3.6 WATER QUALITY

3.6.1 Affected Environment

The Project area is located approximately eight miles offshore Huntington Beach, California in an offshore region known as the Southern California Bight (SCB) that includes coastal southern California, the Channel Islands and the local portion of the Pacific Ocean surrounding the Beta Unit Platforms.

3.6.1.1 Weather and Climate

Weather and climate strongly influence coastal and offshore water quality. Weather events and meteorological processes including precipitation, evaporation, wind events, and direct inflows of freshwater, including storm runoff, strongly influence the salinity, water quality, and circulation of the SCB Project area.

Weather patterns in the SCB are dominated by the Pacific high-pressure system (generally referred to as the Pacific High). The Pacific High shifts northward or southward in response to seasonal changes or the presence of cyclonic storms. During the summer season, this high-pressure system strengthens and moves to the North Pacific creating prevailing west-to-northwesterly winds along the coast. The system generally weakens during the winter, moving south, and allows the Aleutian low-pressure system to spawn storm events, which occasionally migrate through the southern California area. The Pacific high-pressure system, the temperature differential between land and sea, and local geography combine to produce a Mediterranean climate characterized by partly cloudy, cool summers with little precipitation, and mild winters during which precipitation is more likely. Rainfall in the Project area is generally highest in the winter months (approximately 1.5 inches to 3.0 inches) and lowest in the summer months (approximately 0.0 to 0.07 inches). The surveys are being targeted for Fall 2018. Average precipitation during that time of year is approximately 0.20 to 0.40 inches.

Generally, weather patterns in the SCB are strongly affected by surrounding onshore topographical features. In the southern portion of the SCB, Santa Catalina (Catalina) Island rises to approximately 2,097 feet at Mt. Orizaba. The coastal ranges are marked by passes and canyons along the southern slopes. Temperatures over land in the Project area generally range from approximately 50°F - 70°F (10°C - 21°C), although temperatures below freezing and up to 100°F (38°C) occasionally occur. Surface water temperatures in the SCB vary from approximately 59º F - 77º F (15°C - 25°C).

3.6.1.2 Oceanography

The Project is located in the inner portion of the SCB approximately eight miles from shore in the San Pedro Channel (also called the San Pedro Basin), between the shoreline and Catalina Island. Surface ocean circulation within the SCB is complex and is influenced by the locations of basins, islands, banks and ridges, as well as seasonal variations in wind velocity and direction. In general, subsurface currents travel at lower speeds than those associated with surface currents due to influences of salinity content, and water temperature.

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 the National Oceanic and Atmospheric Administration (NOAA) buoys using High Frequency (HF) Radar. Data are presented in 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. Data and maps may be accessed online from the SCCOOS website at http://www.sccoos.org/.

3.6.1.3 Water Quality

The Southern California Coastal Water Research Project Authority (SCCWRP) is a locally based environmental research institute that collects, organizes, and manages data from more than 60 local agencies to provide an overview of water quality in the SCB. SCCWRP quantifies anthropogenic contributions of metals and organics to the coastal ocean, based largely on collated data from the many discharge monitoring programs that are required by National Pollutant Discharge Elimination System (NPDES) permits. However, due to the nature of water quality factors occurring from anthropogenic contributors, the majority of this data is focused in areas of high use and human population, namely the coastal and nearshore ocean environments. The Project survey area is located within the offshore environment and encompasses approximately 18.885 square miles (48.91 sq.km.). No specific monitoring data or point sources have been identified for the Project area. Other than the presence of specific contaminants added through circumstantial means to the environment, marine water quality in the Project area is generally determined by seawater properties including transparency and turbidity, oxygen and organic nutrients, and trace metals.

3.6.2 Regulatory Setting

The United States (U.S.) Environmental Protection Agency (EPA) is the Federal agency responsible for water quality management and administers the Clean Water Act (CWA). Section 404 of the CWA assigns the U.S. Army Corps of Engineers (ACOE) with permitting authority for proposed discharges of dredged and fill material into waters of the U.S. Waters of the U.S. are defined as "…waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; territorial seas and tributaries to such waters."

Section 404 establishes procedures by which the permitting agency is to review, condition, approve, and deny permit requests. Per the regulations, permitting agencies are responsible to conduct public noticing and provide the opportunity for public hearings during the review of each permit request. This includes informing the U.S. Fish and Wildlife Service (USFWS) and/or NOAA Fisheries (NMFS) of each permit request. Consultation with USFWS and/or NOAA Fisheries is required for proposed discharges that could impact species protected by the Federal Endangered Species Act or the Magnuson-Stevens Fishery Conservation and Management Act.

In addition to the CWA, the State Water Resources Control Board (SWRCB), located in Sacramento, is the agency with jurisdiction over near-shore water quality issues in the State of

California. Additionally, the POLA/POLB is under the jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWQCB), which has the responsibility to protect ground and surface water quality in the Los Angeles Region, including the coastal watersheds of Los Angeles County. All vessels must comply with any applicable regulations promulgated by the Secretary of the Department of the Coast Guard (USCG) including specifications for safe handling, carriage, and storage of pollutants; discharge of greywater; and certain interim and final performance standards for the treatment of ballast water to prevent release of non-indigenous species. Table 3.6-1 provides a summary of regulations that are pertinent to the proposed Project.

Table 3.6-1. Regulations Considered for Proposed Project Area

Agency or Regulation	
Clean Water Act (CWA) (Federal Water Pollution Control Act of 1972)	Coastal Zone Management Act (CZMA) of 1972 - Federal Consistency Requirement
Regional Water Quality Control Board (401 Notification)	Ports and Waterways Safety Act - U.S. Coast Guard
National Oil and Hazardous Substances Pollution Contingency Plan	Porter-Cologne Water Quality Control Act
Act of 1980 to Prevent Pollution from Ships	Oil Pollution Act (OPA) of 1990

3.6.3 Impact Assessment

As discussed above, the Project area is located approximately eight miles offshore Huntington Beach, California, in water depths ranging from approximately 148 to 1,083 feet (45 to 330 m). Project activities would include the temporary placement of nodes on the seafloor where they would remain in place for the duration of the survey; and conducting a geophysical survey; during which the M/V *Silver Arrow* would tow the source array along predetermined survey transects. Deployment and recovery of the nodes, as well as survey operations would be completed when sea state and weather conditions are conducive to safe operations and would be via “live-boating” (no anchoring is proposed). The proposed activities, including mobilization and demobilization, are expected to take approximately 42 operational days (six weeks) to complete.

Water quality impacts during Project activities would be limited to 1) minor sediment displacement and turbidity caused by the placement of nodes on the sediment floor, and 2) unanticipated leaks or spills associated with Project vessels, equipment, or supporting aircraft traversing to and from the mainland to the survey area, and along the pre-determined survey transects.

3.6.3.1 Minor Sediment Displacement

During Project mobilization activities, the nodes would be loaded onto the M/V *Clean Ocean* and transported to the offshore Project site for deployment. The nodes are circular and approximately 65 pounds (29.5 kilograms) in air, are 17.0-inches in diameter by 6-inches high (43.2 centimeters x 15.2 centimeters), and completely self-contained. The system is autonomous

and would not require cable connection for operation, however each node would be attached to a receiver line in order to aid with deployment and recovery. A total of 20 receiver lines are proposed with approximately 730 nodes total. After the units have been placed on the seafloor, recording will be conducted for the duration of the Project. At the end of the survey, the M/*V Clean Ocean* would retrieve each of the temporary nodes. Deployment and recovery of the nodes would be completed when sea state and weather conditions are conducive to safe operations and would be via "live-boat" (no anchoring is proposed).

The Beta Unit has recently been surveyed to map existing seafloor features (pipelines, cables, hardbottom, etc.). In addition, a pre-Project seafloor clearance will identify any previously unidentified areas that could indicate possible submerged anomalies for features that may require additional investigation. If any features are identified during the pre-Project seafloor clearance, or if these areas are unable to be investigated further, avoidance measures will be put in place prior to the placement of Project nodes. Seafloor autonomous node deployment will avoid these features to the extent feasible to obtain the best quality imagery and fulfill project objectives.

The placement and recovery of the nodes on the seafloor would potentially disturb the bottom sediments, and temporarily increase turbidity in the water column. However, sediment displacement is expected to be minimal due to the relatively small size and light weight of each node. Turbidity associated with the placement of the nodes is expected to dissipate within the water column quickly. Because the nominal increases in sediment suspension and turbidity during these activities would be localized and short-term, the effects on ocean water quality would be minimal.

3.6.3.2 Potential Vessel Discharges

The proposed scope of the work offshore will require operating a survey vessel and support vessel in the Project area as well as the transit of those vessels between the Project area and nearby harbors (POLA/POLB). An accidental release of fuel, hydrocarbons, or wastewater entering the ocean from any of these Project-related vessels would cause impacts to existing offshore water quality. In order to avoid unanticipated spills or releases of contaminated materials into the offshore environment, all Project contractors and subcontractors will be required to adhere to strict industry standards for avoiding vessel collisions. These regulations are found within the International Marine Organization (IMO) Institute, Rule 10 of the COLREGS - International Regulations for Preventing Collisions at Sea spill prevention and response. For More detail on COLREG requirements, please refer to Section 3.6 (Transportation).

Since the proposed Project is being conducted in support of the Beta Unit Platforms, all Project activities will be subject to the requirements of the certified "Beta Unit Complex (Platforms Elly, Ellen & Eureka, Beta Pipeline and Beta Pump Station) Oil Spill Prevention and Response Plan (OSPRP) - Revision 3" (2016). The OSPRP for the Beta Unit Complex has been prepared and promulgated to meet the requirements of the Oil Pollution Act of 1990 (OPA 90) and has been certified by the United States Environmental Protection Agency (EPA), the United States Department of Interior (DOI), United States Department of Transportation (Pipeline and Hazardous Materials Safety Administration (DOT-PHMSA), and the California Department of Fish and Wildlife Oil Spill Prevention and Response Section (OSPR). The Beta Unit OSPRP includes

protective actions and measures that are designed to prevent the unanticipated release of any potentially contaminated materials, including wastewater into the marine environment. In addition to preventative measures, the Beta Unit OSPRP provides response guidelines for use by offshore personnel and contractors in the event of an emergency incident.

In accordance with standard procedures, and as required by the USCG and Maritime Transportation Act of 2004, non-tank vessels of 400 gross tons or greater that operate in the navigable waters of the U.S. and carry any kind of oil as fuel for main propulsion. need an oil-spill response plan to operate in U.S. waters. The M/V *Silver Arrow* is approximately 1,900 gross tons and operates under a vessel-specific Oil Spill Response Plan (OSRP).

In addition to the Beta Unit Complex OSPRP, and the vessel-specific OSRP, all Project-related vessels would also be obligated to comply with applicable regulations that prohibit discharges to the ocean, including wastewater. Implementation of these industry standards will reduce potential impacts to water quality during Project vessel operations to a minimal level.

Project Incorporated Measures to Reduce Potential Impacts:

- **Beta Unit Oil Spill Prevention and Response.** All Project activities will be subject to the requirements and guidelines included within the “Beta Unit Complex (Platforms Elly, Ellen & Eureka, Beta Pipeline and Beta Pump Station) Oil Spill Prevention and Response Plan (OSPRP) - Revision 3” (2016), (Appendix H).
- **Vessel Specific Oil Spill Response Plan.** The geophysical survey will occur via the use of the M/V *Silver Arrow* or equivalent and will be subject to the requirements and guidelines included within the vessel-specific Oil Spill Response Plan.
- **Live Boating.** The Project has been designed to avoid anchoring and protect existing seafloor features (pipelines, cables, and hardbottom) to the extent feasible. "Live boating" would be conducted during the autonomous node deployment/recovery procedures. No anchoring is required during survey operations.
- **Vessel Discharges.** All vessel discharges will comply with the requirements of the Clean Water Act under the USCG regulation including the proper treatment and monitoring of vessel effluents as necessary.
- **Construction Best Management Practices (BMPs).** Throughout the Project, BMPs will be employed to prevent unauthorized releases.

3.6.4 References

Beta Operators, LLC. 2016. Beta Unit Complex (Platforms Elly, Ellen & Eureka, Beta Pipeline and Beta Pump Station) Oil Spill Prevention and Response Plan (OSPRP) - Revision 3.

Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE). 2001. Delineation Drilling Activities Draft EIS.

California State Water Resources Control Board / California Environmental Protection Agency. 2015. California Ocean Plan.