the SCAB, a federal action would conform to the SIP if its annual emissions remain below 100 tons of CO or PM2.5, 70 tons of PM10, or 10 tons of NOx or VOCs.

Greenhouse gases (GHGs) are defined as any gas that absorbs infrared radiation in the atmosphere. Greenhouse gasses include, but are not limited to, water vapor, carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). These greenhouse gases lead to the trapping and buildup of heat in the atmosphere near the earth's surface, commonly known as the *Greenhouse Effect*. The primary source of GHG in the United States is energy-use related activities, which include fuel combustion, as well as energy production, transmission, storage, and distribution. These energy-related activities generated 85 percent of the total U.S. emissions on a carbon equivalent basis in 1998 and 86 percent in 2004. Fossil fuel combustion represents the vast majority of the energy related GHG emissions, with CO₂ being the primary GHG.

2.2.2 Impact Analysis

Significance Criteria. The following significance thresholds were utilized for this analysis.

The proposed project will not have a significant impact on air quality, if the installation activities will:

- Not cause or contribute to a violation of any CAAQS or NAAQS (except O₃);
- Be consistent with the latest adopted Federal and State air quality plans for the South Coast Air Basin; and
- Comply with all Rules and Regulations of the SCAQMD.

Impacting Factors. The primary impacting factors are air emissions from propulsion and stationary combustion equipment utilized during project operations that may have the potential to

cause or contribute to an exceedance of an air quality standard. The major pollutant of concern associated with projects of this type and duration are NO_x emissions.

Several environmental documents associated with the offshore activities in the Beta Unit have been prepared by MMS and BOEMRE (now BOEM) and other agencies and provide background discussions of air quality impacts. Various Authority to Construct (ATC) permits and Permits to Operate (PTO) have been issued by the SCAQMD regarding Beta Unit modifications and operations and may be further referenced by contacting SCAQMD offices.

Project Impacts. The project will involve the use of 5 different vessels during construction operations. During cable lay activity, 2 tugs (one to tow and another to assist), will be used to assist the 185 ft. cable lay barge. A utility vessel assisted by a tug will be utilized to perform marine growth removal, riser clamps and I-tube installation at Platforms Edith and Elly to avoid anchoring operations. These two phases will not overlap. A variety of diesel powered equipment will be utilized during project activities, including a hydraulic crane, dive generators, auxiliary generators, compressors, and a winch. Specific project information is described in Section 1.1.

The SCAQMD has determined the vessel engines and mobile source emissions from the project are exempt from permit pursuant to *Rule 219* (a)(2) – *Equipment Not Requiring a Written Permit Pursuant to Regulation II*; which states that written permits are not required for marine vessels as defined by Health and Safety Code Section 39037.1. Crew and supply boat emissions are already covered under the current PTO for Beta Offshore facilities. All internal combustion powered equipment utilized in the project is currently permitted by the SCAQMD.

The Beta Offshore facility PTO is subject to the provisions of the SCAQMD' s NO_x RECLAIM regulations which contain specific requirements for the calculation, reporting and offsetting of NO_x emissions from the facility. Although all proposed equipment for the project is exempt from new permit, emissions from the proposed project will be subject to the reporting requirements of the RECLAIM program for the Beta Offshore PTO.

The primary emissions associated with the proposed project result from the use of vessels, with the power cable installation activities resulting in the highest maximum daily NO_X emissions expected of this project. The power cable installation activities are expected to result in a maximum of 505.6 lbs/day of NO_X, with the platform setup and I-Tube installation activities expected to contribute an additional 138.9 lbs/day of NO_X. Emissions from these activities will not overlap. Total project emissions for all phases of the proposed project are estimated at 1.68 tons of NO_X, 0.26 tons of ROC, 0.70 tons of CO, 0.06 tons of PM₁₀ and negligible amounts of SO₂. Estimated emissions from the power cable installation vessel are contained in Table 2.2.2.

Project Phase	NO _X	ROC	CO	SO _X	PM ₁₀
Pe	ak Daily (lbs./day)			
Platform Setup & I-Tube					
Installation	138.9	20.1	69.1	0.1	5.5
Power Cable Installation	505.6	79.4	199.0	0.2	16.1
Daily Maximum	505.6	79.4	199.0	0.2	16.1
Т	otal Annu	al (tpy)			
Platform Setup & I-Tube					
Installation	0.69	011	0.36	0.00	0.03
Power Cable Installation	0.99	0.15	0.34	< 0.01	0.03
Total Annual	1.68	0.26	0.70	<0.01	0.06

 Table 2.2.2. Estimated Power Cable Installation Emissions

Greenhouse Gas Emissions. Currently there are no formal regulations for establishing construction thresholds for greenhouse gas emissions at the local level in the SCAB. However, the California Office of Planning and Research (OPR) prepared a technical advisory for addressing climate change issues (COPR, 2008). The OPR's recommended approach is for lead agencies to make a good faith effort, based on available information to calculate or estimate GHG emissions and determine significance. Should an impact be determined by the lead agency to be significant, then measures should be made to avoid, reduce, or otherwise mitigate the impacts. As discussed in Section 4.5.3.1 Code of Federal Regulations, the Mandatory Reporting of Greenhouse Gases Rule (EPA, 2009) gives guidance to large producers of GHG emissions on how to properly report their GHG emissions. This document provides guidance for calculating GHG emissions for stationary sources, but does not have any guidance for mobile sources of GHG.

The emission sources associated with the proposed project are internal combustion engines, with the predominant GHG emitted being CO₂. GHG emissions are calculated based on estimated fuel usage for those engines. Emission factors were taken from the California's GHG Emissions Inventory, which is available on California's Air Resources Board website. Project construction is estimated to produce a total of 248.5 metric tons of CO₂ equivalent (MTCO₂E). The greenhouse gas estimate provided by the Beta Offshore for the proposed project construction is presented in Table 2.2.3.

 Table 2.2.3. Construction-Related Greenhouse Gas Emission Estimates (metric tons/year)

Source	CO ₂ Emissions	CH ₄ Emissions	N ₂ O Emissions	CO_2E^1
Cable Installation	246.2	0.019	0.006	248.5

1 CO2E conversion factors were provided in California's GHG Inventory, 2008.

² GHG emissions calculated using CARB's OFFROAD Model and emission factors provided in the California GHG Inventory available at http://www.arb.ca.gov/cc/inventory/doc/doc_index.php.

Mitigation Measures Proposed by Beta Offshore.

- Prior to and during project activity, equipment will be maintained according to manufacturer's specifications.
- Project-related vessels will comply with the Vessel Speed Reduction Plan, and maintain a speed limit of 12 knots within 40 nm of Point Fermin Lighthouse.
- Project-related vessels will comply with goals set in the Clean Air Action Plan (CAAP), and use Marine Oil Gas fuel containing ≤0.2 percent sulfur in main engines during departures and arrivals at the POLA/POLB, within 40 nm of Point Fermin and while at berth.
- All diesel powered equipment used during the project will be fueled with a diesel fuel containing sulfur content of 15 ppm or lower.

Mitigation Measure Required by BSEE.

• Post Emissions Report - At the conclusion of the project, Beta Offshore will prepare and submit a report to the SCAQMD (copy BSEE) summarizing the total actual project emissions, including all internal combustion engines and other combustion devices used, the estimated duration of their use, the fuel consumed or hours run and the total calculated emissions.

2.2.3 Conclusion

The data presented in Table 2.2.2. indicates the expected emissions for the proposed power cable installation project will emit 1.68 tons of NO_x and lesser amounts of the other criteria pollutants. The SCAQMD has determined that the mobile emissions associated with the marine vessels are exempted under SCAQMD Rule 219 and all stationary auxiliary equipment will be currently on existing SCAQMD permits. Thus, no additional air quality permits are required of the project. The current PTOs for the Beta Unit facilities will not change as a result of the power cable installation activities.

The projected short-term construction emissions are not expected to result in any exceedances of either the California or Federal ambient air quality standards or National PSD Increment Standards from equipment and vessels needed to install the power cable. In addition, there would be no change in public health risks associated with the Beta Offshore facilities that are currently below health risk notification thresholds. The power cable installation activities will not generate any significant number of worker commute trips and supply/equipment delivery trips within the SCAB.

Based on the significance criteria and the mitigation measures initiated by Beta Offshore, the impacts of the power cable installation activities on air quality are expected to be temporary and insignificant.

2.2.4 Cumulative Analysis

Section 1.6 describes the assumptions and lists the projects considered in the cumulative analysis for the proposed power cable project. Potential sources of cumulative air quality impacts in the project area which overlap both spatially *and* temporally include emissions from on-going and proposed oil and gas activities in Federal and State waters and offshore shipping and tankering operations. Greenhouse gas emissions have additionally been analyzed. All of the cumulative projects and activities considered in this document occur in the SCAB. For this analysis, it is

assumed that due to the prevailing onshore wind conditions, the geographic scope for cumulative air quality impacts will be those projects or actions which exist or are pending or approved offshore from southern Los Angeles County.

Offshore Energy Projects.

There are ongoing activities and foreseeable oil and gas projects in Federal waters offshore southern California. The cumulative effects of oil and gas development and production have been identified in other environmental documents (MMS, 1992; MMS, 1995; MMS, 1996).

Federal and State oil and gas activities considered in this analysis include the drilling of new wells within existing leases from existing Pacific OCS platforms and future decommissioning. However, no proposals are anticipated for either exploration or drilling activities or decommissioning of platforms during the duration of the Beta Offshore power cable installation project.

<u>Activities Occurring on Existing Federal Platforms</u>. The existing energy-related projects considered in Federal and State waters include air emissions from the Beta Unit Platforms Ellen, Elly, and Eureka (Beta Offshore) and DCOR's Platform Edith. The existing platforms identified within the vicinity of the proposed project are within the jurisdiction of the SCAQMD and all have current PTOs. The emission sources from those facilities have been controlled and fully offset and are in full compliance with SCAQMD Rules and Regulations. To date, the Beta Unit emissions of NO_x and ROC have been well below permitted levels, and no exceedances of the NO₂ standard have occurred at applicable monitoring sites as a result of those operations. Thus, the additional incremental emissions levels expected with the proposed project are not expected to have a cumulative air quality impact with existing controlled and fully offset Federal oil and gas activities.

Non-Oil and Gas Projects and Activities.

<u>Marine Shipping and Tankering</u>. The emissions from shipping and tankering operations are considered in this analysis. Approximately 80 percent of the vessels calling on the Ports of Los Angeles and Long Beach are of foreign registry and most use engines produced outside the United States (CARB, 2000).

The 2008 estimated emission inventory for Los Angeles County estimates that NO_x emissions from OCS ships and mobile sources account for approximately 22.5 tons per day of NO_x . Maritime shipping on the OCS also accounts for approximately 10 tons of SO_x and 1.8 tons of PM per day. Regulatory efforts are in development through the U.S. EPA, International Maritime Organization, and CARB to control emissions and engines associated with marine shipping and tankering. On July 24, 2008, the CARB adopted a regulation requiring ocean-going vessels within 24 miles of California's coastline to use lower-sulfur marine distillates. Both U.S.-flagged and foreign-flagged vessels are subject to the regulation which is the most stringent and comprehensive requirement for marine fuel-use in the world. As emissions from the proposed project are either exempted per SCAQMD Rules and Regulations (marine vessels) or currently permitted, cumulative air quality impacts of marine shipping and tankering will not change with the proposed project.

Greenhouse Gas Emissions.

Construction related GHG emissions associated with the proposed project when combined with emissions throughout the area, the County of Los Angeles, the SCAB, and the world, might have the potential to incrementally contribute to climate change. Locally, there are industrial,

commercial and residential projects in the project area that collectively contribute to the release of GHG emissions. The Draft GHG Emissions Inventory (CARB, 2008), estimates that the annual CO_2E for all GHGs produced in California in 2004 was 468.8 million metric tons. Therefore, the GHG associated with construction0-related emissions (248.5 metric tons MTCO₂E) would represent a negligible percentage of the annual GHG emissions produced statewide.

Cumulative Conclusion. The potential for the incremental emissions increase associated with the power cable installation to cumulatively impact regional air quality is considered to be insignificant. Thus, the proposed cable project is not expected to contribute significantly to regional air quality that may be expected from existing offshore oil and gas activities, marine shipping and tankering, and greenhouse gas emissions.

2.2.5 Overall Conclusions

The potential impacts to onshore air quality resulting from emissions from vessels and equipment used in the Beta Offshore power cable installation project is considered to be insignificant based on the significance criteria utilized in this analysis. Thus, the potential for violations of the ambient air standards from the proposed project are considered to be negligible, through compliance with all SCAQMD rules and regulations. Based on the present attainment status of the SCAB, the project as proposed is under emission limits for Federal actions proposed in the General Conformity Rule and is consistent with the latest adopted Federal and State air quality plans for the SCAB. Overall, the potential impacts to air quality resulting from the proposed power cable installation project are considered to be insignificant and in full compliance with SCAQMD Rules and Regulations to the maximum extent feasible.

2.3 Water Quality

2.3.1 Affected Environment

Oceanography. Surface ocean circulation in the project area is complex and is influenced by the locations of basins, islands, banks, and ridges, as well as seasonal variations in wind velocity and direction. Surface current circulation is primarily stimulated by the California Current (CC), which promotes eddy formation within the Southern California Bight (SCB). The CC is an eastern boundary current which flows southward from high to low latitude as a broad, cool surface current. South of Point Conception (the northern boundary of the SCB), the shoreline cuts sharply to the east and the CC flows roughly 161 km (100 mi) offshore of southern California. As it travels southward, it interacts with the relatively stationary SCB water, forming a poleward-flowing countercurrent known as the Southern California Counter-Current (SCC). The SCC primarily flows past the southern California mainland and northward past the Channel Islands. During winter and spring, northwesterly winds accelerate the flow velocity of the CC, the SCC slowing as a result. During summer and fall, winds relax, reducing the velocity and allowing more shearing from the CC into the water of the SCB. This increases the flow velocity of the SCC which in turn promotes eddy development (CSULB, 2012).

Hickey, et al. (2003) conducted oceanographic studies in 1988 in the Santa Monica and San Pedro Basins. The results demonstrated that the seasonal patterns in the California Current system drive the oceanography within the Southern California Bight. The offshore current velocities range from about 10 to 40 cm/sec (0.25 to 1.0 kts). Winds and atmospheric pressure gradients are the primary physical factors (known as forcing mechanisms) which cause the observed current speed and direction with pressure gradients providing most of the driving force;

local winds account for only about 10% of the observed current velocity in spring and none in summer.

In the project area, surface currents can form clockwise or counterclockwise eddies or move more or less parallel to shore. These patterns are driven by the longshore pressure gradients, as noted above, but also by winds, most often during strong wind events such as Santa Ana or winter storms. Clockwise eddies tend to push water away from shore while counterclockwise eddies will tend to drive ocean water towards shore in the Huntington Beach area.

The Southern California Coastal Ocean Observing System (SCCOOS) currently maintains mapping and data regarding ocean current circulation within the project region. These data show existing current strength (in centimeters per second) as gathered from triangulated, shore-based High Frequency (HF) Radar antennae. Data are presented in near real-time and include optional overlays of offshore oil and gas platforms (including Platforms Ellen, Elly, Edith, and Eureka within the Beta Unit) as well as 25-hour averages of that data. Additional ocean current circulation data may be accessed via the SCCOOS website (SCCOOS, 2012). Data and maps may be accessed online from the SCCOOS website at http://www.sccoos.org/data/hfrnet/ and NOAA's website at http://www.sccoos.org/data/hfrnet/ and NOAA, 2012).

<u>Water Quality.</u> Offshore water quality is determined by a number of factors, including natural seawater properties such as transparency and turbidity, oxygen, nutrients, and trace metals. The addition of anthropogenic pollutants can change these properties to the extent that the resulting water quality could affect the plankton, fish, and other biological entities living in marine waters. Key water quality parameters are given in Table 2.3.1.

Parameter	Characteristics		
Temperature	At surface ranges from 12-13 °C in April to 15-19 °C in July-October.		
Salinity	33.2-34.3 parts per thousand.		
Dissolved oxygen	Maximum about 5-6 ml/L at the surface, decreasing with depth to 2 ml/L at 200 m; below 350 m, as low as 1 ml/L; upwelling can bring this oxygen-poor water to the surface waters, especially from May to July.		
pH	Range from about 7.8 to 8.1 at surface and with depth.		
Nutrients	Important for primary production; include nitrogen, phosphorus, and silicon; other micronutrients include iron, manganese, zinc, copper, cobalt, molybdenum, vanadium, vitamin B12, thiamin, and biotin. Depleted near the surface but increasing with depth.		
Suspended sediment (turbidity)	Concentrations about 1mg/L in the nearshore, surface waters with higher values in near-bottom waters (and after storms); lower levels (0.5 mg/L) in offshore regions. Highest turbidities correspond to periods of highest upwelling, primary production, and river runoff. Controls the depth of the euphotic zone, has applications for (absorbed) pollutant transport and is of aesthetic concern.		
Metals	Include barium, chromium, cadmium, copper, zinc, mercury, lead, silver, and nickel all of which can serve as micronutrients in low levels (parts per trillion or parts per billion) and be potentially toxic at high levels (parts per million or higher).		

 Table 2.3.1. Key Water Quality Parameters.

Parameter	Characteristics
Organics	May enter the marine environment from municipal and industrial wastewater discharges, runoff, natural oil seeps, and offshore oil and gas operations.

2.3.2 Impact Analysis

Significance Criteria. A significant impact on water quality is:

- Any liquid effluent or solid material discharged to the marine receiving waters (ocean) that causes changes in standard water quality parameters resulting in unreasonable degradation to the water quality.
- An increase in sedimentation above the normal range and which is persistent and not dispersed by natural processes within a few days.

Note that EPA's regulations at 40 CFR 125.121(e)(1-3) state, "unreasonable degradation of the marine environment means: (1) Significant adverse changes in ecosystem diversity, productivity and stability of the biological community within the area of discharge and surrounding biological communities; (2) Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms; (3) Loss of esthetic, recreational, scientific or economic values which is unreasonable in relation to the benefit derived from the discharge."

Impacting Factors. The impacting factors from this project that could affect water quality are the increase in sediment in the water column that will be raised from the seafloor during the installation of the submarine power cable, and the discharge of treated sewage from the installation and support vessels.

<u>Sediments</u>. Seafloor sediments within the project area are primarily sand and muddy sand (Dartnell et al., 2009; Wong et al., 2011), with cores and video samples of the seafloor near Platform Edith showing approximately 70% sand and 30% mud. Sediment samples collected at Platforms Elly and Eureka are characterized by a transition from silts and sands at the shelf break near Platform Elly to clays and clayey silts down the upper San Pedro Slope toward Platform Eureka (Padre Associates, Inc. 2007; Fugro West, 2010).

The 2.6 km (8,500 ft) long, 0.1 m (4.36 in) diameter power cable will be placed within an existing pipeline corridor on the seafloor between Platforms Edith and Elly. Marine water quality will be affected due to the disturbance of the sediment while the cable is being laid on the seafloor. Because the sediments are soft and, as noted above, consist of silts and clays, the weight of the cable will displace an estimated 14 m^3 (20.5 yd³) of material, spread along the length of the cable, and raise it into the water column. Bottom currents, which average 10 to 20 cm/sec (0.3 to 0.6 ft/sec), would gradually spread the sediments down-current allowing the suspended particles to become increasingly dilute due to resettlement and dispersion. These activities would cause only a small increase in turbidity and impacts to water quality would be short-term, localized, and insignificant.

During the installation of the ExxonMobil Cable C1 in 2008 (MMS, 2008), turbidity was intermittent and limited to a visible plume that lasted approximately 10 minutes. It is anticipated that a turbidity plume associated with the proposed power cable project would have a similar effect on water quality.

<u>Installation Vessel Discharges</u>. The proposed cable laying activities will utilize vessels that will discharge ballast, bilge, and sanitary wastes. These types of routine discharges, regulated by the

U.S. Coast Guard (USCG) via the Federal Water Pollution Control Act, ensure that vessel effluents such as sewage and cooling water do not leave a sheen or other foreign material on navigable waters. Ballast and bilge waters will be treated by the vessel's onboard oil separation system which is designed and operated to meet the USCG-required limit of 15 ppm oil in the effluent. Similarly, the sewage treatment plant onboard the vessel is USCG-approved and is designed and operated to meet the USCG-required limits. Surface currents, wind, and waves will combine to dissipate these effluents. All the installation vessel discharges will be conducted in accordance with applicable USCG regulations and will not have a significant impact on water quality.

Actions Proposed to Reduce Environmental Impacts. Beta Offshore proposed the following actions as a part of the project to further reduce and minimize impacts to water quality:

• All support vessel discharges will comply with the requirements of the Clean Water Act under the USCG regulation. This includes proper treatment and monitoring of support vessel effluents such as sewage, cooling water, ballast, and bilge water. An onboard oil separation system will be used as required by the USCG to limit effluent oils to 15 ppm. Sewage treatment plant onboard each support vessel will be USCG-approved.

2.3.3 Conclusion

The impacting factors that could affect water quality are increases in turbidity and the discharge of treated effluents from the installation vessel. Based on the significance criteria for water quality established for this EA, neither of these factors will cause a significant impact because no unreasonable degradation to the water quality due to turbidity or discharges will occur.

2.3.4 Cumulative Analysis

Section 1.6 describes the projects considered in the cumulative analysis for the proposed project. Possible sources of cumulative impacts to water quality in the project area include activities occurring on existing Federal platforms, and point and nonpoint pollution sources.

Offshore Energy Projects.

Activities Occurring on Existing Federal Platforms. There are ongoing activities and foreseeable oil and gas projects in Federal waters offshore southern California. The cumulative effects of oil and gas development and production have been identified in other environmental documents (MMS, 1992; MMS, 1995; MMS, 1996). Four platforms are located off the coast of Los Angeles County that potentially could affect water quality by discharging muds from drilling activities, produced water, or sewage. No platforms located near the project area will be conducting drilling operations while the proposed project is underway, or have conducted drilling since 1997. Most or all of the produced water is injected at all of these platforms. Sewage discharges from Platform Edith average 4 to 6 bbls/day, and include both domestic and sanitary wastes. Sewage is injected into the formation with the produced water on Platforms Ellen and Elly, while at Platform Eureka, domestic waste water (as laundry water) is sent to a disposal well and not discharged. Sanitary wastes are treated through a USCG-approved marine sanitation device and discharged at Platform Eureka. Sewage discharges from Platform Eureka average from 15 to 18 bbls/day and are treated to meet EPA permit limits. The proposed project does not significantly add any cumulative impacts to water quality because of the small amount of sediment that would be raised from the seafloor during the manipulation of the cable and the short-term nature of the project.

Non-Energy Projects and Activities.

Point Source Discharges. The nearest municipal sewage discharge is from the Orange County Sanitation District near Huntington Beach, whose outfall extends about 11 km (7 mi) from shore. The last 1.6 km (1 mi) of the outfall is a diffuser with over 500 holes in it and it terminates in about 61 m (200 ft) of water. The end of the diffuser is about 11 km (7 mi) from the project area. In 2004, a total of 320 million gallons per day (mgd) were discharged through the diffuser. Sixty-seven percent, or 159 mgd, were treated at the secondary level (SCCWRP, 2006); the rest of the effluent (77 mgd) was treated at the advanced primary level. The short-term presence of the cable lay and support vessels will not incrementally add to the level of pollution that is already present in the project area due to the discharge of the sewage.

Nonpoint Source Discharges. The nearest nonpoint sources of pollution are four rivers: the Dominguez Channel and the Los Angeles River which run into the Los Angeles Harbor complex, and the San Gabriel and Santa Ana Rivers which empty into the ocean near Seal Beach and Huntington Beach, respectively. Because these rivers flow intermittently, most of the pollution enters the ocean in the winter months, particularly during "first flush", when the highest levels for pollution would occur. Pollutants that could be associated with these river plumes include metals (e.g., zinc, copper, lead, nickel, and cadmium), polyaromatic hydrocarbons, and enterococcal bacteria (e.g., *E. coli*). While plumes from these rivers have been tracked into the project area, pollutants would have been diluted to background and more than 90% of the mass of sediment dropped out by that time. The short-term presence of the cable lay and support vessels will not incrementally add to the level of pollution that is already present in the project area. Also, the small amount of sediment raised by laying of the power cable will not incrementally add to the existing level of natural sedimentation in the project area.

Cumulative Conclusion. The primary source of turbidity from the project would arise from the laying of the power cable. Small amounts of treated sewage will be discharged from the cable lay and support vessels. Significant cumulative impacts to water quality are not expected from the proposed project when added to other activities in the area. Impacts from the proposed project represent an insignificant incremental increase of cumulative impacts to water quality resources.

2.3.5 Overall Conclusions

The potential impacts to water quality from the proposed project are considered to be insignificant based on the significance criteria in this analysis. This is due to the short time frame of the project (an estimated 42 days, with 3 days of cable installation), the small amount of sediment that will be disturbed compared to the existing natural sedimentation, and the small volume of discharges from project vessels. Additionally, the incremental increase of the proposed project to cumulative impacts is negligible. Overall, the potential impacts to water quality resulting from the installation of the power cable are considered to be insignificant and mitigated to the maximum extent feasible.

2.4 Benthic Resources

2.4.1 Affected Environment

The proposed Platform Edith to Platform Elly Power Cable Installation project is located in the San Pedro Basin in approximately 49 to 78 m (161 to 255 ft) of water. The project location is at the outer edge of the San Pedro Shelf, which is regionally described as uniform silty sand or sandy silt with occasional rocky outcrops (Thompson *et al.*, 1993). Regional surveys in 2003

(Allen *et al.*, 2007; Ranasinghe *et al.*, 2010) and 2008 (Allen *et al.*, 2011; Ranasinghe *et al.*, 2012) concluded that soft sediments of the outer shelf (121 to 200 m) hold invertebrate communities that are distinct from deeper slope and more shallow mid-shelf habitats. Epibenthic invertebrate assemblages in the area of the proposed project have been exposed to human disturbance in the past as demonstrated by an existing dry oil line between Platform Edith and Platform Elly. A ROV pipeline survey of this area was conducted by Padre Associates, Inc. (2007) and recorded large benthic species such as urchins, sea pens, sea cucumbers, sheep crab, gorgonian corals, and several fish species (Padre Associates, Inc., 2007). Most of the taxa present in this survey were representative of outer shelf assemblages in the San Pedro Basin found in the 2003 regional survey (Allen *et al.*, 2007), although the closest sample was taken 914 m (3000 ft) to the north of Platform Edith. No evidence of sensitive resources such as chemosynthetic communities or the endangered white abalone (*Haliotus sorenseni*) has been observed during these and earlier pipeline and cable surveys in the area.

No other recent biological surveys have been done of the benthic invertebrates adjacent to the platforms or pipeline corridor but the types of communities can be inferred from knowing depth and the surficial geology of the area. Hard bottom habitats in particular are important to locate because they are rare in this area yet can support biologically diverse invertebrate communities (Diener and Lissner, 1995), which can be slow to recover from oil and gas operations impact (Lissner et al., 1991). Earlier assessments of this area using sidescan sonar are described in MMS (1982) and CSLC, PBL, and USGS (1978). The surficial geology of this area has more recently been mapped from multibeam sonar surveys in 1996, 1998, and 1999 by the United States Geological Survey (USGS; Wong et al., 2011) and by FugroWest (2010). Seafloor sediments within the project area are primarily sand and muddy sand (Wong et al., 2011), with cores and video samples of the seafloor near Platform Edith showing approximately 70% sand and 30% mud. The closest prominent seafloor features to the project area include the San Gabriel Submarine Canyon, 1 km (0.6 mi) to the east of the Platform Elly. Other potential hard-bottom areas occur over 610 m (2,000 ft) to the east of Platform Edith and approximately 305 m (1,000 feet) east-southeast of Platform Elly at a water depth of 91 m (300 ft). Wong et al. (2011) noted some mixed rock habitat on the cable route 610 m (2000 ft) to the north of Platform Elly but this is an incorrect interpretation of the multibeam data because hard-bottom was not confirmed in Fugro West's survey (2010) or video footage (Padre Associates, Inc., 2007).

Platform structures are periodically cleaned of biota, which then litters the surrounding seafloor. These areas are commonly called shell mounds because the material is dominated by mussel (*Mytilus* spp.) shells. Shell mound habitat surrounding both Platforms Edith and Elly are substantially different than the adjacent sedimentary habitat or in the connecting pipeline corridor. Within 30 m (100 ft) of the platforms, the Padre Associates, Inc. (2007) survey observed shells covering the seafloor in association with sheep crab, bat stars, and brittle stars, juvenile rockfishes and lingcod. The same video footage was later examined for invertebrates, and found fewer taxa under shell mounds in San Pedro Bay than in either the Santa Maria Basin or Santa Barbara Channel, and that each platform had a distinctive community composition. Platforms Edith and Elly had six and seven taxa respectively, with the bat star (*Asterina miniata*) attaining the highest densities for both platforms, and reached nearly 10 individuals per square meter under Platform Elly (Love *et al.*, 2003).

2.4.2 Impact Analysis

Significance Criteria. A significant impact on benthic resources is:

- A measurable change in population abundance and/or species composition beyond normal variability. For threatened and endangered species, this includes any change in population that is likely to hinder the recovery of a species.
- Displacement of a major part of the population from either feeding or breeding areas, or from migration routes for a biologically important length of time.
- A measureable loss or irreversible modification of habitat in several localized areas in 10 percent of the habitat in the affected area. An example of a significant change in habitat would be one that prevents the re-establishment of pre-disturbance biological communities over a significant portion of their range. Loss or irreversible modification of special habitats protected by Federal, State, or local laws or regulations is considered significant.
- Disturbance resulting in biologically important effects on behavior patterns.

Impacting Factors. Seafloor disturbance impacts associated with the proposed project include increased turbidity within tens of meters (several hundred feet) of the cable installation area, covering of sedimentary seafloor, and the removal of attached epibiota from the platform legs. Because they are using a towed cable laying vessel, there will be no seafloor impact from anchors. Disturbance of the seafloor may include harm to benthic animals and their habitats from the cable lay activities. I-tube installations and diving operations are not expected to disturb the shell mounds immediately under platforms.

<u>Physical Disturbance</u>. No physical impacts would occur to natural hard bottom features because of their distance from the installation area. Due to the many surveys done in this area, it is unlikely an unmapped habitat exists near to the anchor locations. The installation of clamps to the platforms for the cable will require the removal of attached epibiota near the base of the platform. Laying the cable on the seafloor may impact some slowly moving creatures, such as urchins, and sea cucumbers by displacing them or forming trenches in the seafloor. These animals are common, with a broad range throughout southern California. ROV video of cable installations from other platforms showed cable movements to be gentle and that animals immediately settled near the cable in a similar fashion as before the installation. These observations agree with a quantitative study of a cable offshore of Monterey, California which concluded that biological impacts from the presence of the cable were minimal (Kogan *et al.*, 2006). Disturbances from this project are localized and minimal and therefore the proposed project would have negligible loss of soft bottom habitat and changes to soft bottom species abundance and composition.

<u>Turbidity</u>. The power cable as described in Section 1.4 is estimated to lay on 2.6 km (8,500 ft) of soft bottom seafloor. Cable manipulations on the seafloor would also increase turbidity in the water column, which could cause physical irritation, clog feeding structures, and subject benthic biota to an increase in sediment deposition. Plumes of sediment resulting from cable manipulations would be intermittent and water column clarity is expected to return to pre-project conditions within one to two hours of the disturbance. Ocean currents should allow a plume to spread down-current from the contact point followed by a gradual settling of the particulate matter to the seafloor. Studies of resuspended sediments showed that clay silt at low current velocities took 56 hours to sink (SAIC and MEC, 1995). Visual observations from the installation of the ExxonMobil Cable C1 in 2008 (MMS, 2008) showed a visible plume that lasted approximately 10 minutes. It is anticipated that a turbidity plume associated with the proposed power cable project would have a similar effect on water quality and therefore, ambient conditions would be quickly attained within tens of meters (several hundred feet) of where the disturbance occurred on the seafloor.
Actions Proposed to Reduce Environmental Impacts. Beta Offshore proposed the following actions as a part of the project to further reduce and minimize impacts to seafloor communities:

- A ROV survey will be conducted prior to power cable lay activities. The ROV will fly the proposed route of the power cable to check for obstructions, crossing locations, or anomalies.
- A brief visual inspection near the base of each platform where the cables will be touching down on bottom will also be done to ensure a clear path to the proposed route.
- After the power cable is secure and laid on bottom the divers and/or ROV will do a final survey of the power cable near the platform to confirm there are no suspensions, twists or loops enroute.
- An as-built power cable installation survey will be conducted simultaneously during the cable deployment from the lay barge with the proposed ROV system. The ROV shall confirm the actual touchdown position of the cable as it is deployed and record high resolution video documentation of the cable lay. Both as-built cable position and video will be included in the Final Report deliverables.

Mitigation Measures Required by BSEE.

- The as-built ROV survey must clearly show the newly installed power cable in the final sea bottom location and the seafloor condition on either side of the cable. If a bottom disturbance is observed such as a scar, the location must be recorded and the ROV is to follow and document the depth and length; and
- All video documentation shall include the time, latitude and longitude which correspond to the locations and features listed on the drawings and dive logs.

2.4.3 Conclusion

Due to the relatively small area of the seafloor habitat affected as compared to the predominant soft bottom habitat in the project area, the proposed project activities would cause insignificant impacts over a highly localized area on soft bottom habitats. Impacts to hard bottom habitats will be insignificant due to the localized and temporary turbid conditions.

2.4.4 Cumulative Analysis

Section 1.6 describes the projects considered in the cumulative analysis for the proposed project. Possible sources of cumulative impacts to benthic resources include ongoing Federal offshore energy projects and non-energy projects and activities.

Offshore Energy Projects. There are ongoing activities and foreseeable oil and gas projects in Federal waters offshore southern California. The cumulative effects of oil and gas development and production have been identified in other environmental documents (MMS, 1992; MMS, 1995; MMS, 1996).

Activities Occurring on Existing Federal Platforms. There are ongoing activities and foreseeable oil and gas projects in Federal waters offshore southern California. The cumulative effects of oil and gas development and production have been identified in other environmental documents (MMS, 1992; MMS, 1995; MMS, 1996). Four platforms are located off the coast of Los Angeles County that potentially could affect seafloor communities by discharging muds from drilling activities, produced water, or sewage. No platforms located near the project area will be conducting drilling operations while the proposed project is underway, or have conducted drilling

since 1997. A pipeline repair project from Elly to Eureka was completed in December 2011 and while it created turbidity, it was of short duration and well within the natural turbidity levels seen on the outer shelf. Most or all of the produced water is injected at all of these platforms. Sewage discharges from Platform Edith average 4 to 6 bbls/day, and is injected into the formation with the produced water on Platforms Ellen and Elly, while at Platform Eureka, domestic waste water (as laundry water) is sent to a disposal well and not discharged. Sanitary wastes are treated through a USCG-approved marine sanitation device and discharged at Platform Eureka. Sewage discharges from Platform Eureka average from 15 to 18 bbls/day and are treated to meet EPA permit limits. The proposed project does not significantly add any cumulative impacts to water quality or to seafloor organisms because of the small amount of sediment that would be raised from the seafloor during the manipulation of the cable and the short-term nature of the project.

Non-Energy Projects and Activities. Activities that overlap with the proposed project impacts to benthic resources include commercial fishing, and point source and nonpoint source discharges.

<u>Commercial Fishing</u>. Commercial fishing, which may include trawling activities and trapping, impact the benthic environment by altering the habitat and removing species. Commercial fishing will be limited in the area for the duration of the installation and therefore, potential impacts to benthos are lessened within the area of the installation activities. Disturbances to the seafloor during the installation are negligible and represent an insignificant increase of cumulative impacts to benthic resources

<u>Point Source Discharges.</u> The project area is within approximately 11 km (7 mi) of the Orange County Sanitation District's outfall. A regional assessment of the southern California mainland shelf describes the infaunal community within this project area to be outside the Publicly Owned Treatment Work Discharge Area (Bergen *et al.*, 2000) and not shown to be affected from the outfall.

<u>Nonpoint Source Discharges</u>. During fall and winter storms, the volume of nonpoint discharges in the form of coastal river runoff increases and the resulting plumes can reach the project area. These plumes can expose soft bottom habitats in the project area to periods of increased water turbidity, microbial, and chemical contamination. Regional assessment of the southern California mainland shelf describes the infaunal community in this project area as unaffected from storm water contaminants (Bergen *et al.*, 2000). A study designed to evaluate the cumulative environmental health of the southern California mainland shelf determined over 90 % of the sediments in this area were found to have unaffected or good benthic macrofauna communities (Bergen *et al.*, 2000) and no outer shelf sites were considered in poor condition (Ranasinghe *et al.*, 2012; Allen *et al.*, 2011). Turbidity from storm water plumes is of a greater duration and intensity than the turbidity that would arise from manipulation of the cable during the installation process. Increases in turbidity from the project represent an insignificant incremental increase of cumulative impacts to benthic resources.

Cumulative Conclusion. The project as proposed will result in an insignificant localized and short-term increase in turbidity in the project area, and will not result in a significant cumulative impact to benthic resources.

2.4.5 Overall Conclusions

The potential impacts to benthic organisms and their habitats from the proposed project are considered to be insignificant based on the significance criteria utilized in this analysis. This is due to the intermittent and very local benthic disturbances from installing the cable and the

negligible and temporary increase in turbidity. This project is not expected to add significantly to cumulative impacts on the benthic environment in the outer shelf of the San Pedro Basin. Overall, the potential impacts to benthic resources resulting from the project are considered to be insignificant and mitigated to the maximum extent feasible.

2.5 Fishes and Essential Fish Habitat

2.5.1 Affected Environment

At least 554 species of California marine fishes inhabit or visit California waters (Miller and Lea, 1972). The high species richness is probably due to the complex bathymetry, convergence of several water masses, and changeable environmental conditions (Dailey et al., 1993). The San Pedro Shelf fish assemblage is characteristic of warm-temperate species of the Californian or San Diegan Province (Horn and Allen, 1978; Pondella et al. 2005; Stephens et al. 2006; Martin and Lowe 2010). Both short and long-term climate oscillations (e.g. El Nino-Southern Oscillation events and the Pacific Decadal Oscillation) affect juvenile fish recruitment and can alter the composition of some fish assemblages for years (Mearns et al., 1980; Love et al., 1986; 2003; Allen et al., 2007).

The open-water domain or pelagic zone is the largest habitat on earth and home to about 40 percent of the fish species observed off California (Cross and Allen, 1993). Oceanographers often further subdivide this habitat into categories based on depth and other physical characteristics. Pearcy and Laurs (1966) delineate the following for deep-sea fishes: (1) epipelagic, the surface wind-mixed layer, about 0 to 150 m; (2) mesopelagic, within the permanent thermocline, about 150 to 500 m; and (3) bathypelagic, in the dysphotic depths, below approximately 500 m. Common or noteworthy fishes that inhabit the epipelagic zone in southern California waters include albacore, basking shark, blue shark, California barracuda, Chinook salmon, jack mackerel, shortfin mako, northern anchovy, ocean sunfish, Pacific bluefin tuna, Pacific bonito, Pacific herring, Pacific mackerel, Pacific bonito, Pacific sardine, Pacific saury, Pacific whiting, pelagic juvenile rockfishes (Sebastes spp.), steelhead trout, striped marlin, yellowtail jack, swordfish, thresher shark, and white shark. In addition to these species, the epipelagic zone hosts the eggs and larvae of most marine fishes (Cross and Allen, 1993). Fish assemblages often overlap between the mesopelagic and bathypelagic zones, and offshore southern California, the common species that inhabit these zones include bent-tooth bristlemouth, California smoothtongue, Mexican lampfish, northern lampfish, and showy bristlemouth (DeWitt, 1972; Cailliet and Ebeling, 1990).

Benthic fish habitats can be categorized according to depth and substrate type. Soft sediment fishes characterizing the shelf include English sole, stripetail rockfish, queenfish, white croaker, California halibut, Pacific sanddab, speckled sanddab, and a variety of surfperches (Love et al., 1986, Allen et al., 2007). Not surprisingly, rockfishes (Genus *Sebastes*) are associated with all rock outcrops on the continental shelf and slope (Love et al., 2002; 2009). At shallower rock outcrops, surfperches, wrasses, greenlings, seabasses, and damselfish become common (Stephens et al., 2006).

Of the marine fishes that could potentially occur on the San Pedro Shelf, three (tidewater goby, southern California steelhead, and green sturgeon) are listed as threatened or endangered under the Endangered Species Act (ESA; Table 2.5.1). The endangered tidewater goby (*Eucyclogobius newberryi*) is found in shallow coastal lagoons, stream mouths, and shallow areas of bays in low salinity waters from Del Norte County south to San Diego County (Lafferty et al., 1999a). Tidewater goby larvae lack a marine phase, and adult gobies are restricted to low salinity

environments and cannot live offshore in marine habitats for very long. However, Lafferty et al. (1999b) postulate that connectivity among the isolated wetland goby populations probably occurs via episodic dispersal of adults during severe storm events.

The endangered southern California steelhead Evolutionarily Significant Unit (ESU) occupies coastal watersheds from the Santa Maria River (which defines the boundary between San Luis Obispo and Santa Barbara Counties) to the southern extent of its range, which may include the project area. Being anadromous fish, young steelhead remain in fresh water anywhere from less than 1 year to 3 years, and then migrate to the sea where they quickly move offshore and begin an epipelagic existence (principally less than 10 m, or 33 ft, water depth) for 1 - 4 years before returning to their natal stream to spawn (Light et al., 1989, Burgner et al., 1992).

The threatened green sturgeon (*Acipenser medirostris*) inhabits fresh water during early life history stages, and then switches to nearshore coastal marine waters, bays, and estuaries at later stages (Moyle, 2002; Erickson and Hightower, 2007; Erickson and Webb, 2007). Although there is one unusual record of a green sturgeon catch recorded near Bahía de San Quintin in Baja California, Mexico, during a cold water year (Rosales-Casián and Almeda-Jáuregui, 2009), the population center of this fish is considered to lie northward of the project area. The most southerly spawning habitat for green sturgeon is the Sacramento River, and the critical habitat for the Southern distinct population segment lays hundreds of kilometers north of the project area, near Monterey Bay (Biological Review Team, 2005).

Common Name	Common Name Scientific Name	
Green sturgeon	Acipenser medirostris	Federally Threatened
Tidewater goby	Eucyclogobius newberryi	Federally Endangered
Southern steelhead	Oncorhynchus mykiss	Federally Endangered

Table 2.5.1. Threatened or Endangered Fish Species

The Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1801 et seq.) as amended by the Sustainable Fisheries Act on October 11, 1996, describes essential fish habitat (EFH) as: "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH pertains to habitat "required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem." A healthy ecosystem is defined as: an "ecosystem where ecologically productive capacity is maintained, diversity of the flora and fauna is preserved, and the ecosystem retains the ability to regulate itself. Such an ecosystem should be similar to comparable, undisturbed ecosystems with regard to standing crop, productivity, nutrient dynamics, trophic structure, species richness, stability, resilience, contamination levels, and the frequency of diseased organisms." The Pacific Fishery Management Council (PFMC) has identified EFH for over 100 species of fish it manages under four Fishery Management Plans (FMPs): 1) Coastal Pelagics Fishery Management Plan; 2) Pacific Salmon Fishery Management Plan; 3) Pacific Groundfish Fishery Management Plan; and 4) Highly Migratory Species Fishery Management Plan. Many of the species managed by the PFMC can be found within the project area sometime during their life cycle. Of the marine fishes occurring on the San Pedro Shelf, a number of species are federally managed under the MSA. Of these managed fish species, 20 have been observed at Platforms Edith, Elly, and Eureka (Love et al., 2003; Martin and Lowe, 2010). Many of these species were rockfishes, (Sebastes spp.), which are managed by the Pacific Groundfish Management Plan. The remaining species were Coastal Pelagic Species, namely, jack mackerel, northern anchovy, Pacific bonito, Pacific chub mackerel, and Pacific sardine.

2.5.2 Impact Analysis

Given the life histories of the three ESA-listed fish species, it is unlikely they would occur in the project area, and, due to the limited duration of project activities, it is determined that these species will be unaffected by activities associated with the proposed project, and so are not considered further in this EA.

Significance Criteria. A significant impact on fishes and EFH is:

- A measurable change in population abundance and/or species composition beyond normal variability. For threatened and endangered species, this includes any change in population that is likely to hinder the recovery of a species.
- Displacement of a major part of a population from either feeding or breeding areas, or from migration routes for a biologically important length of time (one or more spawning or migration seasons).
- A measureable loss or irreversible modification of habitat in several localized areas in 10 percent of the habitat in the affected area. An example of a significant change in habitat would be one that prevents the re-establishment of pre-disturbance biological communities over a significant portion of their range. Loss or irreversible modification of special habitats protected by Federal, State, or local laws or regulations is considered significant.
- Disturbance resulting in biologically important effects on behavior patterns.

Impacting Factors. Potential impacting factors on fishes and EFH from the proposed activities include (1) bottom disturbance and increased turbidity, and (2) electromagnetic fields.

Bottom Disturbance/Turbidity. Disturbance to seafloor sediments may occur during marine growth removal and cable-laying activities. Disturbance may cause sediments and benthic organic material to be introduced into the water column and may also increase local turbidity levels. Direct effects from sediment suspension and increased turbidity on fish populations may include exposure to contaminants, changes in feeding rates, reduction in predator-avoidance ability, or smothering of feeding and respiratory organs (Wilber and Clarke, 2001; Utne-Palm, 2002; Au et al., 2004). To avoid these consequences, fishes may choose to relocate until water clarity returns to levels similar to pre-disturbance conditions. Indirect effects on fish populations from sediment suspension and increased turbidity may occur by harming the populations of prey species on which the fishes depend (Airoldi, 2003). Biological response to these potential impacts is often a function of concentration and exposure duration (Newcombe and Jensen, 1996). Given that no anchoring will occur during installation, and that there will be no trenching of the cable into the sediments, the proposed activities from the project are predicted to generate only minimal and short term impacts to benthic habitats, and cause a negligible increase in suspended materials over a short time frame. Therefore, using the criteria established above, proposed activities associated with the project will not have significant impacts to fishes or EFH.

<u>Electromagnetic Fields</u>. The 34.5 kV submarine AC power cable may emit electric and magnetic fields (EMFs) when used to power ongoing operations. Electric fields can be blocked by conducting materials, and thus can be wholly contained within the cable if suitable shielding is used (Valberg, 2005). The magnetic field cannot be contained within the cable and will interact with and alter the geomagnetic field at a local scale. The area of interaction manifests as a cylindrical swath, centered on the power cable. The degree of magnetic disturbance declines with an inverse square relationship with distance from the source (the cable core). Because transmission of electricity occurs via alternating current (AC), the magnetic field resulting from

an energized power cable will reverse polarity approximately 60 times per second (60 Hz), generating a time-averaged magnitude of zero change in the background field.

The potential ecological impacts of EMFs from submarine power cables on marine organisms have been described in earlier studies (Gill et al., 2005; Ohman et al., 2007; Boehlert et al., 2008). Some of the marine fishes that may be able to detect anomalies in the local magnetic field include elasmobranchs (sharks, rays, and skates), chimeras, hagfishes, lampreys, and sturgeons (Bodznick and Northcutt, 1981; Gill et al., 2005; Miller, 2005). Accordingly, various aspects of their behavior may be disrupted from operation of the power cable. Sharks and their taxonomic allies detect electric fields via dedicated sensory structures called the ampullae of Lorenzini (Kalmijn, 1966). Besides directly sensing electric fields, these sensory structures may be able detect magnetic field anomalies through the application of Faraday's law of induction and specialized behaviors (Kalmijn, 2000).

Field studies provide information to assess potential EMF effects. The most relevant experimental data originate from a mesocosm study performed by Gill et al. (2009). They monitored the behavior of sensitive fishes (elasmobranchs) in response to an electromagnetic field that mimicked what might be expected to emanate from an energized submarine AC power cable. The study demonstrated that, while some individual fish appeared to change their behavior in response to the power cable's EMF (by changing their activity levels near the cable), unequivocal evidence to demonstrate an ability to detect anthropogenic EMF anomalies failed to emerge. This detection ability is a necessary first step in demonstrating that there could be ecologically significant effects in the marine environment from submarine power cables. Gill et al. (2009) concluded "There is no evidence from the present study to suggest any positive or negative effect on elasmobranchs of the EMF encountered", but noted that further study is needed.

Therefore, based on the experimental study performed by Gill et al. (2009), and using the criteria established above, activities associated with the proposed project will not have significant impacts to fishes or EFH.

Actions Proposed to Reduce Environmental Impacts. No mitigations were proposed by Beta Offshore. Mitigation measures required by BSEE include the following:

- Power cable shielding Before offshore installation activities begin, Beta Offshore must provide evidence to BSEE that the submarine power cable they will use for the proposed project possesses technical shielding capabilities that prevent incidental electric fields produced during power transmission from propagating into the marine environment.
- Monitor and Video Operations During cable laying operations, a ROV is to monitor the cable catenary as it touches bottom and the area before the touchdown point. If the ROV pilot observes a rocky outcrop during cable laying, the vessel is to adjust to avoid the rocky outcrop, and then must notify BSEE within 72 hours.

2.5.3 Conclusion

Based on the significance criteria established above, activities associated with the proposed project will not have significant impacts to fishes or EFH.

2.5.4 Cumulative Analysis

Section 1.6 describes the projects and activities considered in the cumulative analysis for the proposed project. Possible sources of cumulative impacts specific to fishes and EFH are those

that degrade water quality via increased turbidity, and those that alter local EMF signatures. Sources of cumulative impacts include on-going and proposed oil and gas activities in Federal and State waters, and non-point sources of ocean discharges. Potential cumulative impacts are discussed below.

Offshore Energy Projects.

<u>Activities Occurring on Existing Federal Platforms</u>. There are ongoing activities and foreseeable oil and gas projects in Federal and State waters offshore southern California. The cumulative effects of oil and gas development and production have been identified in other environmental documents (MMS, 1992; MMS, 1995; MMS, 1996; MMS, 1999).

Ongoing oil and gas operations may cause bottom disturbance by discharging muds from drilling activities, however, no platforms located near the project area will be conducting drilling operations while the proposed project is underway. The proposed activities associated with the project do not significantly add any cumulative impacts related to bottom disturbance and turbidity to area waters.

Offshore infrastructure in the Beta Unit already includes two submarine power cables (Table 2.5.2).

		Lease			Water	Electrical	
Platform	Operator	no.	Destination	Length	Depths	Provider	Capacity
						Southern	
	DCOR	OCS-P		16 km	0 to 49 m	California	
Edith	LLC	0296	Shore	(52,800 ft)	(0 to 160 ft)	Edison	34.5 kV
	Beta			4.7 km	81 to 213 m		
	Offshore	OCS-P	Platform Ellen	(15,297+	(265 to 700	Platform	
Eureka	Co., LLC	0301	(2 cables)	ft)	ft)	Elly	34.5 kV

Table 2.5.2. Submarine Power Cables Within the Beta Unit

These power cables use alternating current to provide electricity to the offshore facilities in the Beta Unit, and therefore would not generate ecologically important effects on fish populations or EFH for the reasons outlined in Section 2.5.2. Therefore, the proposed activities do not significantly add any cumulative impacts to fish populations or EFH.

Non-Energy Projects and Activities.

<u>Nonpoint Source Discharges</u>. Water quality on the San Pedro Shelf can be impacted by terrestrial runoff, especially during storm events. The nearest nonpoint sources of pollution are four rivers: the Dominguez Channel and the Los Angeles River which run into the Los Angeles Harbor complex, and the San Gabriel and Santa Ana Rivers which empty into the ocean near Seal Beach and Huntington Beach, respectively. Because these rivers flow intermittently, most of the pollution enters the ocean in the winter months, particularly during "first flush", when the highest levels for pollution would occur. Relevant to fish populations, pollutants that could be associated with these river plumes include metals (e.g., zinc, copper, lead, nickel, and cadmium), and polyaromatic hydrocarbons. While plumes from these rivers have been tracked into the project area, pollutants would have been diluted to background and more than 90% of the mass of sediment dropped out by that time. The short-term presence of the cable lay and support vessels will not incrementally add to the level of pollution that is already present in the project area. Also, the small amount of sediment raised by the anchor placement and retrieval activities and

the laying of the power cable will not incrementally add to the existing level of natural sedimentation in the project area.

Cumulative Conclusion. The impact from bottom disturbance/turbidity and EMF from the proposed activities would only contribute an incremental and insignificant impact to fishes and EFH.

2.5.5 Overall Conclusion

Overall, the potential impacts to fishes and EFH resulting from the project are considered to be insignificant an mitigated to the maximum extent feasible.

2.6 Marine and Coastal Birds

2.6.1 Affected Environment

The marine and coastal bird population off southern California is both diverse and complex, being composed of as many as 195 species (Baird, 1993). This community of birds has been described in detail in previous studies and environmental documents (e.g., Sowls et al., 1980; Briggs et al., 1981; 1987; Hunt et al., 1981; Carter et al., 1992; Baird, 1993; Mason et al., 2007). Of the many different types of birds that occur in this area, the group that is generally the most sensitive to the potential impacts of OCS development is marine birds. While some of these breed in the area, others may spend their non-breeding or "wintering" period there or pass through during migration. There is a large variety of marine bird species that inhabit or migrate through the San Pedro Bay. Common varieties include ducks, loons, grebes, shearwaters, stormpetrels, cormorants, gulls, terns, and alcids.

Nearshore species such as loons, grebes, and scoters generally occupy relatively shallow waters close to shore. While in southern California, these species spend almost their entire time on the water surface. In southern California, nearshore species occur in highest numbers during the winter months; relatively few remain during the summer.

Pelagic species, including shearwaters, fulmars, phalaropes, jaegers, auklets, and murres, generally occupy deeper waters than nearshore species and may be found far from shore. These species spend much of their time on the water surface or diving for food and are very vulnerable to oil spills. Although the period of highest density varies from species to species, with the exception of the Rhinoceros Auklet (*Cerorhinca monocerata*) and Common Murre (*Uria aalge*), none of these pelagic birds breeds in southern California.

Breeding species in the vicinity of the proposed project area nest mainly on the Channel Islands, although a few also nest on the mainland. From 1989-1991, the total breeding seabird population on the Channel Islands was estimated at over 100,000 birds of 14 species (Carter et al., 1992). Location, numbers of nests, and at-sea densities vary greatly from species to species.

Based on a 2000 baseline study, the most abundant guild of birds present at the POLA/POLB (approximately 10 miles north of the project site) was gulls, with the Western Gull (*Larus occidentalis*) and Heermann's Gull (*Larus heermanni*) as the two most common species (POLB and FERC, 2008). The next most abundant guilds present at the POLB were aerial fish foragers such as the Elegant Tern (*Thalasseus elegans*) and Brown Pelican (*Pelecanus occidentalis*), as well as other fish foraging waterbirds such as the Western Grebe (*Aechmophorus occidentalis*) and Brandt's Cormorant (*Phalacrocorax penicillatus*).

Several bird species that have the potential to occur within the project area have been afforded protected status by the state and/or federal governments due to declining populations and/or habitats. In addition, all native birds within the area are protected by the Migratory Bird Treaty Act of 1918, which is enforced by the U.S. Fish and Wildlife Service (USFWS). Table 2.6.1 lists the special-status marine bird species that could be found within the vicinity of the proposed activities.

Common Name	Scientific Name	Federal	State Status	
		Status		
Brant	Branta bernicla		SSC	
Black-footed Albatross	Phoebastria nigripes	BCC		
Short-tailed Albatross	Phoebastria albatrus	E	SSC	
Pink-footed Shearwater	Puffinus creatopus	BCC		
Black-vented Shearwater	Puffinus opisthomelas	BCC		
Ashy Storm-Petrel	Oceanodroma homochroa	BCC	SSC	
Black Storm-Petrel	Oceanodroma melania		SSC	
Brown Pelican	Pelecanus occidentalis	DE	DE	
Double-crested Cormorant	Phalacrocorax auritus		TW	
California Gull	Larus californicus		TW	
California Least Tern	Sternula antillarum browni	E	E	
Elegant Tern	Thalasseus elegans		TW	
Marbled Murrelet	Brachyramphus marmoratus	Т	E	
Xantus's Murrelet	Synthliboramphus hypoleucus	C, BCC	Т	
Cassin's Auklet	Ptychoramphus aleuticus	BCC	SSC	
Rhinoceros Auklet	Cerorhinca monocerata		TW	
Tufted Puffin	Fratercula cirrhata		SSC	

Table 2.6.1. Special-Status Marine and Coastal Birds Within or Near the Project Area.

Status: E – Endangered T – Threatened

DE - Delisted (formerly Endangered) C - Candidate

BCC - Bird of Conservation Concern SSC - Species of Special Concern

TW - Taxa to Watch

Marine Birds

Listed Species. Four species of listed birds may occur in the project area: California Least Tern (*Sternula antillarum browni*), Marbled Murrelet (*Brachyramphus marmoratus*), Xantus's Murrelet (*Synthliboramphus hypoleucus*), and the Short-tailed Albatross (*Phoebastria albatrus*). Of these only the Xantus's Murrelet may occur year-round in the project area, but especially from January to September. The California Least Tern would primarily be transient during migration seasons and present as a breeding species along the coast from late April through September. The Marbled Murrelet is most likely to occur as a wintering species from Mid-November to mid-April; however, the species is rare south of Point Conception. The Short-tailed Albatross has been only rarely sighted off southern California.

<u>Sensitive Species</u>. In addition to federal and state listed species, there are 12 additional special status species that could occur in the project area. Special status species are birds designated as special status, sensitive, or declining species by state or federal agencies. Several of these species breed locally on the Channel Islands or along the coastal mainland and forage at sea throughout the Southern California Bight including the Ashy Storm-Petrel (*Oceanodroma homochroa*), Black Storm-Petrel (*Oceanodroma melania*), Double-crested Cormorant (*Phalacrocorax auritus*), Elegant Tern, Cassin's Auklet (*Ptychoramphus aleuticus*), Rhinoceros Auklet, and Tufted Puffin (*Fratercula cirrhata*). Another suite of species breed south of California off

Mexico, South America, or in the South Pacific, but spend a considerable portion of time in waters off southern California during their non-breeding seasons including the Black-footed Albatross (*Phoebastria nigripes*), Pink-footed Shearwater (*Puffinus creatopus*) and Black-vented Shearwater (*Puffinus opisthomelas*). Other species that migrate south to the vicinity of the project area during the fall and winter include the Brant (*Branta bernicla*) and the California Gull (*Larus californicus*).

2.6.2 Impact Analysis

The proposed project as described in Section 1.1 has the potential to impact coastal and marine birds. Several of these species are likely to occur in the vicinity of the project area during the proposed construction period (2^{nd} and 3^{rd} quarters, 2012). Birds in the ocean environment have a dynamic distribution that is affected by ocean temperatures, currents, prey distribution, and season. Their distribution and abundance in the project area would largely be affected by these factors. Birds with a strictly coastal distribution are not discussed and analyzed because there are no proposed project activities close to the mainland coast, other than the routine transiting of vessels. The threat of an oil spill reaching the mainland is considered negligible based on the project design and mitigation measures included in the project description.

Significance Criteria. A significant impact on bird species is:

- Any interaction with project vessels that results in direct mortality of, or injury to, a federal or state listed species.
- Any interaction with project vessels that results in direct mortality of, or injury to, a special-status species if it adversely affects the species conservation status.
- A measurable change in population abundance beyond normal variability that is likely to hinder the recovery of a listed or special-status species.
- Displacement of a major part of the population of a special-status (or individuals in the case of listed species) from either feeding or breeding areas, or from migration routes for a biologically important length of time.
- Disturbance resulting in biologically important effects on behavior patterns. Minor changes in behavior (e.g., a bird moving out of the path of an approaching boat) are not considered biologically important.

Impacting Factors. Impacting factors that may affect marine birds from the proposed cable activity include (1) project-generated noise, and (2) artificial lighting associated with the cable laying vessel.

Federal and State Listed Species. Four federal or state listed species have the potential to occur in the project area. The California Least Tern is not expected to occur in the vicinity of the project site at the platforms; however, individuals could be present in the POLA/POLB through which the project vessels transit to and from the project site. A breeding colony of California Least Terns is located within a 15-acre site on Pier 400 (formally Terminal Island) within the POLA. The POLA is a busy commercial terminal; therefore, project-related vessels are unlikely to substantially increase noise or visual related disturbances to the California Least Tern population beyond those presently existing. The proposed project area is over 8 miles from POLA waters and water depths of the project site range between 255 feet to 700 feet. While California least terns forage in the ocean during the breeding season, most of this occurs within 1 mile of shore and rarely does foraging occur out to 2 miles (Atwood and Minsky, 1983). Consequently, breeding California Least Terns are not likely to forage in waters at that depth or that distance from shore. Little is known about the use of areas farther offshore by California

least terns, but it is thought that some individuals migrate offshore of California (as far as 20 miles offshore or more) based on observations off southern California (Pereksta, pers comm.) and off the coast of Mexico in early spring (Howell and Engel, 1993). Individuals migrating offshore could transit through the area, but based on the time of year the project is occurring (May and June) this is unlikely.

Based on the current construction window of the 2nd and 3rd quarter of 2012, Xantus's Murrelets could occur within the vicinity of the project site. Xantus's Murrelets may be dispersing away from breeding areas with fledglings at that time of year and could occur in the vicinity of the project site. If any are in the project area, they have the potential to be attracted by vessel lighting during night operations.

The Marbled Murrelet should not be present during the construction window as it occurs when the species is at or in the vicinity of its breeding sites well north of the project area. This bird is rare in southern California and is only found in the non-breeding season (mid-November to mid-April) in the Southern California Bight. Therefore, it is unlikely to occur near the platforms during construction.

The Short-tailed Albatross is not expected to occur in the vicinity of the project site due to its rarity and the lack of records in the project vicinity. Most individuals found off California in recent years have been during the fall and early winter with a few records in late winter and early spring (California Birds Record Committee, 2007). May and June are among the least likely months for dispersing individuals of this species to be found along the southern California coast.

Special Status Bird Species. A number of other special status marine bird species have the potential to occur in the project area during construction activities. Several of these species occur year-round like the Double-crested Cormorant, Brown Pelican, California Gull, and Cassin's Auklet; although they can be more common during some seasons than others. Species that could occur during the project window include the Black-footed Albatross, Pink-footed Shearwater, Ashy Storm-Petrel, Black Storm-Petrel, Elegant Tern, and Tufted Puffin; the latter being very unlikely to occur near the project site

Noise Effects. Noise created from transiting vessels may exceed the threshold of potential effect for most birds, resulting in the potential for a flight response. Noise sources associated with the proposed project will include equipment such as vessels, winches, generators, and ROV equipment. Noise associated with construction activities on the platforms will be temporary and localized and are not expected to interfere with sensitive status bird species above the water surface. Noise resulting from operation of construction equipment below-surface will be short-term in duration and the construction activities are not considered a high noise producing activity. Below-surface project activities will result in some increase in underwater noise levels; however, it is anticipated that these temporary increases would not result in significant sound pressure levels. In addition to equipment, vessel traffic from the support vessels and crew boats will increase noise levels during project activities.

Vessel noise at a specific location is transitory; slowly increasing as a vessel approaches, and decreasing as it passes. Because of the transitory nature of this noise and the mobility of marine birds it is unlikely that a marine bird would suffer an injury or death from vessel noise. In addition, it is expected that the visual presence of the vessels will elicit a response from birds in the area before noise does (USFWS, 2006b).

The project area is not near any marine bird breeding colonies where nesting birds could suffer greater noise-related effects than those foraging or transiting through the project area near the

platforms. Therefore, noise impacts listed and other special status marine bird species are not expected to be significant. The amount of noise produced is further reduced due to the reduction in construction vessels and the short timeframe required for installation of the cable.

Lighting Effects. Many nocturnal seabird species are highly attracted to artificial light from vessels and offshore oil and gas platforms, especially shearwaters, petrels, and storm-petrels. Intense source points of artificial lighting on the ocean can attract marine birds from very large catchment areas (Wiese et al., 2001). Effects from artificial light include disorientation, mortality due to collisions with lighted structures, interruption of natural behaviors, and increased risk of predation.

The species that are potentially the most vulnerable to attraction to artificial lighting in marine environments are nocturnal species whose populations are small and fragmented (Montevecchi, 2006). Two special status species off southern California that may be especially vulnerable are the Xantus's Murrelet and Ashy Storm-Petrel; both of which have been attracted to artificial light sources along the coast and offshore of southern California (Carter et al., 2000 and Jehl and Bond, 1975). Fledgling storm-petrels, shearwaters, and some alcids are more attracted to artificial lights than are adults and are particularly vulnerable during the fall when they are dispersing away from their natal areas.

The platforms will continue to be lit for compliance with USCG navigational hazard requirements during project activities to assure safe operations. Based on field observations encompassing a broad range of temporal, geographic, astronomical, and meteorological parameters undertaken in a recent study off southern California, there appears to be little or no adverse effects of Pacific OCS production platforms' lighting or structural features on migratory birds and their movements (Johnson et al., 2011). However, no evaluations were made of the addition of other sources of intense light on the Pacific OCS including brightly lit vessels. Shielding of project-related lighting on the vessel to direct it downward and to limit the illuminated area will reduce the potential impacts to flying seabirds by precluding horizontal light.

Nighttime marine construction is anticipated and therefore lit project vessels are expected to be present along the cable routes or while transiting between the port and the site. There is a potential for the vessel lighting associated with the project to attract listed and special status marine birds to the area. However, the project will occur before the fledging of many of the marine bird species breeding on the Channel Islands, thereby reducing the possibility of adverse effects from light attraction.

Mitigation Measures Proposed by Beta Offshore.

- Lighting will be directed inboard and downward to reduce the potential for seabirds to be attracted to the work area.
- All cabin windows will be equipped with shades, blinds, or shields that block exiting light.
- A log of all seabirds found onboard vessels will be maintained with the status and health of birds on retrieval and release. The log will be provided to the BSEE when the project has been completed.
- If an injured bird is discovered on a vessel, the bird will be transported on the next returning work vessel to an approved wildlife care facility.

Mitigation Measures Required by BSEE.

- Make every effort to maintain a distance of 300 feet from aggregations of feeding or resting marine birds.
- Minimize attraction of predatory and scavenging birds that could prey upon small seabirds attracted to lights by containing and removing garbage and food waste on the vessel.

With the shielding of lights and other project-specific mitigations, the potential effects of lighting on marine birds are considered to be insignificant. No consultation with the USFWS is required for federally listed species since they do not review, or concur on, no effect determinations.

2.6.3 Conclusion

Considering both the affected environment and the potential impacting factors of the proposed action, this project will have no significant impacts to marine birds and no effects to federally listed species. The state listed Xantus's Murrelet could occur in the vicinity of the proposed project and, if present, could be attracted to the area at night by project-related lighting. However, based on the short duration of the project and the proposed mitigations to reduce the effects of artificial lighting on birds, we believe that effects to the species will not be significant.

2.6.4 Cumulative Analysis

Section 1.6 describes the projects and activities considered in the cumulative analysis for the proposed project. Possible sources of cumulative impacts specific to marine birds are those that introduce more artificial lighting and generate excessive noise levels near nesting, roosting, and feeding areas. Sources of cumulative impacts include ongoing and proposed oil and gas activities in Federal and State waters, marine shipping and tankering, and commercial fishing vessels that use bright lights to attract fish or squid to the surface. Potential cumulative impacts are discussed below.

Cumulative impacts related to ongoing offshore oil and gas activities that may have long-term effects on marine birds are oil spills, operations-generated noise, and night lighting. These impacts have occurred or may occur from existing federal and state projects. The platforms off southern California are far enough from marine bird nesting areas that attenuated noise should not reach levels that could disturb nesting activities. If noise near the platforms reached excessive levels, birds will likely avoid the area and are not likely to suffer harm as a result. While there is a potential for artificial lighting effects as a result of the proposed project, the short duration, project location, limited number of vessels, and the project-specific mitigations should ensure that the project does not result in an increase to cumulative impacts.

Cumulative Conclusion. The impact from artificial lighting and project-generated noise from the proposed activities would only contribute an incremental and insignificant impact to marine birds.

2.6.5 Overall Conclusions

Due to the short duration, location, and the time of year the project will be implemented, it is unlikely that any marine bird species will be affected by project-related noise. Artificial lighting associated with night operations could attract marine birds to the project area, several of which have special-status designations. While the potential for marine birds to be attracted to the area is unpredictable and highly influenced by weather, time of year, and species-specific factors, the implementation of mitigation measures identified in this EA to reduce the effects of artificial lighting on coastal and marine birds is expected to result in these effects being insignificant.

2.7 Marine Mammals and Sea Turtles

2.7.1 Affected Environment

Many species of marine mammals and at least one species of sea turtle may be present in the project area. California sea lions (*Zalophus californianus*) are very common in the area and often use the decks and buoys of the offshore oil and gas production facilities as haul out areas. Gray whales (*Eschrictus robustus*) may be seasonally abundant as they migrate through the area (particularly on the north bound migration) and other small cetaceans travel through the area at various times of the year. A small population of green sea turtles (*Chelonia mydas*) is known to inhabit the near shore waters of Long Beach, but they are rarely seen and may be difficult to detect.

2.7.2 Impact Analysis

Significance Criteria. A significant impact on marine mammals and sea turtles is:

• An activity that would directly result in the injury or death of an individual marine mammal or sea turtle or result in a change in behavior that could lead to injury or death of an individual marine mammal or sea turtle.

Impacting Factors. Potential effects of the proposed activities on marine mammals and sea turtles are primarily limited to the laying of the cable. Preparation and testing activities on the platforms may result in the temporary displacement of sea lions hauled out on lower level decks but this is not expected to result in more disturbance than that associated with normal platform operations. For the cable laying activity, the risk of vessel strike, entanglement in the cable, and noise was considered.

The tow vessels and cable laying barge will lay cable at a speed of 0.5 to 1.0 knots. Although the vessels will be focused on maintaining a consistent speed and course, they will easily be able stop or alter course should a marine mammal or sea turtle be observed in their path. Conversely, marine mammals and sea turtles in the areas would likely be able to detect and avoid collision with vessels traveling at this speed.

The electrical cable to be installed is a little more than 4 inches in diameter and weighs approximately 7 pounds per foot in salt water. It is expected that the cable will only be briefly suspended in the water column as it is laid on the seafloor. Given the characteristics of the cable and the limited time it would be in the water column, it appears highly unlikely that there would be any entanglement risk of marine mammals or sea turtles associated with this proposal.

Noise associated with the cable laying operation would be limited to that produced by the tow vessels. These vessels are expected to come from the nearby ports of Long Beach or Los Angeles and will be of a type that is readily available and currently working in the area. The project area is within one of the busiest shipping areas in the world. Noise produced from this project will not likely be distinguishable within the context of the existing acoustic environment.

Given the analysis of potential impacting factors above, it is highly unlikely that the Platform Edith to Platform Elly Power Cable Installation project, as proposed, will have any impacts to marine mammals or sea turtles.

Actions Proposed to Reduce Environmental Impacts. Beta Offshore did not propose any mitigation measures. Although impacts to marine mammals and sea turtles are unlikely, BSEE requires the following mitigation measures:

- Incident Notification Beta Offshore must immediately notify the local NMFS marine mammal and sea turtle stranding coordinator should any incidents involving marine mammals or sea turtles occur.
- Wildlife and Fisheries Training Beta Offshore shall show Wildlife and Fisheries Training video (Pacific Operators Offshore, 2009) to all personnel participating in installation activities. This training will provide awareness training concerning the most common types of marine wildlife (birds, mammals, and sea turtles) likely to be encountered in the installation activity area, and the types of activities that have the most potential for affecting the animals, as well as the importance of fisheries and types of fishing vessels that may be encountered in area. If any personnel cannot understand English, Beta Offshore shall provide a translator.
 - All personnel involved in installation activities to attend training and sign log indicating completion of training;
 - Training to be conducted prior to installation vessel arriving at installation site; and
 - Any personnel arriving after initial training completed to be provided training by Beta Offshore representative onboard vessel.

2.7.3 Conclusion

Considering both the affected environment and the potential impacting factors (vessel strike, entanglement, sound) of the proposed action, we conclude that this project will have no effects on marine mammals or sea turtles. The NMFS reviewed our analysis and concurred with this no effect conclusion on September 7, 2010 and again on April 4, 2012 (see Section 4, Consultation, Coordination, and Communication).

2.7.4 Cumulative Analysis

No impacts, incremental or otherwise, to marine mammals or sea turtles are anticipated. Therefore the effects on marine mammals and sea turtles will not incrementally add to the environmental effects from the projects listed in Section 1.6.

Cumulative Conclusion. No impacts from cumulative effects will occur due to the proposed project.

2.7.5 Overall Conclusions

No impacts to marine mammals or sea turtles are expected from the proposed project.

2.8 Commercial Fishing

2.8.1 Affected Environment

The proposed project activities lay within the California Department of Fish and Game's (CDFG) fishing block 739. The seafloor within the project footprint primarily consists of soft sediments within a depth range of 49 to 213 m. The region contains a diverse assemblage of finfish, shellfish, and other invertebrates, many of which are commercially exploited. For further information on fish resources see Section 2.5. Generally mild weather conditions prevail in the project area, and, being adjacent to numerous coastal access points, ports, and harbors, it is one of the more accessible regions along the California coast.

The major ports in the Los Angeles region are San Pedro and Terminal Island, and minor ports include Dana Point, Long Beach, Redondo Beach, Marina Del Rey, Newport Beach, Santa Monica, Wilmington, and Avalon/Santa Catalina Island (CDFG, 2006, 2207, 2008, 2009, 2010).

In 2007, there were 265 commercial vessels, 304 commercial fishermen, and 77 fish businesses that reported landings in these ports (Commercial Fishery Information System database 2008, as cited in CDFG, 2009b). Based on mean annual landings (lbs) from 2006 through 2010, the top fisheries in the Los Angeles region were dominated by pelagic taxa (Table 2.8.1; CDFG, 2006; 2007; 2008; 2009; 2010).

Species or taxa	Landings (lbs)
Market squid	66,723,614
Pacific sardine	62,147,187
Pacific mackerel	9,190,159
Pacific bonito	2,337,068
Northern anchovy	2,244,490
Red sea urchin	913,863
Jack mackerel	899,196
California spiny lobster	242,360
Bluefin tuna	200,621
Shortspine thornyhead	132,131
Warty sea cucumber	125,554
White seabass	125,022
Hagfishes	117,505
Swordfish	111,003
Rock crab, unspecified	97,062
Sablefish	89,390
Spot prawn	88,135
Albacore tuna	64,052
Yellowfin tuna	57,968
Kellet's whelk	47,462
California halibut	46,029
Yellow rock crab	43,699
California barracuda	40,578
Thresher shark	37,818
Spider crab	25,216
White croaker	22,332
California sheephead	17,968
Longspine thornyhead	12,474
Opah	11,673

Table 2.8.1. Mean annual landings (2006-2010) in the Los Angeles Region

For this assessment, key fisheries species for block 739 are defined as those species or taxa that recorded landings in at least three of the five years spanning from 2006 to 2010, and had landed a minimum of 2000 lbs total during the May through September time frame. As in the Los Angeles region fisheries, the fourteen key species for block 739 were dominated by pelagic taxa (Table 2.8.2).

Gear used to harvest species within block 739 during this time include bottom and single-rigged trawls, brail/dip net or A-frame, crab, fish, lobster and prawn traps, diving, drift and set gill nets, drum and purse seines, harpoon/spear, hook and line, and set longline. Landings from block 739

were made at ports within and nearby the Los Angeles region: Dana Point, Long Beach, Los Angeles, Newport Beach, Oxnard, San Pedro, Santa Monica, and Terminal Island.

Species or Taxa	Landings (lbs)
Pacific sardine	7,872,986
Market squid	1,082,599
Northern anchovy	390,178
Pacific mackerel	126,277
White seabass	57,128
Jack mackerel	34,524
Pacific bonito	31,424
California barracuda	7,413
Thresher shark	6,541
California halibut	5,573
White croaker	3,106
Spot prawn	2,611
Rock crab, unspecified	2,610
Soupfin shark	2,196

Table 2.8.2.Mean block 739 key fisheries landings (2006-2010)
(May through September)

2.8.2 Impact Analysis

Significance Criteria. A significant impact to commercial fishing is:

- Any activity or combination of activities that causes a 10 percent or greater loss of available regional fishing grounds for all or most of a fishing season.
- Any activity or combination of activities that causes a 10 percent or more decline in annual fisheries landings in key species within the regional fishing grounds.

Impacting Factors. Impacting factors associated with the proposed project activities that could affect major commercial fisheries are socioeconomic in nature and include (a) preclusion from fishing grounds (space-use conflicts), (b) damage and loss of fishing gear, and (c) lost fishing time and consequently reduced landings due to (a) and/or (b).

Space-use conflicts. Preclusion of fishing activities may occur by operation of project vessels and cable installation activities. These offshore activities are estimated to occur for a maximum of 3 days, and are predicted to occur sometime during the second or third quarter of 2012.

Because the project vessels will be, for the majority of the project duration, slow-moving or stationary, fishers will have opportunity to avoid any potential operational conflicts. The footprint of activities proposed for this project is primarily limited to the zone adjacent to and between Platforms Edith, Elly, and Eureka. Therefore, in relation to the overall Los Angeles area, the potential loss of fishing grounds from the proposed activities would be much less than 10 percent and negligible for the fishing fleet overall.

To determine the potential maximum effect on regional landings from the proposed activities, the following analysis sequence was followed: (1) For the most recent five years where fish block data are available (2006-2010), calculate the mean annual landing values for the fourteen key species within block 739 during the May through September time frame of a calendar year (see Table 2.8.2); (2) Calculate a mean daily landings value for the fourteen key species by dividing

the values calculated in step 1 by the number of days in within the May through September time frame (153); (3) Multiply the mean daily landings values calculated in step 2 by the maximum number of days that the proposed project could have a preclusion effect on fisheries (3 days); (4) Calculate the proportion of regional annual landings for the fourteen key species that could be affected by proposed project activities by dividing the maximum preclusion effect values calculated in step 3 by the mean annual landings from the region (Table 2.8.1), and if the proportion is less than 10%, then assume no significant impact. In addition to the mean annual landings of species listed in Table 2.8.1, the mean annual value of soupfin shark landings was 8,364 lbs.

The above analysis determined that there will not be a significant impact on annual fisheries landings for key species in regional fishing grounds associated with the Los Angeles area. This analysis is highly conservative as it overestimates the maximum preclusion effect because the proposed activities occur within a small area and form a subset of block 739. Further spatial, habitat, and economic analyses would yield a much lower potential preclusion effect. This analysis is based on a regional assessment; some individual fishers may be disproportionately affected by the proposed project, depending on their individual fishing histories.

Damage to fishing gear from the new power cable or from marine debris. It is not anticipated that the proposed cable installation activities will result in any long-term impacts associated with fishing hazards. The cable is small, round, and smooth so that the potential for snagging fishing gear is minimal. The addition of new cable near the area of the previously installed pipelines will not increase the preclusion area of what had been previously analyzed. Therefore, based on the criteria established above, significant impacts to commercial fishing are not anticipated.

During project activities, equipment, or other large items ("debris") may be lost overboard. Lost debris may impact future commercial fishing by damaging or entangling gear. The fishing activity most likely to be impacted by sub-sea hazards would be trawling, which currently is already restricted in the project area due to the presence of previously installed pipelines and its location adjacent to the traffic separation scheme associated with vessels entering and leaving the Ports of Los Angeles and Long Beach. Thus, the proposed project is not likely to increase snagging hazards for trawling gear. Purse seine and drift gill net activities generally do not have contact with the seafloor and thus would not be expected to be impacted by seafloor hazards. Trap strings may be deployed in the project area, but the diameter of the new cable is small enough so that snagging is unlikely.

Actions proposed to reduce environmental impacts of the project. Beta Offshore submitted the following mitigations as a part of the proposed project to further reduce and minimize impacts to commercial fishing:

- Notice to Mariners At least 15 days prior to in-water activities, Beta Offshore's contractor will submit a Notice to Mariners to the 11th District, U.S. Coast Guard and, as required, to the Captain of the Port. This notification will specify vessel and personnel contact information, scope of the proposed actions, location, and the anticipated duration of the activities.
- Posting of Notices A document that shows and describes the proposed activities will be posted at the Harbor Master's office at the Ports of Los Angeles, Long Beach, Anaheim Bay, and Newport Bay. That document will provide information on the proposed activities, contact information for all project vessels and personnel, and will have a map depicting the ocean area affected.

In addition to the above actions, BSEE will require the following mitigations to be a part of the project:

- Fishing Impacts and Conflicts Beta Offshore will consult with local commercial fishers, as appropriate, during the planning stages and installation activities to identify and mitigate any unanticipated impacts regarding the power cable installation. A list of persons consulted and their contact information, when the discussions occurred, a summary of concerns expressed by the commercial fishing industry and how they were addressed, if at all, shall be included in the post-installation report. If conflicts with commercial fishing operations in the Beta Unit develop during this project, Beta Offshore shall make all reasonable efforts to satisfactorily resolve any issues with affected fishers. Possible resolutions may include physical modification of identified problem areas on power cable installation, the establishment of temporary preclusion zones, or off-site, out-of-kind measures.
- Recover Items Lost Overboard Beta Offshore will require project personnel and contractors, to the extent reasonable and feasible, to recover items that could be a hazard which are lost overboard during activities associated with the power cable installation. Logs to be maintained on all project vessels that identify the date, time, location, depth, and description of all items lost overboard. Vessel operators will minimize potential for items to be lost overboard by securing loose items, where feasible. Vessel operators will place name of vessel on all items on deck that have the potential to be lost overboard.
- Wildlife and Fisheries Training Beta Offshore will show Wildlife and Fisheries Training video (Pacific Operators Offshore, 2009) to all personnel participating in installation activities. This training will provide awareness training concerning the most common types of marine wildlife (birds, mammals, and sea turtles) likely to be encountered in the installation activity area, and the types of activities that have the most potential for affecting the animals, as well as the importance of fisheries and types of fishing vessels that may be encountered in area. If any personnel cannot understand English, Beta Offshore shall provide a translator.
 - All offshore personnel associated with the project to attend training and sign log indicating completion of training;
 - Training to be conducted prior to installation vessel arriving at installation site; and
 - Any personnel arriving after initial training completed to be provided training by Beta Offshore representative onboard vessel.
- Post-installation narrative confirming completion of the work that describes a summary of commercial fishing actions taken by Beta Offshore to consult with and mitigate any impacts to the commercial fishing industry resulting from the proposed project.

2.8.3 Conclusion.

Based on the criteria established above, activities associated with the proposed project would not cause a significant impact to commercial fisheries.

2.8.4 Cumulative Analysis

Possible sources of cumulative impacts specific to commercial fishing are those that cause spaceuse and preclusion conflicts. Sources of cumulative impacts include on-going oil and gas activities in Federal waters and marine protected area (MPA) closures. Potential cumulative impacts are discussed below.

Offshore Energy Projects.

<u>Activities Occurring on Existing Federal Platforms</u>. There are ongoing activities and foreseeable oil and gas projects in Federal and State waters offshore southern California. The cumulative effects of these structures and development activities can be found in numerous reports and environmental documents (MMS, 1992; 1995; 1996; 1999). Cable installation activities under the proposed project do not significantly add to preclusion impacts and space-use conflicts to commercial fisheries because of the short duration and limited footprint.

Culver et al. (2007) summarized other factors and activities identified by 86 commercial fishers in the Santa Barbara Channel area that affect their industry. Since there are similarities between the Santa Barbara Channel and San Pedro Channel fisheries (CDFG, 2009b), it is likely that impacts will also be similar among these regions. Aside from MPA closures, top-ranking concerns included operating costs, competition from foreign and domestics markets, and marine mammal interactions. Oil and gas industry activities were not listed as factors likely to impact the future of local commercial fisheries.

Non-Energy Projects and Activities.

<u>Marine Protected Areas</u>. Activities from non-oil and gas projects and actions may also impact local commercial fisheries. The California Fish and Game Commission recently established a number of new MPA closures within the Southern California Bight. Due to the short duration of proposed cable installation activities, the project will not add significant preclusion impacts to local commercial fishing activities.

Cumulative Conclusion. Proposed activities associated with the project do not significantly add to the preclusion impacts generated by offshore energy projects and MPA closures to commercial fisheries.

2.8.5 Overall Conclusion

Proposed activities associated with the Beta Offshore power cable installation project will not create significant impacts to commercial fishing. Additionally, no cumulative impacts are expected from proposed activities.

2.9 Marine Transportation

2.9.1 Affected Environment

The project site is located offshore Los Angeles County and the cities of Long Beach, Seal Beach, and Huntington Beach. The project involves installing approximately 2.6 km (8,500 ft) of power cable between Platforms Elly and Edith. The platforms are located approximately 14 km (8.5 mi) offshore.

There is a high level of vessel traffic that occurs near the project area. The majority of the vessel traffic occurring in the area is associated with commercial and recreational activities that originate from local ports, specifically the Port of Los Angeles (POLA) and Port of Long Beach (POLB). Other ports or harbors in the vicinity of the project include Marina Del Rey, Alamitos Bay Marina, King Harbor, and Avalon Harbor on Santa Catalina Island. The distance from the project site to each of these locations is presented in Table 2.9.1. Designated coastwise commercial shipping lanes have been developed along portions of the California coast from near

Point Arguello, in western Santa Barbara County, through Santa Barbara Channel and continuing southeast to the Ports of Los Angeles and Long Beach. Oil tankers, container ships and other large commercial vessels use these shipping lanes when entering and leaving port. The project site is located outside of designated shipping lanes as shown on Figure 2.9.1.

Ports/Harbors/Lanes	Edith	Elly	
POLA/POLB	10	11	
Marina Del Rey	36	37	
Alamitos Bay Marina	10	11	
King Harbor	27	28	
Avalon Harbor	20	20	
Newport Harbor	15	14	
Dana Point Harbor	28	27	
Coastal Traffic Lanes	0.5	1.0	
Shore	8.5	8.6	

Table 2.9.1. Distance from the Project Site to Ports, Harbors and Coastwise Traffic Lanes

Between San Francisco Bay and the POLA and POLB, large vessels make an estimated 6,500 coastal transits per year (NOAA, 2009). The POLB and POLA are two of the world's busiest seaports. Located within San Pedro Bay in the City of Long Beach, POLB comprises more than 3075 ha (7,600 acres) of wharves, cargo terminals, roads, rail yards, and shipping channels. In 2008, POLB had 5,117 vessel calls (POLB, 2010). The POLA is also located within San Pedro Bay, approximately 32 km (20 mi) south of downtown Los Angeles. The POLA encompasses 3075 ha (7,500 acres), with 69 km (43 mi) of waterfront property. In 2008 POLA had 2,370 vessel calls (POLA, 2010). Project-related vessel trips are expected to originate from the POLA or the POLB.

The USCG has established marine traffic routes offshore the POLA and POLB to coordinate marine vessel traffic in the project area. The major purpose of the these routes (shipping lanes) is to allow access to and from major ports for large commercial marine vessels and minimize the potential for interference with other commercial and recreational vessels which transit through the area and use the ports. The Traffic Separation Scheme (TSS) established by the USCG is shown in Figure 2.9.1. A TSS is an internationally-recognized vessel routing designation that separates opposing directions of vessel traffic into 1 nautical mile (nm)-wide lanes separated by a 2 nm "buffer zone".

Platforms Edith and Elly are located approximately 0.8 km to 1.2 km (0.5 mi to 0.75 mi) east of the eastern boundary of the northbound Coastwise Traffic Lane, approximately 8 km (5 mi) south of the designated ferry route from Santa Catalina Island to Long Beach and approximately 21 km (13 mi) north of the designated ferry route from Santa Catalina Island to Dana Point. Platforms Edith and Elly are located approximately 0.4 km to 0.8 km (0.25 mi to 0.50 mi) south of the TSS designated Precautionary Area.



Figure 2.9.1. Vessel Traffic Corridors.

2.9.2 Impact Analysis

Significance Criteria. A significant impact on marine transportation is:

• An increase in vessel traffic that is substantial in relationship to existing vessel traffic levels, or seriously disrupts the flow of commercial, recreational, and other vessels transiting to and from local ports or moving along the coast.

Impacting Factors. The impacting factor that could have an effect on marine transportation is an increase in vessel traffic that would occur during the project. Such an increase could result in interference with other commercial and recreational vessels transiting to and from local ports.

Current and Project-Related Vessel Traffic Levels. Currently, a supply vessel makes several round trips to the platforms each week. In addition, the crew boat (Isabel) that services Platform Elly and Platform Edith makes three daily round trips from Terminal Island inside of the POLA/POLB to the platforms. During weekends, the Isabel makes this trip twice a day. The route the Isabel takes to the platforms crosses the designated shipping lanes. There are no other vessel trips associated with the daily operation of the platforms.

The cable lay activity will occur in the waters between Platforms Edith and Elly, which is outside of the Coastwise Coastal Traffic Lanes, and is not likely to interfere with traffic movement in and out of the regional ports including the POLA/POLB. During construction, activity within the

POLA/POLB will include retrofitting the barge and loading the cable onto the barge, which will require 25 days in port. The barge will not transit to and from the platforms during this period.

Mobilization and demobilization of marine equipment, as well as cable installation activities and transportation of construction personnel will contribute to a short-term slight increase in offshore vessel traffic. The cable installation phase of the project will require 12 days to complete (3 days for mobilization, 3 days for power cable installation, and 3 days each for commissioning and demobilization). The vessels used during the project will include a cable lay barge, utility boat, two support tugs, a crew boat, and supply boat.

Actions Proposed to Reduce Environmental Impacts. Beta Offshore submitted the following actions as a part of the proposed project:

- Traffic Corridors Vessel traffic will follow currently used direct pathways from the ports to the platforms, where feasible.
- At all times, project vessels will operate using the highest level of navigational safety.

In addition to the above actions, BSEE proposes the following mitigation to be a part of the project:

• Notice to Mariners – Beta Offshore to file a timely advisory with the local U.S. Coast Guard District office for publication in the Local Notice to Mariners and to notify fishers at least 15 days prior to the commencement of offshore activities.

2.9.3 Conclusion

Given the limited scope of the project (installing 2.6 km (8,500 ft.) of cable), its small geographic footprint (the area between Platforms Edith and Elly), its short duration (3 days for cable installation), and the small increase in vessel traffic that would occur during the project, the impact on marine transportation is expected to be insignificant.

2.9.4 Cumulative Analysis

There is a high level of vessel traffic that occurs within the offshore area near the project site. Based on the negligible increase in project-related vessel traffic that would occur relative to current traffic levels, and the short duration of the project, no significant cumulative impacts are expected.

Cumulative Conclusion. The activities that will be conducted during the cable installation project will result in a negligible short term increase in vessel traffic. The level of increase in vessel traffic represents an insignificant incremental increase in cumulative impacts to marine transportation.

2.9.5 Overall Conclusions

The potential impacts to marine transportation from the proposed project are considered insignificant based on the significance criteria used in this analysis. This is due to the small number of vessels involved in the project, the limited scope of the project, its small geographic footprint, and its short duration.

3.0 ALTERNATIVES TO THE PROPOSED PROJECT

The only project alternative discussed in this Environmental Assessment is the No Action alternative. No other alternatives were considered in this analysis.

3.1 No Action Alternative

Under this alternative, Beta Offshore would not install a subsea power cable and would continue to cover the shortfall in energy needed for power generation, dehydration, and reinjection by transporting and burning diesel fuel on Platforms Edith, Ellen, and Eureka. The adoption of the No Action alternative would avoid all the potential adverse and beneficial environmental impacts resulting from the proposed project. The purpose and need for the proposed action would not be achieved.

The use of power cables to energize offshore platforms is allowed by Federal, State, and County governments and has been the preferred alternative for several facilities on the Pacific OCS in order to minimize impacts to air quality from the burning of diesel fuel to power platform operations. Installation of the power cable is expected to result in a reduction in the amount of SOx, NOx, and Particulate Matter emissions and associated greenhouse gas emissions from the Beta Unit. Further, the proposed power cable would reduce the environmental impacts associated with the reduction in the number of boat delivery trips and associated potential for diesel spills as a result of utilizing diesel as a fuel source.

4.0 CONSULTATION, COORDINATION, AND COMMUNICATION

This section describes the consultation and coordination process conducted by the BOEM on behalf of BSEE in the development of this EA as well as key points of communication with other agencies, and between Beta Offshore and other agencies. The process was designed to disseminate and share information among interested parties, promote dialogue and communication among those parties, and facilitate interagency planning and coordination.

Three types of consultation, coordination, and communication were undertaken for this EA:

- 1. Informal consultations with NMFS related to the Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), and EFH.
- 2. Coordination and communication with other Federal, State, and local agencies;
- 3. Other key communications.

Informal consultations with NMFS. Informal consultations on Endangered and Protected Species per ESA and MMPA, respectively, were conducted because of the short length of time needed for the Project. In addition, an informal EFH assessment and review was conducted per the Magnuson-Stevens Fishery Conservation and Management Act.

On August 31, 2010, then BOEMRE asked NMFS via e-mail for their concurrence with the determination that the Platform Edith to Elly Power Cable Installation Project would have no effect on marine mammals and sea turtles. Via response e-mail, dated September 7, 2010 and reverified on April 4, 2012, NMFS concurred.

The NMFS must also decide whether the proposed project would have an effect on EFH. In two previous communications, NMFS concurred with the determination that the proposed project would have no appreciable effect on EFH via e-mails dated September 13, 2010, and March 30,

2011. NMFS stated that while the project would adversely affect EFH via disturbances to the benthos and increased turbidity in the immediate vicinity of the cable, they concurred that the impacts would be temporary and minimal and that no additional EFH conservation recommendations were necessary to avoid, minimize, or otherwise offset the impacts to EFH. The currently proposed plan of the cable installation project presents no change in potential impacts to EFH compared to earlier versions reviewed by NMFS.

Coordination and communication with other Federal, State, and local agencies.

<u>SCAQMD</u>. The SCAQMD has been collaborating with Beta Offshore and SCAQMD has determined the cable laying vessel to be exempt from its rules and regulations and the stationary internal combustion powered equipment to be utilized in the power cable installation will be currently on existing SCAQMD permits.

<u>State Historic Preservation Office</u>. An inquiry was made to the California State Historic Preservation Office (SHPO) on August 9, 2010 in order to determine if formal consultation would be necessary for this project. A follow-up conversation took place on 18 August 2010. Since the area of potential effect (APE) is located solely in Federal waters, it was determined that no consultation would be necessary.

Other Key Communications. An inquiry was also made to the California Native American Heritage Commission (NAHC) on August 26, 2010 in order to identify sacred lands and traditional cultural properties that might exist in the area of potential exclusion. A response was received from their office on August 30, 2010 that indicated "No Native American cultural sites were identified within one-half mile of the area of potential effect." The NAHC also provided a list of Native American contacts from the Gabrieleno and Juaneño tribes that they identified as possibly having additional information on the project area. Attempts were made to contact each of these individuals by email and telephone and responses were received from four of these individuals. Each of these individuals stated that they consider the land to be sacred and that archaeological sites have been identified off the California coast, though none are known to exist near the proposed project area.

On May 5, 2010, BSEE contacted the California Coastal Commission (CCC) to discuss the proposed Project. In that conversation, BSEE informed the CCC that installation of a power cable is covered by the approved Beta Unit DPPs, and therefore, a significant revision to the approved DPP will not be required. The CCC agreed that a significant revision would not be necessary. The CCC requested that BSEE keep them informed on the project's status.

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APPENDIX A
BARGE 185-3

ABS Load lined Deck Barge 2000 TONS

Official Number:	622241
Hull Built:	1980, Kaiser Steel
Rebuilt;	2008, CMC
Length:	185'
Beam:	50'
Depth:	12'
Draft:	9.5 ft to load line
Draft:	1.5 ft light
GRT:	987
NRT:	987



Crane:

Manitowoc 4000 III Vicon 170 ton 140' boom Tier III



MariPro

MARINE CABLE SERVICES

L-3 MariPro has specialized in marine cable installation and cable repair services since 1961. Our highly experienced fulltime engineers and technicians have installed thousands of kilometers of marine cable in numerous systems for military and commercial customers.

TYPICAL DECK LAYOUT

- Containerized Liner Cable Engine System
- 2 10 m Diameter Cable Crib and Gantry System
- MakaiLay® Submarine Cable Managment Software and Integrated DGPS Navigation System
- Cable Trough, Cable Fairleads and Stern Chute
- Hydroacoustic Nodes (2 systems, 3 nodes each)
- 6 Crane

Linear Cable Engine

Motion Compensator Unit

- O Optical Cable Splicing/Repair Van
- Lightweight Remotely Operated Vehicle (ROV)



Typical Deck Layout

LINEAR CABLE ENGINE

A modular type Linear Cable Engine (LCE) system specifically developed for reliable and efficient handling of a wide range of cable types and diameters. The system consists of two individual LCE's configured in a custom-made 6 meter (20 ft) ISO container. Each LCE is made up of opposing track pairs, guide chute, power pack, and local control panel mounted on a single base frame. Each machine is equipped with independent computer controls integrated into our MakailLay® cable deployment system to facilitate both independent and coordinated operation.

MOTION COMPENSATOR UNIT

The L-3 MariPro motion compensation unit is designed to significantly reduce the cyclic loading during cable system deployment/recovery operations at sea caused by heavy sea and swell conditions. Instrumentation includes a tension load cell and line counter.

L-3 MARIPRO – AN INDUSTRY PIONEER IN SUBSEA ENGINEEERING AND CABLE SOLUTIONS SINCE 1961



Edith/Elly Cable Installation Plan

Beta Offshore | 4.6-22