ATTACHMENT A

ExxonMobil Santa Ynez Unit

Offshore Power System
Reliability– B Project

PROJECT DESCRIPTION

August 2013
Rev 0

I. OVERVIEW

A. Background

As part of the Santa Ynez Unit (SYU) Expansion Project, the two new platforms (Harmony (HA) and Heritage (HE)) as well as the existing platform (Hondo (HO)) were required to utilize shore–based electric power. The electrical power distribution systems for the platforms were installed in the early 1990's. The systems consisted of an Offshore Substation (OSS) in Las Flores Canyon (LFC) and three power cables from the substation going offshore with two to Platform Harmony (Cables A and B) and one to Platform Heritage (Cable C). In addition, power cables were installed from Platform Harmony to Platform Hondo (Cable D) and to Platform Heritage (Cable E). The installation also included the associated electrical equipment at each facility. Once the electrical distribution system was energized, the SYU offshore operations became completely reliant on these systems for all normal operations. In 2003, Cable C experienced a failure in State Waters that could not be repaired. The SYU OPSR-A project replaced the C Cable (with the C1 Cable). In addition, at the same time the D1 submarine cable was installed between Platform Harmony and Platform Hondo for improved reliability. Since Cable C1 was installed, the cable has experienced two failures (2007 and 2009) which were able to be repaired. In May 2013, Cable B experienced a failure in the onshore splice between the land and submarine cables at the southern end of LFC. After receipt of approvals from the County of Santa Barbara in June 2013, the failed section was removed and a section of spare cable was spliced into the existing cable. The repaired cable was tested and returned to service in July 2013. The reliability of the current offshore power distribution system requires improvement due to continual aging of existing individual circuits, history of submarine cable faults in the distribution system and the obsolescence of offshore switchgear and electrical components. The proposed OPSRB project will further improve the reliability of electricity distribution from shore to and between the platforms.

B. Introduction

The OPSRB project is designed to enhance reliability of the power distribution systems to the offshore facilities by the replacement of two of the three existing onshore Las Flores Canyon (LFC) to platform based power cables (Cable A (or B) and C1). In addition to the power cables, some of the aging high voltage switchgear and electrical components on the platforms will be replaced as well as the installation of new electrical equipment for the replacement power cables. Replacement and new high voltage switchgear will utilize current technology Gas Insulated Switchgear (GIS) equipment.

The OPSRB project is divided into two installation phases:

- Phase 1 Platform Activities:

Install, as an initial phase, minor facility modifications on Platforms Harmony (HA) and Heritage (HE) required for the submarine cable installation activities that will occur in Phase 2. In addition, replace aging switchgear and electrical components and install new electrical equipment for the replacement power cables. Phase 1 modification/additions include the following:

  - HA Deck Extension: Install structural support for GIS Building;

- HA GIS Building: Install GIS Building with pre-installed GIS equipment and associated control systems; Commission new systems;
- HA Cable Risers: Install 2 Long I-Tubes and modify 2 Curved Conductors for use as cable risers;
- HA & HE Platform Cables and Fiber Optic Cables: Install platform cables and associated supports and trays from splice locations to GIS Building and other platform facilities; hook-up, commission, and start-up GIS equipment with existing submarine cables, supporting controls and systems;
- HA & HE Miscellaneous Structural Items: Install installation aids, catwalks and access platforms.

- Phase 2 Marine Activities:
  - Retrieve Out-of-Service Submarine Cable Segments: Retrieve C1 and A (or B) cable segments in State Waters and C1 and A (or B) cable segments adjacent to platforms using the cable installation vessel (CIV) to allow reuse of existing platform risers and routes;
  - Install Replacement Submarine Power Cables: Install cables (A2 (or B2) and F2) from Platform Harmony to onshore (LFC) and cable (G2) between Platform Harmony and Platform Heritage;
  - Complete splicing of replacement cables to existing cables on platforms and at LFC; Test circuits and energize systems.

C. Pre-Project Surveys

As a pre-project activity, several surveys and inspections were conducted in 2011 and 2012 that covered the submarine cable installation corridors from the conduit terminus nearshore area and continuing on to Platforms Harmony and Heritage. These surveys were conducted early to allow utilization of the information in design and to expedite the permitting process. The survey reports were transmitted to the agencies. The completed surveys and inspections include the following:

1) A Shallow Water and Deep Water Geophysical/Archeological Survey of proposed submarine cable installation corridor for all cables from the nearshore area to HA and HE platforms. Survey included: side-scan-sonar, sub bottom profiler, magnetometer and others. (Fugro 11/2012);
2) An ROV Anomaly Archeological Survey of all targets found inside submarine cable installation corridor during Geophysical/Archeological Survey (C&C 01/2012);
3) An ROV Data Gap Survey of areas inside submarine cable corridor not covered in Geophysical/Archeological Survey (C&C 01/2012);
4) A Marine Biological Survey around nearshore conduit terminus area, nearshore A and C1 submarine cable corridor, possible Phase 2 Dive Support Vessel anchor locations, POPCO Pipeline/Submarine Cable crossing area (Padre Associates 12/2011);
5) An expanded Marine Biological Survey around POPCO Pipeline/Submarine Cable crossing area (Padre Associates 05/2012);
6) An ROV Survey of Shelf Break Rock Area inside submarine cable corridor and rock area around HE platform. (C&C 1/2012 and 11/2012);

7) An archeological assessment of Target T-101 identified in 2011 Marine Biological Survey (C&C 11/2012); Target found to be a lost vessel anchor

8) A visual ROV inspection of existing platform Skirt Pile Guides (SPGs) Curved Conductors (CC), J-tubes and associated cables (Oceaneering 12/2011).

II. PHASE 2 MARINE ACTIVITIES

A. Summary

The existing Cable C1 will be replaced with two replacement cables. Cable F2 will be routed from Platform Harmony to LFC and Cable G2 will be routed from Platform Harmony to Platform Heritage. In State Waters, Cable F2 will be located within the existing State Lands Lease. In the OCS, both Cable F2 and G2 will be located within the surveyed and cleared routes. Existing Cable A (or B) will be replaced with the Cable A2 (or B2) from Platform Harmony to LFC. In State Waters, Cable A2 (or B2) will be located within the existing State Lands Lease. In the OCS, the cables will be located in the same general area and within the surveyed and cleared routes. Several contingency scenarios have been included in the OPSRB Execution Plan- Phase 2 (reference Attachment B) in case one of the existing out-of-service power cables cannot be removed from or a replacement cable cannot be installed in a conduit or platform riser. These contingency measures involve laying the cable that cannot be installed on the ocean floor parallel to the installed cable until an acceptable plan can be implemented to complete the cable replacement in the SYU power system. Also, the decision on which of the two cables, Cable A or B, that will be replaced will be made based on a detailed analysis of the condition of each cable prior to installation. Currently documents depict Cable A as being replaced.

The major activities associated with Phase 2 involve the installation of the replacement submarine power cables (each with three phase/three conductors and fiber core configuration) and the retrieval of the onshore and State Waters segments of the out-of-service cables using a dynamic positioning (DP) cable installation vessel (CIV) in six separate areas over a several month period:

- LFC Onshore: Excavation and trenching, retrieval and installation of submarine power cables, removal of existing splices, completion of new splices from existing land-based cables to replacement submarine cable in LFC, and routing of fiber optic cable to upper LFC facilities through new and existing conduits; Isolation of cables at the Offshore Sub Station (OSS) and protective circuitry calibration at the OSS control room. After installation, the excavated area will be backfilled and graded.
- Tunnel: Retrieval and installation of submarine power cables in tunnel with support operations at bike path in El Capitan State Beach; Removal of existing Cable A splice in tunnel;
- Nearshore Area: Retrieval and installation of submarine power cables in existing conduits and at POPCO crossing;
- State Lands Lease: Retrieval and installation of submarine power cable within State Lands Lease from conduit terminus to State/Federal Boundary;

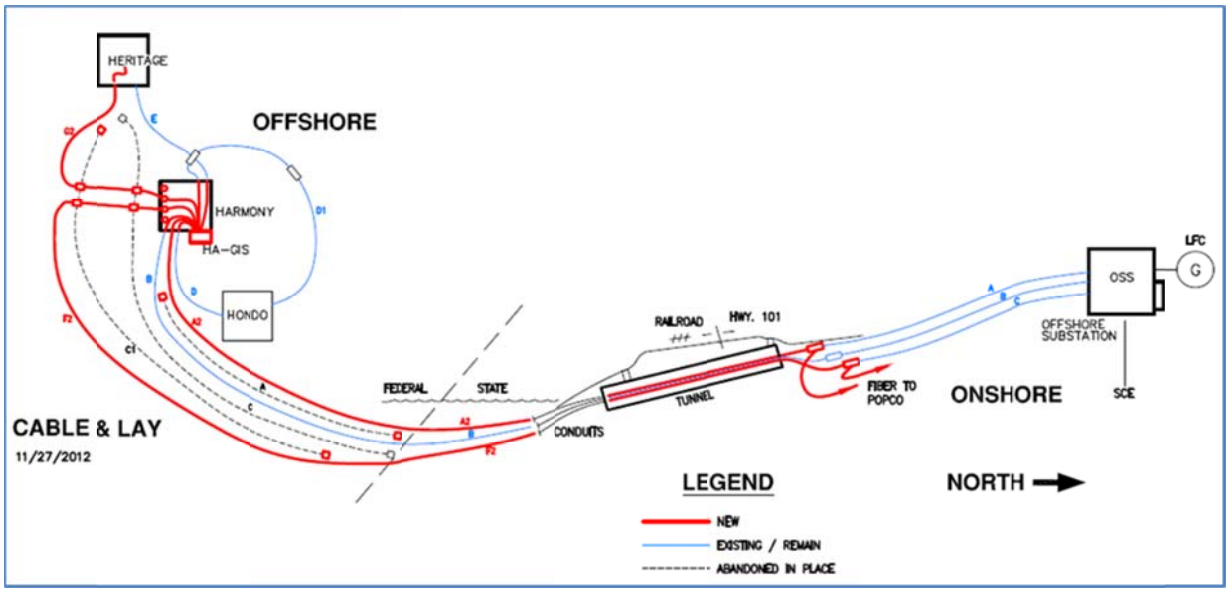
- OCS Corridor: Installation of replacement submarine power cable in previously surveyed and cleared routes from Platform Harmony to State/Federal Boundary and from Platform Harmony to Platform Heritage; Retrieval of out-of-service cables in platform risers and adjacent to platforms;
- Platforms Harmony and Heritage: Retrieval of out-of-service cables in risers and installation of replacement submarine power cables to platform topsides through existing J-Tube, Long I-Tube or curved conductor risers; Completion of splices to platform power cables; Interconnection of cables to GIS; Testing and energization of cables to and from GIS; Removal or preservation of existing HA switchgear.

The retrieval locations of the out-of-service cables will include the following:

- Onshore and State Waters segments of the out-of-service Cables A (or B) and C1;
- Cable A (or B) and C1 segments adjacent to the platforms and in the platform J-Tubes; Facilitates reuse of existing platform risers and routes;
- Possibility that the Cable A (or B) segment from the State Waters line to the Harmony Platform; Allow adequate room for installation of the replacement cable.

The retrieved cables will be cut on the ocean bottom or vessel as required, pulled onto the CIV, cleaned of excess marine growth and stored on the vessel. The remaining sections of the out-of-service cables will remain on the ocean bottom and concrete mats will be placed on the cut ends. When the CIV returns to port, the out-of-service cables will be removed from the vessel, cut into manageable sections, placed in trucks and transported to a local recycle facility for recycle to the extent feasible.

A simplified sketch of the concept is shown below.



In the above sketch, Cables A2 (or B2), F2, and G2 are the installed replacement cables. Note that Cables F2 and G2 have alternative routes; either outside of Cable C1 (as shown) or between Cable C and C1. Cables B (or A), D, D1 and E are existing cables,

and will remain in operation. The dashed cables will be decommissioned in place. The Cable A (or B) and C1 State Waters segments, the segments adjacent to the platforms and possibly the Cable A (or B) segment from the State Waters line to the Harmony Platform will be retrieved and recycled to the extend possible.

Several Cable Execution Contingencies (CEC) and installation contingency scenarios have been included in the OPSRB Project (reference OPSRB Execution Plan) to account for situations that could arise during the work activities.

At this time there is no intention of replacing any of the three land based cables that connect the LFC Offshore Substation (OSS) with the splice connection point to submarine cables located in the lower portion of LFC.

Following installation of the replacement cables and connection to the platform and land-based cables, a number of different types of special tests will be executed to verify that the submarine power cables, splices and fiber optics members are ready to be placed in operation in the SYU power system. . Upon completion of the testing of the cables and all of the interconnecting equipment, energization will begin with some circuits being energized during the submarine cable installation process. Energization plans will be implemented to monitor and load balance the LFC and platform power distribution system components.

B. Schedule

ExxonMobil estimates that the proposed project would require approximately 15-21 months for Phase 1 and 8-12 months for Phase 2. The Phase 1 installation activities commenced in June 2013 after the Bureau of Safety and Environmental Enforcement (BSEE) approved the Phase 1 activities as minor platform modifications in May 2013. The Phase 1 activities are expected to be completed by about the 1st Quarter 2015. The Phase 2 cable retrieval and installation activities are expected to commence on or about the 4th Quarter of 2014 and be completed by about early 4rd Quarter 2015. Phase 1 and Phase 2 work will have some overlap. The offshore cable retrieval and installation portion of Phase 2 is expected to require 1-2 months and be conducted during mid to late 2015.