APPENDIX Q

Draft Section 404(b)(1) Alternatives Analysis

DRAFT SECTION 404(b)(1) ALTERNATIVES ANALYSIS

1.0 Introduction

The following evaluation is provided in accordance with Section 404(b)(1) of the Clean Water Act and the Section 404(b)(1) Guidelines (40 CFR 230). The impact evaluation is summarized from the Draft SEIS/SEIR for the Proposed Pacific Los Angeles Marine Terminal (PLAMT) Crude Oil Marine Terminal, Tank Farm Facilities, and Pipelines Project (proposed Project) at the Port of Los Angeles (Port) and is not intended to be a stand-alone document. References are given throughout this analysis to sections of the Draft SEIS/SEIR where additional information may be obtained.

2.0 Project Description

The proposed Project involves construction of a marine terminal at Berth 408 on Pier 400, a crude oil tank farm on Pier 400 (Tank Farm Site 1), a new tank farm on Terminal Island (Tank Farm Site 2), and pipelines connecting proposed Project facilities on Pier 400 and Terminal Island to the Valero Refinery and the ExxonMobil Southwest Terminal (see Figure 1-2 in the Draft SEIS/SEIR). The proposed Federal action is for the U.S. Army Corps of Engineers (USACE) to issue a permit for work and structures in and pipelines suspended over waters of the U.S. for the proposed Project. Alternatives to the proposed Project include the No Federal Action/No Project Alternative and the Reduced Project Alternative, which is the proposed Project with a lease cap that limits crude oil deliveries to the proposed berth. In the Reduced Project Alternative, the cap on oil throughput would likely result in an increased delivery of oil to other liquid bulk terminals in the Harbor (Berths 76-78 and 84-87 in the Port of Long Beach and Berths 238-240 in the Port of Los Angeles). The No Federal Action/No Project Alternative would have no in-water construction or pipelines over water and, therefore, would require no National Environmental Policy Act (NEPA) impact analysis or Federal permit from the USACE. The Reduced Project Alternative would require construction of facilities that would be identical to those required for the proposed Project.

2.1 Location

The marine terminal would be located on Pier 400 in the Outer Harbor of the Port of Los Angeles, Los Angeles County, California. The Federal portion of the proposed Project includes Berth 408 and the pipeline crossings of Dominguez Channel and the Pier 400 causeway gap. The Berth 408 Marine Terminal and Tank Farm Site 1 would be located on the southwest portion of Pier 400 adjacent to Face C and Face D, respectively. The Maersk-Sealand Container Terminal is located to the north. Tank Farm Site 2 is located on Pier 300 between Terminal Way, Seaside Avenue, Navy Way, and Ferry Street. Portions of the pipeline route, and the termini of the new pipelines at the Ultramar/Valero Refinery and connections into other PLAMT pipeline systems, would extend outside of the Port. Most of the portions outside the Port would be within road or railway rights-of-way in the City of Los Angeles. Construction of facilities on land at the Marine Terminal, Tank Farm Site 1, and Tank Farm Site 2 do not require any Federal permits, nor does installation of pipelines that do not cross waters of the U.S. However, these facilities would not be built without the larger project which requires a Federal permit.

2.2 General Description

The PLAMT proposed Project includes the following components:

- A new crude oil Marine Terminal on the west (Face C) side of Pier 400, including a wharf at Berth 408, loading/unloading arms, a control building, an administration building, a terminal security office, parking facility, shipping pumps, a fire suppression system, and an electrical sub-station;
- A new tank farm facility (Tank Farm Site 1) with a 50,000-barrel (bbl) surge tank, a 15,000-bbl fuel tank, two 250,000-bbl capacity crude oil transfer tanks, a vapor tank, and a motor control building, on Face D of Pier 400;
- A new tank farm facility (Tank Farm Site 2) with fourteen 250,000-bbl capacity crude oil transfer tanks, a motor control center, tank farm operator office and control building, and parking facilities;
- A 1.2-acre (0.94-ha) pig launching facility (Site A);
- A 42-inch offload pipeline (Pipeline Segment 1) connecting the Marine Terminal to Tank Farm Site 1 and Tank Farm Site 2;
- Two 36-inch delivery pipelines (Pipeline Segments 2a and 2b) connecting Tank Farm Site 2 to an existing, 36-inch pipeline located in Ferry Street on Terminal Island;
- A 36-inch delivery pipeline (Pipeline Segment 2c) connecting the existing 36-inch pipeline to ExxonMobil Southwest Facility;
- A 36-inch delivery pipeline (Pipeline Segment 3) connecting the existing 36-inch pipeline on Mormon Island to Site A;
- A 24-inch delivery pipeline (Pipeline Segment 4) connecting Site A to the Ultramar/Valero Refinery and other PLAMT pipelines and other customer pipelines located east of the Terminal Island Freeway;

- A 16-inch delivery pipeline (Pipeline Segment 5) connecting Site A to the existing PLAMT pipeline located in Henry Ford Avenue near the corner of Alameda and Henry Ford Avenue; and
- Temporary staging areas for equipment and materials.

The Federal action is for the USACE to issue a permit authorizing work and structures in navigable waters of the U.S., including discharge of rock into waters of the U.S. to protect wharf piles. Components of the proposed Project that would need such approval by the USACE include wharf construction at Berth 408 and construction of pipelines across Dominguez Channel and the gap in the Pier 400 causeway.

2.3 Authority and Purpose

Discharge of dredged or fill material into "waters of the United States" requires compliance with Section 404 of the Clean Water Act. This Section 404(b)(1) analysis is one step in that compliance.

The overall purpose of the proposed Project is to help accommodate the projected increase in demand for foreign crude oil to be imported into southern California by constructing and operating a crude oil marine terminal that maximizes the use of available shoreline and the existing deep-draft waterways created for that purpose by the Deep Draft Navigation Improvements Project. The USACE and the Los Angeles Harbor Department (LAHD) base the need for the proposed Project on the following current conditions related to the need to accommodate (1) increasing foreign crude oil imports to offset declining domestic production; (2) a trend toward larger vessels and larger cargo sizes; (3) a projected shortfall in crude oil vessel berthing capacity at the San Pedro Bay Ports; and (4) increased need for crude oil tank capacity for efficient offloading of vessels at berth.

California's demand for transportation fuels has increased steadily over time and, at the same time, domestic crude oil production from California and the Alaska North Slope (ANS), the source of all domestic crude used in southern California, have decreased. Thus, foreign crude imports to southern California have increased. These trends are expected to continue. The California Energy Commission's (CEC) transportation fuel demand model projects that vehicle miles traveled (VMT) and the number of on-road registered vehicles in California will continue to increase through 2030, even under conservative assumptions about greenhouse gas (GHG) regulations and high fuel prices. The CEC predicts that demand for on-road gasoline could decrease depending on GHG regulations and fuel prices. However, the demand for diesel and jet fuel is predicted to increase regardless of GHG regulations and fuel prices, resulting in a net increase in overall demand for transportation fuels within California (ranging from 0.51 percent per year with high fuel prices and GHG regulations, to 1.43 percent per year with low fuel prices and no GHG regulations; CEC 2007).

The combination of declining domestic crude oil production and rising demand leads to a need for greater foreign imports. Because no pipelines carry crude oil into California, by far the best method to deliver imported crude (including ANS crude) is by marine tanker vessels. Companies prefer to use larger vessels for crude oil imports wherever possible, for two reasons. First, there are economies of scale for long-haul voyages, such as from the Middle East. Second, since larger vessels

generally have higher offload rates, large vessels at deep-water berths can offload more crude oil in a given period than small vessels at shallower berths. In addition, it is notable that larger tanker vessels burn less fuel per barrel of oil than they carry, which results in fewer vessel emissions per barrel delivered. Given the depths at existing berths in the Los Angeles Basin, vessels carrying more than approximately 400,000 bbl bound for Port of Long Beach Berths 76-78 or 84-87, or LAHD Berths 238-240, must lighter cargo onto one or more vessels offshore, as must vessels carrying more than about 1.7 million bbl bound for Port of Long Beach Berth 121.

Currently, no developed berths present in California have sufficient water depth to accommodate a fully loaded VLCC vessel carrying 2 million bbl of cargo. The limited number of existing berths and the relatively shallow water depths at those berths are two major factors impacting future crude oil imports into southern California. Furthermore, over the last three decades, the number of operating berths used to offload crude oil for refineries in southern California has declined dramatically. In 1978 there were 16 such berths, including eight at the Port of Los Angeles, six at the Port of Long Beach, and two open-water crude oil unloading mooring locations outside the two harbors. At present there are only five: one at the Port of Los Angeles, three at the Port of Long Beach, and one open-water mooring location.

The need for increased crude oil storage tank capacity is driven by several factors, including the need to reduce supply disruptions in consideration of longer ocean voyages for import tankers; the need to offload larger cargo volumes; and the need to accommodate multiple customers and types of crude oil. These factors are described below.

Additional Tanks to Reduce Supply Disruptions. As discussed in Section 1.1.3 of the Draft SEIS/SEIR, the replacement crude oil for declining Alaska and California crude oil supplies will arrive on marine tankers from foreign crude sources that are increasingly distant from southern California refineries. The transit time to Los Angeles for Alaskan and South American crude oil is typically 7 to 10 days and is generally much more predictable than a longer transit. The average transit time from the Middle East is 38 days and much less predictable. With crude oil arriving on vessels whose arrival date is less predictable, refiners will need to be able to store larger volumes in order to minimize supply interruptions.

Additional Tanks to Offload Increasingly Larger Cargo Volumes. As more crude oil is imported from the Middle East and other foreign sources, larger tankers will arrive at southern California ports. As cargo volumes increase, it will become necessary to increase the capacity of the tanks used to store the cargo during and immediately after offloading.

Supplies for Multiple Customers and Multiple Crude Types. Local refineries optimize their supply by looking for crude oil that matches the specifications that best fit their processing units. Furthermore, because customers use different types of crude oil and need to keep the specifications of the crude oil within certain ranges, extra tanks are needed to segregate incoming crude oil types even when tank capacities are not fully utilized. In addition, third-party tank facilities often use multiple tanks for the same type of crude, even when tank capacities are not fully utilized, in order to track ownership by volume and to maintain accurate crude oil

custody records. The practices of maintaining crude supplies within specified ranges and tracking crude oil custody will continue to contribute to the need for additional crude oil tanks in the near term.

2.4 Alternatives Considered

During the NEPA/California Environmental Quality Act (CEQA) process, a wide range of alternatives were evaluated as described in the Draft SEIS/SEIR. Through the screening evaluation, the following alternatives were selected for co-equal analysis in the Draft SEIS/SEIR: proposed Project, Reduced Project, and No Federal Action/No Project. A complete description of the alternatives considered is included in Chapter 2 of the Draft SEIS/SEIR. For the 404(b)(1) analysis, project alternatives must be evaluated to determine the least environmentally damaging practicable alternative (LEDPA). This analysis focuses on avoiding and minimizing impacts to the aquatic ecosystem but also considers other environmental consequences in identifying the LEDPA.

The proposed Project and Reduced Project Alternative would include construction of the same in-water and on-land components, but the amount of crude oil throughput during operations of these facilities would be less for the Reduced Project Alternative. Consequently, both alternatives would have the same construction and operations impacts in the 404(b)(1) analysis, except as related to number of project-related vessels accessing the proposed terminal. In addition, the Reduced Project Alternative would include delivery of oil to three existing liquid bulk terminals in the Port of Los Angeles (Berths 238-240) and Port of Long Beach (Berths 76-78 and Berths 84-87). The No Federal Action/No Project Alternative, however, would have no in-water components, require no Federal permit, and have no impacts in the 404(b)(1) analysis. It serves as the baseline for evaluating the impacts of the other two alternatives in the following analysis.

2.5 Description of Dredged/Fill Material

Construction of the project facilities (for the proposed Project and Reduced Project Alternative) would not require dredging or dredged material disposal or direct waste discharges into Harbor waters, other than episodic discharges of stormwater and hydrostatic test waters under a NPDES permit. In-water construction activities for the Marine Terminal would require installation of pier pilings at Berth 408 (150 or 258 depending on the composition of the mooring dolphin piles), with placement of new rock around the base of the pilings, using a barge-mounted crane and pile driver. Piles (probably two) would also be installed and then removed for a temporary mooring at staging area 412. The pier pilings are not considered “fill” because they would not be placed close enough together to constitute or have the effect of fill, whereas, the rocks that would be placed around the base of the larger steel pilings would be considered fill. The pilings would be an integral part of the wharf, and the rocks placed at the base of the pilings would be a component of the wharf design. Thus, the pilings and rock fill are considered inter-dependent components of the wharf.

Wharf construction would occur over a period of about 16 months (Figure 2-11 of the Draft SEIS/SEIR). Although it would not result in any waste discharges, piling installation and rock placement would suspend bottom sediments into the water column, causing localized and temporary turbidity in near-bottom waters. Permits for in-water construction activities for the project (e.g., Section 401 and Section 404) could require placement of a silt curtain around the pile driving operation. If a silt curtain is deployed, horizontal dispersion of suspended sediments would be limited to the area enclosed by the silt curtain. If a silt curtain is not used, a portion of the suspended particles could be transported horizontally by tidal currents and eventually deposited in adjacent areas of the Harbor. Regardless, resuspended sediments would settle rapidly (within hours) and turbidity levels would decrease to ambient conditions once activities were completed. The amount of sediment disturbed by pile installation and rock placement, and the potential for subsequent sediment accumulation in other areas of the Harbor, would be negligible. DO levels in near-bottom waters could be reduced in the immediate vicinity of the pile installation and rock placement activities due to the introduction of suspended sediments and associated oxygen demand on the surrounding waters. Reductions in DO concentrations, however, would be short-term and localized and not expected to persist or cause detrimental effects to biological resources. Therefore, reductions in DO levels associated with project construction activities would not create a nuisance or cause regulatory standards to be violated in Harbor waters. The Berth 408 pier pilings would be pre-stressed concrete or steel and would not contain chemical preservatives (e.g., creosote) or other soluble materials that could leach into Harbor waters. The temporary mooring pilings at staging area 412 would be pre-stressed concrete if feasible from an engineering perspective, or steel if not. Therefore, Berth 408 and temporary mooring pilings would not represent a source of contaminants to Harbor waters during the construction or operation phases of the proposed Project or Reduced Project Alternative.

2.6 Proposed Discharge Sites

Construction and operation of the project facilities (proposed Project and Reduced Project Alternative) would not require discharges of dredged materials to the Harbor or other waters of the U.S. At Berth 408, rocks would be placed at the base of the larger steel pilings installed for a new wharf. This would be the only discharge site associated with the proposed Project or Reduced Project Alternative.

2.7 Discharge Methods

Construction and operation of the project facilities (proposed Project and Reduced Project Alternative) would not require discharges of dredged materials to the Harbor waters or other waters of the U.S. The rock for Berth 408 would be transported to the site by barge and placed around the base of the individual steel piles by a crane.

3.0 Factual Determinations

3.1 Physical Substrate Determinations

During construction of Berth 408, some minor disturbances of the bottom sediments would occur during installation of piles and placement of rocks around the base of the piles. Resuspended sediments would settle back to the bottom, although some horizontal displacement by currents could occur. The presence of these pier pilings would cause some localized deposition of sediments near the piles, and some bottom sediments in the vicinity of Berth 408 may be disturbed by turbulence from propeller wash. However, this would not promote erosion of the harbor bottom or excessive sedimentation near the project site.

Temporary disturbances of bottom sediments would also occur during installation and removal of piles for the temporary mooring at staging area 412. Considerably fewer piles would be used for this mooring that for Berth 408. An estimated four vessel calls would occur at the temporary mooring, so propeller wash effects would be negligible.

Rocks placed around the base of the wharf pilings would cover the existing soft (mud) substrate with a hard substrate. This modification to the bottom substrate would be limited to an area of 0.1 acre (0.04 ha) within the footprint of the wharf.

Actions Taken to Minimize Impacts. Physical substrate disturbances would be minimal, and no measures are needed to minimize the impacts of in-water work.

3.2 Water Circulation, Fluctuation, and Salinity Determinations

3.2.1 Current Patterns and Circulation

Circulation in the Harbor is driven by tidal currents, although wind, thermal structure (water column stratification), and local topography can influence these patterns. Circulation in the Harbor has been altered by the construction of Pier 400 in the Outer Harbor, which has reduced the maximum velocity of water entering and leaving through Angels Gate (MEC and Associates 2002).

Current Patterns and Flow. Circulation patterns in the Harbor would not change as a result of in-water construction for the new berth facilities. Although berth construction for the proposed Project would install up to 258 pilings and place rock in the water on the southwest side (Face C) of Pier 400, it would not impede water exchange within the Harbor, affect tidal currents, or result in substantial changes in flow patterns or speed beyond the footprint of the wharf. Thus, construction activities would not substantially alter surface water movement in the Harbor. The few pilings and short duration that they are in the water for the temporary mooring at staging area 412 on the east side of Pier 400 would not alter current patterns or flow in the Harbor.

Velocity. Once installed, the Berth 408 pilings and associated rock would reduce flows beneath the berth, but would not impede the movement of surface waters within the Harbor because water would be able to move between the pilings. Movement of water between the pilings also would prevent stagnation beneath the berth.

Stratification. The proposed Project or Reduced Project Alternative would not alter stratification in Harbor waters because in-water structures would not prevent or impede mixing or exchange of waters from adjacent portions of the Harbor.

Hydrologic Regime. No changes in the hydrologic regime are anticipated for the proposed Project or Reduced Project Alternative.

3.2.2 Water Level Fluctuations

Tide-related changes in water levels within the Harbor would remain unchanged as a result of the proposed Project or Reduced Project Alternative because no restrictions to tidal flow would be created and the project would not change the tidal prism.

3.2.3 Salinity Gradients

The proposed Project or Reduced Project Alternative would be expected to result in minor, localized changes in salinity gradients in the Harbor as a result of stormwater runoff during rainfall events. Runoff would be increased slightly, primarily from Tank Farm Site 1, due to addition of impervious surfaces in parts of the site. However, subsequent mixing of runoff with Harbor waters would minimize the effect on salinity gradients.

3.2.4 Actions Taken to Minimize Impacts

No actions are necessary to offset the less than significant impacts expected on water circulation, water level fluctuation, and salinity gradients.

3.3 Suspended Particulate/Turbidity Determinations

3.3.1 Turbidity

In-water construction activities associated with installation of pier pilings and rock placement around the pilings for Berth 408 and installation/removal of piles for the temporary mooring at staging area 412 would suspend bottom sediments into the water column, causing localized and temporary turbidity. Pile installation and rock placement associated with in-water construction operations would occur over a period of about 16 months while the temporary mooring pile work would be of short duration. Resuspended sediments would settle rapidly (within hours) and turbidity levels would decrease once activities were completed. Effects from turbidity on water quality and marine organisms would be minor.

3.3.2 Effects on Chemical and Physical Properties of the Water Column

Construction activities and operations at Berth 408 would have minor and temporary effects on the chemical and physical properties of the water column in the immediate vicinity of construction activities.

Salinity. No change is expected during construction. Salinity gradients could be altered slightly following stormwater runoff from the proposed Project or Reduced Project Alternative sites. These effects would be of short duration, occur in a limited area, and have minor effects on the water column.

Clarity/Light Penetration. Turbidity from suspended bottom sediments in the immediate vicinity of pile installation and rock placement during construction would reduce water clarity in a small area for the duration of the activity. Construction activities are not expected to alter other factors that affect water clarity, such as phytoplankton abundance. Water clarity could be altered slightly following stormwater runoff from the proposed Project or Reduced Project Alternative during construction and operations. However, these effects would be of short duration, occur in a limited area, and have minor effects on the water column.

Color. The color of Harbor waters would be changed little if any due to the proposed Project or Reduced Project Alternative.

Odor. Any odors resulting from proposed Project or Reduced Project Alternative activities would be localized, temporary, and of minimal magnitude.

Taste. Not applicable.

Dissolved Gases. Dissolved oxygen (DO) concentrations in harbor waters could be reduced slightly in the immediate vicinity of pile installation and rock placement activities at Berth 408 and at the staging area 412 temporary mooring by the introduction of suspended sediments and associated oxygen demand on the surrounding waters. Reductions in DO concentrations, however, would be brief and would not exceed water quality standards or cause detrimental effects to biological resources. These effects would be the same for the proposed Project and the Reduced Project Alternative. There would be no effect from project operations.

Nutrients and Eutrophication. The amount of nutrients released into the water column as a result of sediment resuspension during pile installation and rock placement would be negligible. Given the limited spatial and temporal extent of project activities with potential for releasing nutrients from bottom sediments, effects on beneficial uses of the Harbor are not anticipated to occur during construction or operations of the proposed Project or the Reduced Project Alternative.

Toxic Metals and Organics. Harbor waters in the vicinity of Pier 400 do not contain detectable amounts of organic contaminants (e.g., pesticides, PCBs [polychlorinated biphenyls], PAHs [polycyclic aromatic hydrocarbons], or TBT [tributyltin]), and concentrations of metals are below water quality standards (AMEC 2007). Sediments in the vicinity of the proposed Project or Reduced Project

Alternative contain elevated concentrations relative to ERL and ERM values of selected metals and organics (e.g., arsenic, copper, mercury, and DDTs; Weston Solutions 2007). However, given the limited disturbances of bottom sediments, and minimal potential for contaminant remobilization due to sediment resuspension, neither the proposed Project nor the Reduced Project Alternative would degrade water quality or adversely affect beneficial uses.

Pathogens. No pathogens are expected to be released to Harbor waters as a result of the proposed Project or Reduced Project Alternative.

Temperature. The proposed Project or Reduced Project Alternative would not affect water temperature.

Other. For the proposed Project or the Reduced Project Alternative, minor changes in pH could occur during pile installation and rock placement due to reducing conditions in sediments resuspended into the water column. Any measurable change in pH would likely be highly localized and temporary, and would not result in persistent changes to ambient pH levels of more than 0.2 units. There would be no effect from proposed Project or Reduced Project Alternative operations.

3.3.3 Actions Taken to Minimize Impacts

A Section 401 (of the Clean Water Act) Water Quality Certification (WQC) would be obtained from the LARWQCB for in-water construction activities. The WQC would contain standard Waste Discharge Requirements (WDRs) and would specify receiving water monitoring requirements. Monitoring requirements typically include measurements of water quality parameters such as DO, light transmittance (turbidity), pH, and suspended solids at varying distances from the construction operations. Analyses of contaminant concentrations (metals, DDT, PCBs, and PAHs) in waters near the construction operations may also be required if the contaminant levels in the sediments are known to be elevated and represent a potential risk to beneficial uses. Monitoring data are used by the Port's construction contractor to demonstrate that water quality limits specified in the permit are not exceeded. The permit would identify corrective actions, such as use of silt curtains, which would be implemented if the monitoring data indicate that water quality conditions outside of the mixing zone exceeded permit-specified limits.

Actions to minimize impacts to Harbor water quality from runoff during construction and operation would include the following: compliance with WDRs for stormwater runoff; compliance with construction and industrial stormwater pollution prevention plans (SWPPPs); implementation of best management practices (BMPs); and development and implementation of a Pollutant Control Plan and Source Control Program. These actions are described in Section 3.8 (Determination of Secondary Effects on the Aquatic Ecosystem).

A Debris Management Plan and Spill Prevention, Containment, and Cleanup Plan would be prepared and implemented prior to the start of construction activities associated with the proposed Project or Reduced Project Alternative. The Source Control Program would address leak detection, tank inspections, and tank repairs during facility operations. The tenant would be require to submit to the Port an

annual compliance/performance audit in conformance with the Port's standard compliance plan audit procedures.

3.4 Contaminant Determinations

The Section 303(d) list of water quality impaired segments includes approximately 4,042 acres (1,636 ha) of the Outer Harbor (SWRCB 2006) characterized by DDT and PCBs that have accumulated in the sediments as a result of nonpoint sources. Other impaired waters are located at Cabrillo Beach, Cabrillo Marina, Fish Harbor, and in the Inner Harbor over 3,500 feet (about 1,070 m) from the site of the proposed Project Marine Terminal. The Port's Enhanced Water Quality Monitoring program sampled a location (Station LA03) near Pier 400 (AMEC 2007). None of the quarterly water samples collected at this location contained detectable concentrations of PAHs, PCBs, pesticides, or TBT. Concentrations of dissolved and total metals, including copper, were present at concentrations below water quality standards. The Port conducted sediment sampling in 2006 (Weston Solutions 2007) at two locations near Pier 400 (LAO-8 and LAO-9). These sediments contained elevated concentrations (i.e., above the corresponding ERL but below the ERM levels) of arsenic, copper, mercury, and nickel, while concentrations of the DDT residue, DDE, exceeded the ERM value (Weston Solutions 2007).

Contaminants, including metals and organics, could be released into the water column as a result of bottom sediment disturbances during the pile installation and rock placement operations. However, like turbidity, any increase in contaminant levels in the water is expected to be localized within the mixing zone and of short duration. The magnitude of contaminant releases would be related to the bulk contaminant concentrations of the disturbed sediments, as well as the organic content and grain size which affect the binding capacity of sediments for contaminants. Sediments containing contaminants that are suspended by the pile installation or rock placement would settle back to the bottom within a period of several hours.

Accidental spills of pollutants during construction on land would be unlikely to result in runoff of pollutants into the storm drain system that discharges into the Harbor. This is because large quantities of such material would not be used during construction and any spills would be contained by implementation of runoff control measures and cleaned up with no runoff to Harbor waters. Accidental spills of fuel, lubricants, or hydraulic fluid into Harbor waters from the equipment used for construction of Berth 408 and a temporary mooring at staging area 412 are unlikely to occur during development of the proposed Project or Reduced Project Alternative.

Increases in tanker vessel traffic could also result in higher mass loadings of contaminants, such as copper released from vessel hull anti-fouling paints. Portions of the Harbor (Inner Cabrillo Beach and Fish Harbor) are impaired with respect to copper. However, recent data from the Port Enhanced Monthly Water Quality Study (AMEC 2007) indicated that copper concentrations in waters adjacent to Pier 400 are below the USEPA national criterion for dissolved copper (3.1 µg/L).

The other potential operational source of pollutants that could affect water quality is accidental spills or illegal discharges from vessels. Impacts to water and sediment quality would depend on the characteristics of the material spilled or discharged, such

as volatility, solubility in water, and sedimentation rate, and the speed and effectiveness of the spill response and cleanup efforts. However, there is no evidence that illegal discharges from ships presently are causing widespread problems in the Harbor. Over the last several decades, there has been an improvement in water quality despite an overall increase in ship traffic. In addition, the Port Police are authorized to cite any vessel that is in violation of Port tariffs, including illegal discharges.

Operation of the proposed Project or Reduced Project Alternative facilities would not involve any direct point source discharges of wastes or wastewaters to the Harbor. However, accidents involving spills of fuel, lubricants, or hydraulic fluid from equipment used during berth construction and operations could occur, resulting in direct releases of petroleum materials or other contaminants to Harbor waters. The magnitude of impacts to water quality would depend on the spill volume, characteristics of the spilled materials, and effectiveness of containment and cleanup measures.

Accidental oil spills directly to the Harbor could occur during vessel transit through the Harbor and/or during unloading at Berth 408. It is reasonable to assume that an incremental increase in the probability of an oil spill from a tanker to the Harbor would be proportional to future increases in vessel calls. Vessel traffic increase due to the proposed Project would be up to 201 tankers and 12 Marine Gas Oil (MGO) barges per year. For the Reduced Project Alternative, the increase in vessels would be 132 at Berth 408 and an estimated 240 at three other berths in the Harbor to meet the demand for imported oil. Small spills of less than 238 bbl are more likely to occur during vessel transit than during unloading while moderate spills (238-2,380 bbl) are more likely to occur at Berth 408 during unloading than during vessel transit; however, the volumes of spills that occur during unloading typically are small (less than 50 bbl) and would be contained by the boom deployed around the vessel during unloading. Regardless, any amount of oil spilled into the Harbor would violate water quality standards. Oil spilled at the berth could contaminate the berth pilings near the water surface while a spill during vessel transit could affect the intertidal zone of the Pier 400 shoreline or other locations in the Outer Harbor, depending on movement of the slick and speed of containment and cleanup. Oil spilled in the Berth 408 area that contacts rip rap in the shoreline dike or pier pilings could be difficult to recover completely, and residual oil could represent a long-term (weeks to months depending on spill volumes and rates of weathering) source of hydrocarbons to Harbor waters.

Actions Taken to Minimize Impacts. Spill prevention and cleanup procedures for the proposed Project or Reduced Project Alternative would be addressed by the Oil Spill Contingency Plan (OSCP) for the project that defines actions to minimize the magnitude of the spill and extent of impacts. If any oil is observed in the water, unloading operations would be stopped and the facility's OSCP would be activated. The regional spill response cooperative would serve as the emergency response contractor, and they would be responsible for containment, cleanup, and health and safety at the Marine Terminal.

Vessels moored at Berth 408 would be surrounded by a spill containment boom prior to initiating unloading operations. Thus, any oil lost into the Harbor from the vessel or the unloading arms would be contained within the boom, preventing the spread of spilled oil to other areas of the Harbor.

As a condition of their lease, the project tenant would be required to develop an approved Source Control Program (SCP), with the intent of preventing and remediating accidental fuel releases. Prior to construction, the tenant would develop an approved SCP in accordance with Port guidelines established in the General Marine Oil Terminal Lease Renewal Program. The SCP would address immediate leak detection, tank inspection, and tank repair during project construction and operation. The tenant also would be required to submit to the Port an annual compliance/performance audit in conformance with the Port's standard compliance plan audit procedures. This audit would identify compliance with regulations and BMPs recommended and implemented to ensure minimizing of spills that might affect water quality, or soil and groundwater.

3.5 Aquatic Ecosystem and Organism Determinations

Construction activities at Berth 408 under either the proposed Project or the Reduced Project Alternative would result in temporary disturbances to bottom sediments and would convert some existing soft bottom habitat to hard substrate habitat through pile installation and placement of rock at the base of the larger piles. Approximately 0.04 acre (0.02 ha) of soft and rocky bottom would be lost in the footprint of the piles, 0.1 acre (0.04 ha) would be converted to hard substrate from placement of the rock around the piles, and 1.9 to 2.4 acres (0.8 to 1.0 ha) of hard substrate habitat would be created by the surface of the piles in the water column. The same effects would occur for the Reduced Project Alternative. Installation and removal of temporary piles at staging area 412 for delivery of stone column gravel for the proposed Project or the Reduced Project Alternative would also cause temporary disturbances to benthic habitats.

Operation of the Marine Terminal and two tank farm sites would result in minor increases in stormwater runoff volumes that could affect marine organisms. The amount of impervious surface would be increased slightly due to the addition of buildings, tanks, and other facilities at Tank Farm Site 1 and the Marine Terminal. However, most of Tank Farm Site 2 is currently paved or covered with facilities, and the construction of tanks for the proposed Project and Reduced Project Alternative would not increase the amount of impervious surface. Vessel traffic, and associated impacts to water quality (e.g., spills, illegal discharges), near the Marine Terminal would be less for the Reduced Project Alternative than for the proposed Project because fewer vessels (132 compared to 201) would unload oil at Berth 408. However, the Reduced Project Alternative also includes 240 vessel calls to existing liquid bulk terminals in the Harbor, and the overall effects of vessel traffic on water quality in the Harbor would be greater than for the proposed Project.

3.5.1 Effects on Threatened/Endangered Species

No critical habitat for any federally-listed species is present in the Harbor, so critical habitat would not be affected by construction or operation of the proposed Project or Reduced Project Alternative. The federally-listed species likely to be present in the proposed Project area are the California least tern, California brown pelican, and western snowy plover. The state-listed peregrine falcon could also be present. Three

species of listed whales (blue, fin, and humpback) are present in offshore waters and could be affected by vessel traffic associated with the project. Impacts from project construction and operation activities on these species are discussed below. Four species of federally-listed sea turtle (green, olive Ridley, leatherback, and loggerhead) are occasional visitors to offshore waters in the project region but have not been reported in the Harbor during more than 20 years of biological surveys (MEC 1988, MEC and Associates 2002). These species would not be affected by the proposed Project or Reduced Project Alternative and are not discussed further in this analysis.

California Least Tern

Construction

Marine Terminal. Construction of the Marine Terminal facilities on land at Face C of Pier 400 would be at least 2,400 feet (730 m) from the California least tern nesting site. Construction activities at that distance from the nesting site are unlikely to affect least terns while at the nesting site. Least tern flights to the Cabrillo Shallow Water Habitat and Pier 300 Shallow Water Habitat for foraging would be unlikely to pass over the construction site, although some individual terns could fly over the site en route to other areas in the Harbor.

Noise and vibration from pile driving for construction of the Marine Terminal could affect least terns directly through startle responses and indirectly through changes in the distribution or abundance of fish prey species in response to the vibration. Pile driving for the Marine Terminal would occur more than 2,400 ft (730 m) from the western edge of the least tern nesting site. Peak noise levels from pile driving would range from 95 to 107 dB(A) at a distance of 50 ft (15 m) (City of Los Angeles 2006). Using the maximum value for pile driving (largest steel piles), the noise level at the western edge of the California least tern nesting site would be less than approximately 74 dB due to attenuation of the sound by more than 33 dB over the 2,400-ft (732-m) distance between the work activity and the western edge of the nesting site. Ambient noise measured at the western edge of the nesting site averaged 50 dB(A) during the day, with a maximum of 88 dB(A) (Navcon Engineering 2005b – see Appendix L.2 of the Draft SEIS/SEIR). Pile driving would not increase the maximum noise level at the least tern nesting site, but would increase the average noise level by up to 24 dB(A) while the steel piles were being driven. The increase in noise would be less for the smaller concrete piles. Because pile driving noise would be less than existing maximum noise levels at the nesting site, noise (in air) from the pile driver for the steel pilings would have a low potential to startle least terns at the nesting site.

Pile driving also causes sound pressure waves in the water that could result in the dispersal of fish schools, at least temporarily, and consequently could affect the ability of least terns to find and feed on small schooling fish. For the berthing structures, 110 (Option 1) or 74 (Option 2) steel piles are planned for Berth 408 and would range from 48 to 54 inches (122 to 137 cm) in diameter. In addition, 40 (Option 1) or 184 (Option 2) 24-inch (61-cm) diameter concrete piles would be installed in the water for the berth. Shallow water foraging areas for the least tern at the Cabrillo Shallow Water Habitat are located more than 2,000 ft (610 m) from the

Marine Terminal, and effects of pile-driving sound on fish are expected to be minimal. This is because the distance from the berth to the foraging area would be more than twice the 575-ft (175-m) distance at which effects on fish behavior would be expected and because the size of piles would be smaller than those for which those effects were observed (NMFS 2003). These effects also would be of short duration and greatest along Face C of Pier 400, representing deep water habitat that is not heavily used for least tern foraging. Further, the area affected by pile-driving sound pressure waves would be a small portion of Harbor waters, and installation of the piles may or may not occur when the least terns are present. Sound pressure waves are not expected to affect the availability of forage fish in the Pier 300 Shallow Water Habitat due to its location relative to the pile driving.

Tank Farm Site 1. Proposed Project or Reduced Project Alternative facilities on Tank Farm Site 1 and the necessary utility line extensions at Pier 400 would be constructed adjacent to the California least tern nesting area. Temporary staging area 412 would also be located adjacent to the northeast corner of the least tern nesting area and could be used for delivery and storage of stone column gravel. Construction activities within about 200 ft (61 m) of the nesting area would have the potential to adversely affect the reproductive success of least terns if these activities occurred during the nesting season. The 200-ft distance has historically been accepted as an appropriate set-back from the least tern nesting site for construction lay-down areas (USACE and LAHD 1992.) This distance is not an exclusion zone or an absolute distance that prohibits all activities, but rather is a reasonable buffer distance that would apply to construction activities that have the potential to adversely affect the California least tern. This distance can be modified through consultation with the California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS) under the Memorandum of Agreement (MOA) for the California Least Tern Nesting Site (City of Los Angeles et al. 2006), but for this analysis is assumed to be 200 ft (61 m).

Construction activities that would occur within 200 ft (61 m) of the nesting site include most of the 50,000-bbl surge tank, the motor control building and transformers, an access road, the eastern portion of the 8-ft (2.4-m) high containment dike, an 8-ft (2.4-m) high security fence, approximately five 30-ft (9-m) high light poles, a 24-inch diameter water line, a 34.5-kV electrical line, a communication line, a gas line, a storm drain line, and a portion of Pipeline Segment 1 (see Figures 2-4 and 2-6 in Chapter 2 of the Draft SEIS/SEIR). Temporary piles would be driven adjacent to staging area 412 as a mooring for ships delivering stone column gravel. The eastern side of the 50,000-bbl surge tank would be 120 ft (36.6 m) from the security fence adjacent to the least tern nesting site. For the impact analysis, it is assumed that some of these facilities would be constructed during the nesting season. Construction of the other tanks (excluding stone column installation discussed below); the remaining containment dikes and security fence, parking, and perimeter access road; other equipment; operator building and administrative building; and the Marine Terminal facilities would occur at a distance greater than 200 ft (61 m) from the least tern nesting site.

Noise from at least some of the construction equipment and human presence adjacent to (within approximately 200 ft [61 m] of) nesting least terns could cause adults to abandon nests or to leave the nests long enough that the eggs or chicks become chilled or preyed upon. Because the western side of the least tern nesting site is at a

higher elevation than Tank Farm Site 1, human presence alone within 200 ft (61 m) is not likely to adversely affect the least terns. However, temporary lighting, equipment, stockpiles of materials, or large pieces of equipment could provide perches for predatory birds near the nesting site during construction. Food wastes from construction workers that are not placed in sealed trash receptacles and lighting could attract predators that would disturb or prey upon least terns. Construction near the least tern nesting site would occur during two nesting seasons, based on construction schedules.

Stone columns made from compacted gravel would be installed for support under the tanks (prior to tank construction) at Tank Farm Site 1 and Tank Farm Site 2. This would involve the use of a vibrating probe to penetrate into the ground and install the gravel columns. Testing to determine if the stone columns have sufficiently strengthened the soil would also occur. Both noise and vibration are produced by these activities. Installation of stone columns at Tank Farm Site 1, particularly those closest to the nesting site when the least terns are nesting, has the potential to disturb or stress the birds and, thereby, reduce reproductive success. A study of existing noise levels at the west edge of the least tern nesting site in August 2005 (Appendix L.2 of the Draft SEIS/SEIR) found noise to be directly related to activities at the existing terminals on Pier 400. The average noise level at the northwest corner of the nesting site was approximately 50 dB(A), with the maximum level exceeding 88 dB(A). At the southwest corner of the nesting site the average noise level was approximately 48.5 dB(A), with the maximum level above 83 dB(A). Construction activities at the Marine Terminal and Tank Farm Site 1 would add to those noise levels, particularly when project noise is more than 10 dB(A) higher than the background noise level. The California least tern would not be affected if the stone column installation is scheduled for September through March when the least terns would not be present. Stone column installation would take six months (see Figure 2-11 in the Draft SEIS/SEIR) and, thus, could occur when the least terns are present. Noise and vibration from stone column construction at Tank Farm Site 1 during the least tern nesting season would have the potential to adversely affect this species. Installation of stone columns at Tank Farm Site 2 would not affect the least tern due to distance from the nesting area.

Pipeline Segment 1 Route. No construction activities would take place in shallow water foraging habitat for the least tern, but Pipeline Segment 1 in the causeway bridge from Pier 400 to Terminal Island would pass near the shallow water habitat on the east side of Pier 400 and the Pier 300 Shallow Water Habitat. The potential for effects on the least tern would depend on the timing of construction activities. If all construction within approximately 200 ft (61 m) of the nesting site and foraging areas was completed when least terns were not present, then no effects to that species would occur. Construction when least terns are present (April through August) would have the potential to adversely affect some individuals, depending on the type of activity and its location and duration.

Staging and Storage Areas. Staging area 412 on Pier 400 just north of the California least tern nesting site could be used for delivery and storage of gravel for stone column installation. Staging area 412 is paved and, thus, would not provide any suitable nesting habitat for the California least tern. Installing and removing temporary mooring piles at this location within 200 ft (61 m) of the nesting site would have the potential to disturb least tern nesting if these activities occur between

April and late August. Unloading, stock piling, and transporting gravel to the tank construction locations at Tank Farm Site 1 would also have the potential to disturb least tern nesting in the northeast portion of the nesting site, if such activities occur during the nesting season (April to September). As noted above, stone column work would take six months, which could overlap with the least tern nesting season. These activities would be unlikely to adversely affect least tern nesting because they would be similar to activities that currently occur at the adjacent container terminal (e.g., vehicle movement, human presence, and noise associated with those activities). Activities at the container terminal occur as close as 120 ft (37 m) to the least tern nesting site while staging area 412 extends over 800 ft (244 m) away from the nesting site, allowing space for activities away from the nesting site. Storage and movement of rock at any of the other potential staging areas would not affect the California least tern due to distance from the nesting site.

Other Construction Activities. Construction of Tank Farm Site 2 and other pipeline segments as well as use of other staging areas would not directly affect the California least tern due to distance from the nesting site and foraging areas. Runoff of sediment and pollutants from construction activities at the proposed Project or Reduced Project Alternative facility sites has the potential to adversely affect water quality, particularly at storm drain outlets. Such runoff would most likely occur during the rainy season (October through April) when the least tern is not present. Runoff of pollutants such as concrete wash water, especially during the least tern nesting season, has the potential to cause mortality of forage fish used by least terns. The proposed Project or Reduced Project Alternative would be required to comply with the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity, which includes preparation of a SWPPP and implementation of Best Management Practices (BMPs) to control stormwater runoff of pollutants. Thus, no reduction in forage fish availability for the California least tern would occur.

Operations

Noise and Vibration. Operation of the tank farm facilities at Site 1 on Pier 400 would locate noise and vibration sources (i.e., pumps and transformers) near the least tern nesting area. However, the locations of noise-generating equipment have been sited to minimize effects on the California least tern. A noise contour study showed that noise from the shipping pumps and other proposed Project equipment would extend into the least tern nesting area, resulting in noise levels ranging from 45 to 70 dB(A) (Navcon Engineering 2005a – see Appendix L.1 in the Draft SEIS/SEIR). Placement of a 26-ft (7.9-m) high sound wall barrier with a roof around the east and south sides of the shipping pumps and a 6-ft (1.8-m) block wall around the large transformers are part of the proposed Project to reduce noise at the California least tern nesting site (Navcon Engineering 2006 – see Appendix L.3 in the Draft SEIS/SEIR).

Ambient noise was measured at one-hour intervals over a seven-day period in August 2005 at the north and south ends of the western least tern nesting site boundary (Navcon Engineering 2005b – see Appendix L.2 in the Draft SEIS/SEIR). These measurements showed that average noise levels varied between 50 and 60 dB(A) during the day (about 7 AM to 12 AM) and between 40 and 45 dB(A) at night. The maximum noise recorded was 88.2 dB(A).

A 3D noise modeling study (Navcon Engineering 2006 – see Appendix L.3) combined the ambient and predicted proposed Project noise levels, and noise contour maps were generated using the Community Noise Exposure Level (CNEL). The results of this modeling showed that operation of facilities at Tank Farm Site 1 would increase ambient noise at the least tern nesting site by less than 1 dB(A) over most of the site and by less than 2 dB(A) in a small are along the western side of the nesting site. When the shipping pumps are not running, the terns would only be exposed to background ambient noise. Short term noise events at the existing adjacent marine container terminal currently exceed the average ambient noise level of 50 to 60 dB(A). Noise from container loading and unloading and trucks (including horns and gate activities) does not deter least tern nesting at Pier 400. The small, intermittent increase in noise resulting from operation of Tank Farm Site 1 would not adversely affect the California least tern. The species has continued to nest at this location, even with periodic high noise levels associated with existing activities on Pier 400.

Lighting. Lighting along the eastern security fence would be adjacent to the California least tern nesting area. These lights would have directional beams pointing away from the nesting area. Tank stairs, platforms, and instrument locations would have lights with shields and deflectors to direct light on the work area only. These lights would be smaller, located at distances of 120 ft (36.6 m) or greater from the nesting site, and unlikely to affect light levels at the nesting site. Project lighting along the eastern side of Tank Farm Site 1 would add an increment to the general night light levels in the western part of the nesting site that would range from negligible in the north where the larger APM Container Terminal lights are located to small in the south near the Pier 400 Face D dike. This small increase in light levels would only extend a short distance into the least tern nesting site, primarily at the southwestern corner. The nesting site is approximately 850 ft (259 m) wide, and a low level of increased light along the western edge would have a low potential to disturb least tern roosting at night or to increase predation on the least terns.

Predation. The buildings, containment dikes, security fence, light poles, sound barrier wall, and the closest tanks (50,000-bbl and one 250,000-bbl) could provide perches for birds, such as American crow, common raven, American kestrel, black-crowned night heron, and gulls, that may prey on least tern eggs, young, or adults (Keane Biological Consulting 2003). The locations of structures that could be used as perches have been discussed with biological resource agencies during the proposed Project planning process and some structures were relocated to minimize impacts. The least tern nesting site is approximately 7.5 ft (2.3 m) higher (elevation 23.5 ft MSL) than the ground surface at Tank Farm Site 1 (elevation 16 ft MSL), and the tanks would have a height of 51.5 ft (15.7 m) above ground level (elevation 67.5 ft MSL at top). The closest of these tanks would be 120 ft (36.6 m) from the least tern nesting site and 44 ft (13.4 m) higher than the nesting site. The light poles would be 30 ft (9.1 m) tall, making them 22.5 ft (6.9 m) higher than the nesting site. Approximately five of these poles would be within 200 ft (61 m) of the nesting site. The Motor Control Building would be 16 ft (4.9 m) high, or 8.5 ft (2.6 m) higher than the nesting site. The sound barrier wall around the pumps would be 26 ft (7.9 m) tall, and only a portion of it would provide potential vantage points for viewing of the least tern nesting site by perching predators (Motor Control Building and 50,000-bbl tank are between the wall and the nesting site). Thus, the proposed project could increase predation on the least tern that could affect their population size. The security fence and containment dikes would be only 0.5 ft (0.2 m) higher than the

least tern nesting site and, thus, would not provide perching vantage points for predators, considering that the chick fence is about 3 ft (0.9 m) high along the western edge of the nesting site and the nesting site slopes downward to the east.

Human Presence. During operations of the Marine Terminal and Tank Farm Site 1, the level of human presence would be low, with little activity near the least tern nesting site. Vehicular traffic on the perimeter access road in Tank Farm Site 1 would be infrequent. PLAMT personnel would periodically inspect the tanks, but this activity would be of short duration (a few hours at the most) and would be over 120 ft (61 m) away from the nesting site. This level and location of human activity is unlikely to have any effect on the least tern. The Port has an existing worker education program regarding the California least tern that would apply to the PLAMT personnel.

Vessel Traffic. Project-related vessel traffic (201 vessels per year) entering the Outer Harbor would use the existing Glenn Anderson Ship Channel to reach the new berth on Pier 400. Under the Reduced Project Alternative, 132 vessels per year would access Berth 408, and 240 vessels per year would access three existing liquid bulk terminals in the Harbor. Project-related vessel calls would have no effects on least tern foraging because transit to Berth 408 would be within the existing shipping channel and then across deep water to the berth. The vessels accessing the existing terminals would also use existing shipping channels to reach the berths. No foraging areas would be crossed.

Visual. The visual presence of the tanks and other facilities at Tank Farm Site 1 has the potential to affect California least terns. A visual simulation of the views from ground level at the southeastern corner, center, and northwest corner of the nesting site shows what the tanks would look like to least terns on the nesting site (Figure 3.3-1 in the Draft SEIS/SEIR). When close to the chick fence along the west side of the nesting site, the fence would at least partially screen the view of the tanks with the exception of the top edge of the 50,000-bbl and 250,000-bbl tanks. From the center of the nesting area both tanks would be visible, but only take up a small fraction (less than 4 percent) of the skyline. Containers at the terminal to the north of the project site also would be visible. From the southeast corner of the nesting site, the two tanks would appear small and low and take up only a fraction of the skyline. In general, least terns do not nest in the direct vicinity of high structures such as solid walls and buildings. The distance of the tanks from the nesting site and the low elevation of the containment berms around the tanks (0.5 ft [0.2 m] higher relative to the elevation of the nesting site) would not infringe on the open vista of nesting sites normally occupied by least terns (see Figure 3.3-1 in the Draft SEIS/SEIR).

Oil Spills. Small to moderate spills of oil into waters of the Outer Harbor from vessels in transit to Berth 408 under both alternatives could drift into the Cabrillo Shallow Water Habitat before being contained and cleaned up. Such spills would be less likely to enter the Pier 300 Shallow Water Habitat due to distance, channel configuration, and the greater ease of booming off that area. If such an accident were to occur when California least terns were present and foraging in that area, oil could adhere to their feathers and cause mortality or sublethal effects by changing the insulation qualities of the feathers, through ingestion during preening, or by rubbing off onto eggs or chicks. Such effects could reduce survival of affected individuals, including eggs or chicks, and thus the southern California nesting population size. Oil spills from tankers accessing existing terminals in the Harbor under the Reduced

Project Alternative could occur in the Outer or Inner Harbor. Spills in Long Beach Harbor would be less likely to enter shallow water habitats used by the California least tern due to distance than spills from vessels en route to Berths 238-240 in the Port. Spills of crude oil or marine gas oil (MGO) during unloading at Berth 408 would be contained within the boom deployed around the vessel/barge and would not reach the shallow water foraging area used by the least terns.

Spills from Pipeline Segment 1 suspended on the causeway bridge could enter the Pier 300 Shallow Water Habitat, the Seaplane Lagoon, or the channel adjacent to the Pier 400 causeway (west side) due to pipeline rupture. Spills from Pipeline Segment 4 where it crosses over Dominguez Channel could also result in oil reaching Harbor waters. Spills from project pipelines to Harbor waters would be unlikely to occur (i.e., frequency less than one per one million years) during the proposed Project, but if one did occur, it would be contained and cleaned up in accordance with Oil Spill Prevention, Control, and Countermeasure (SPCC) requirements and the proposed Project Oil Spill Contingency Plan (OSCP). Oil spills from the tanks or pipelines on land would be contained and cleaned up before reaching Harbor waters. The California least tern nesting site is at a higher elevation than Tank Farm Site 1. Thus, the California least tern nesting site would not be affected by those oil spills, but foraging least terns could be affected by spills entering the Pier 300 Shallow Water Habitat and Seaplane Lagoon as described above.

Oil spills could also occur during vessel transit in offshore waters. Offshore spills would not affect the California least tern because none would be present in these habitats.

California Brown Pelican

Construction

Construction activities on Pier 400 (Marine Terminal, Tank Farm Site 1, Pipeline Segment 1 route, and staging area 412) are unlikely to adversely affect California brown pelicans. This species appears adapted to harbor activities because there has been no decline in abundance as Harbor activity has increased. No roosting areas on the breakwaters would be directly or indirectly affected by the proposed Project or Reduced Project Alternative, and the species does not nest in the Harbor area. The Middle Breakwater, where the pelicans prefer to roost, is located about one-half mile (0.8 km) or more from the project sites. Furthermore, much of the construction activity would occur during the day when the pelicans are not roosting.

Foraging by brown pelicans can occur throughout Harbor and nearshore waters. The only construction activity that would occur in or immediately adjacent to the water would be construction of the Marine Terminal and installation/removal of temporary mooring piles at staging area 412, if this site is used for delivery of stone column gravel. However, this would only affect a small area of potential brown pelican foraging habitat, relative to the amount of comparable habitat present in the Outer Harbor and nearby nearshore waters, for a short time. Brown pelicans may avoid the project region during construction, although some may continue to forage in that area. No adverse effects to the species would result due to the small area affected, the short duration of the disturbance, and availability of other foraging areas nearby.

Operations

Normal operation of project facilities is not likely to adversely affect brown pelicans in the Harbor because no foraging, roosting, or resting habitat would be lost or disturbed. Movement of tankers to and from the berth could briefly interfere with foraging, but this would not be any different than disturbances caused by other vessel traffic in the Harbor. By 2040, about four vessels per week are expected to use the Marine Terminal for the proposed Project; for the Reduced Project Alternative, fewer than three per week would use the Marine Terminal at Berth 408, fewer than three per week would use LAHD Berths 238-240, and two per week would use the two Long Beach terminals. This level of activity would not adversely affect pelican foraging.

As described above for the California least tern, oil spills are unlikely to occur due to the safety measures that are part of the proposed Project or Reduced Project Alternative. However, if a spill were to occur that enters Harbor waters, oil could adhere to the feathers of brown pelicans as they dive into the water or while resting on the water surface. This could affect their thermoregulation and cause physiological stress when ingested during preening. Brown pelicans do not nest in the Harbor area so the oil would not affect their eggs, chicks, or breeding success. The number of brown pelicans that could be affected would depend on the time of year that the spill occurred, the size of the spill, and the time for cleanup to be completed. The abundance of brown pelicans in the Harbor is greatest in the summer with a maximum of 1,181 observed in July 2000 (MEC and Associates 2002). California brown pelicans have a large range (west coast of the U.S. and into Mexico, with breeding at offshore islands in southern California and Mexico) so only a small proportion of the population might be affected by an oil spill in the Port. In addition, not all the individual brown pelicans in the Harbor would be affected by an oil spill because the oil would not spread over the entire water surface in the Harbor before being contained and cleaned up, and spill containment and cleanup activities would minimize brown pelican use of the spill area. For spills in open water away from the coast and coastal islands, few if any California brown pelicans would be affected due to their sparse distribution over open waters. In a worst case, a number of brown pelicans could be affected by an oil spill in the Harbor or offshore with adverse effects to the species. Oil spills on land would not affect this species.

Western Snowy Plover

Construction

Western snowy plovers are not known to nest in the Harbor, so there would be no potential for impacts to nesting by this species. Additionally, since construction activities would not directly affect the California least tern nesting site and Cabrillo Beach, western snowy plovers that occasionally visit the least tern nesting site and those that winter at Cabrillo Beach also would not be affected. Further, noise from construction associated with the Marine Terminal and Tank Farm Site 1 would not adversely affect snowy plovers migrating through the area and stopping at the least tern nesting site. This is because current peak noise levels can be as high as 88 dB(A) and the construction would not increase that peak level.

Operations

Operation of facilities on Pier 400 and Terminal Island would not interfere with western snowy plover migration. The storage tanks, associated facilities, and low level of human presence would not impede migration flights, and noise from the facilities at Tank Farm Site 1 on Pier 400 would not adversely affect the few individuals that might stop at the California least tern nesting site during their migration. The shipping pumps would be the primary source of noise, but the sound wall around them would reduce noise to levels that would not affect the birds. Furthermore, the pumps may not be running when the western snowy plovers are present. Oil spills into Harbor waters would not affect this species while at the least tern nesting site because the individuals are not using the water surface. For the individuals wintering at Cabrillo Beach, oil spills into Harbor waters from vessels in transit to Berth 408 are unlikely to reach the beach due to rapid containment and cleanup of such spills.

Peregrine Falcon

Construction

Peregrine falcons feed on other birds (e.g., rock dove, starlings, etc.) and would not be affected by construction activities for the proposed Project or Reduced Project Alternative because no prey would be lost and only a small amount of potential foraging area would be temporarily affected. The peregrine falcon foraging area extends for miles (Grinnell and Miller 1986) and, thus, covers much of the Harbor as well as land areas to the west and north. No known peregrine falcon nesting areas (Vincent Thomas, Gerald Desmond, and Schuyler F. Heim bridges) would be affected due to distance from the project activities. The tank farms and pipelines would be 0.4 to 3.4 miles (0.6 to 5.5 km) from these nesting sites.

Operations

Operation of facilities at Berth 408, Tank Farm Site 1, and Tank Farm Site 2 for both the proposed Project and the Reduced Project Alternative would not affect the peregrine falcon because operational activities would not interfere with foraging or nesting. Operation of the pipelines also would not affect foraging or nesting of this species.

Marine Mammals

Construction

Few vessels from outside the Harbor would be required to deliver materials for proposed Project or Reduced Project Alternative construction. Four Panamax class vessels would deliver the gravel for stone columns, and pilings for the berth structures as well as rock for the base of the larger steel piles would be delivered by barge. The small amount of project-related vessel traffic in offshore waters and slow speed of the barges would not affect listed whales because the probability of encountering one would be very low.

Underwater noise from pile driving for construction of Berth 408 would not affect any listed whales because none are known to occur within the Harbor.

Operations

The addition of 201 vessel calls to the Port for the proposed Project would have a low probability of harming endangered whales through vessel collisions, particularly considering that the large amount of vessel traffic along the coast of California has resulted in few (less than three per year on average) reported strikes for all species (listed and non-listed) over the past 25 years (NMFS 2007). Of the 65 recorded strikes, blue whales accounted for 15 percent with a few humpback (6 percent) and fin (9 percent) whales. The reported incidence of vessel strikes for these three species was less than one individual per year. The north-south migration patterns of blue whales along the California coast cross (are perpendicular to) the established shipping channels in and out of California ports, making this species more likely to be struck by vessels than the other two species. However, the small number of vessels associated with the proposed Project would be unlikely to increase the incidence of vessel strikes for any of the listed whale species. For the Reduced Project Alternative, vessel calls to the Port would increase by 372 per year. This would increase the potential for vessel collisions with whales compared to the proposed Project.

Individuals of listed whale species in offshore waters could come in contact with spilled oil, although cetaceans may avoid oil slicks, with only minor effects such as a temporary discoloration of the skin (Geraci and St. Aubin 1980).

3.5.2 Effects on Benthos

All construction activities are land-based, with the exception of the proposed Marine Terminal berth on Pier 400 and a temporary mooring at staging area 412 (Figure 2-12 of Chapter 2 in the Draft SEIS/SEIR). Installation of 150 pilings (110 of which are steel piles 48 to 54 inches in diameter) for Option 1 or 258 pilings (74 of which are steel) for Option 2 in the water to support the berth structures would result in a loss of about 0.04 acre (0.02 ha) of soft and rocky riprap bottom in the footprint of the piles, but it would also add 1.9 acres (0.8 ha) of piling (hard substrate) surface in the water column. Rock placed around the base of the larger piles would replace approximately 0.1 acre (0.04 ha) of soft bottom with hard substrate habitat. Installation of the pilings would cause a temporary disturbance to benthic organisms through vibration and turbidity. Only a few pilings (probably two) would be needed for the temporary mooring at the staging area, and these would be removed after the rock is delivered. These disturbances would cause a negligible change in benthic habitat and no long-term loss of organisms as the new rock and piles would be colonized by typical invertebrates of the region. The effects would be the same for the Reduced Project Alternative.

Operation of Berth 408 would have minor effects on benthos related to propeller wash from vessels during berthing. Oil spills could affect intertidal invertebrates through direct contact with the oil or toxic effects of components in the oil. For a spill during vessel transit to Berth 408, the amount and location of intertidal habitat affected would depend on the amount and location of the spill, weather conditions,

tidal cycle, and speed of containment and cleanup. Because the spill would be in the Outer Harbor where it could be contained before reaching large areas of shoreline, the amount of habitat affected would likely be small relative to the total present in the Harbor. Although the probability of an oil spill from proposed Project or Reduced Project Alternative pipelines into Harbor waters is very low (once in a million years), oil spilled into waters of the Inner Harbor would affect intertidal invertebrates over a larger area than a spill in the Outer Harbor because the narrow channels and slips have a larger amount of shoreline relative to the amount of surface water. Therefore, an oil spill would reach more shoreline before being contained and cleaned up. In a worst case, a substantial amount of intertidal habitat could be affected by a spill. Such events would occur infrequently with recolonization by organisms after the spill. Based on experimental removal of intertidal invertebrates, recovery would be expected within a few years (MEC 1988). Intertidal organisms attached to riprap, pilings, and bulkheads also could be affected by spill cleanup operations. However, prior to initiating spill cleanup operations, the on-scene spill coordinator would evaluate the potential cleanup options (e.g., dispersants or physical removal) to determine the most effective approach with the least impact on sensitive resources.

Subtidal benthic invertebrate communities are unlikely to be affected by an oil spill because the oil would float on the water surface, soluble components would be diluted before reaching the bottom, and cleanup would be rapid. The small amount of weathered oil that was not immediately cleaned up could sink to the bottom as tar balls that would either drift along the bottom or become incorporated into the sediments. The more toxic components would not be present in this weathered oil, and tar balls on the bottom would not substantially disrupt benthic invertebrate communities.

For the Reduced Project Alternative, the number of vessels and the potential for oil spills would be greater than for the proposed Project, and oil spills could occur in other areas of the Harbor (including the Long Beach Harbor), because oil would also be delivered to existing terminals using smaller vessels.

3.5.3 Effects on Water Column Species

Turbidity, noise, and vibration from berth construction would likely cause most fish to temporarily leave the immediate construction area. Installation, use, and removal of a temporary mooring at staging area 412 on Pier 400 (Figure 2-12 in the Draft SEIS/SEIR) would have similar but smaller magnitude effects on fish. Disturbances to these marine species would be temporary, and the animals could move to other nearby areas for the duration of the disturbance. Driving the larger steel piles for Berth 408 construction would have the potential to result in mortality of a few fish in the immediate vicinity of the work due to sound pressure waves. The species most likely to be affected would be northern anchovy due to their small size and abundance in the Outer Harbor. However, fish populations would not be adversely affected due to the small number of individuals affected, the short duration of the disturbance, and the small proportion of the Harbor affected. Upon completion of construction, displaced individuals would be able to return, resulting in no substantial disruption of Outer Harbor biological communities.

The temporary disturbances resulting from construction activities would not substantially reduce the abundance of food organisms available to predatory species, such as some species of fish. Further, the temporary movement of mobile species away from the construction area would not substantially disrupt local biological communities at the site or areas into which the displaced organisms would move. Sediments suspended during pile installation and rock placement would affect a small area at each pile location, but would dissipate rapidly with no substantial effects on biological communities (e.g., plankton and fish).

The potential for runoff of pollutants such as concrete washwater and sediments during construction would be controlled on site using BMPs; thus, runoff would not affect water quality in the Harbor at storm drain discharge locations. The small amount of pollutants that could pass the BMPs would not substantially affect marine organisms in Harbor waters at these locations due to expected low concentrations compared to ambient conditions.

The Reduced Project Alternative would have the same effects as the proposed Project because the same in-water and on land construction would occur.

The proposed Project would increase the number of vessels entering the Harbor and berthing at the proposed marine terminal by 201 per year. Vessel movement from the Glen Anderson Ship Channel to Berth 408 would cause minor, intermittent disturbance in the water column (e.g., noise, turbulence) that would not adversely affect plankton or fish communities. The fish would move away from the vessel during transit and then be able to use the area again after it has passed. The number of vessels using Berth 408 under the Reduced Project Alternative would be 132 per year with another 240 vessels per year accessing existing liquid bulk terminals in the Harbor. The latter vessels would use existing channels to those terminals, and the increased frequency of vessel passage would not adversely affect water column communities.

The potential for oil spills would be slightly lower for the proposed Project than for the Reduced Project Alternative (once in 217 years compared to once in 118 years for a small spill of less than 238 bbl) due to the lower total number of vessel calls. Spills from vessels in transit to Berth 408 (proposed Project and Reduced Project Alternative) could occur in the Outer Harbor while spills from vessels in transit to existing liquid bulk terminals (Reduced Project Alternative) could occur in the Outer Harbor or Inner Harbor. Spills from the tank farms would not reach Harbor waters, and spills from the pipelines, including the two above ground segments, would have a very low probability of entering Harbor waters (once in a million years). Small to moderate sized oil spills in the Harbor would have minor effects on water column species near the surface. Planktonic organisms under the slick could be affected by reduced light penetration for photosynthesis (phytoplankton) or exposed to toxic soluble components of the oil (phytoplankton and zooplankton). Exposure of these organisms to the oil would be of short duration and limited to the immediate vicinity of the slick because these species move with the currents throughout the Harbor and cleanup would be immediate. Furthermore, planktonic organisms have a high naturally occurring mortality rate, coupled with high reproductive rates (Dawson and Pieper 1993) which allow for rapid recovery from small, localized impacts. Thus, the Harbor plankton communities would not be substantially disrupted. Fish in the water column are mobile and could move away from the spill and cleanup disturbance.

Thus, few if any individuals would be affected, and fish populations and communities would not be substantially disrupted.

Spills of MGO during barge transit within the Harbor are unlikely to occur (once in 725 years for a small spill of less than 238 bbl and once in more than 78,106 years for a larger spill), but if one did occur, local marine communities could be affected due to the acute toxicity of some MGO components. MGO is a distillate produced from crude oil that contains polycyclic aromatic hydrocarbons (PAHs) which can be toxic to aquatic organisms (BP Marine 2004, Koyama and Kakuno 2004). The concentrations of toxic, water soluble components would be reduced rapidly due to evaporation, mixing, and dispersion. Recovery for intertidal invertebrates would be expected to occur within a few years and in less time for plankton and fish due to rapid reproduction and recruitment. MGO spills during unloading at Berth 408 would be contained by the boom around the barge and would not result in a substantial disruption of local marine communities. The potential for these effects would be about the same for the proposed Project and Reduced Project Alternative.

Small to large crude oil spills could occur during offshore transit of proposed Project vessels. Small oil spills (less than 238 bbl) would affect a small area and the volatile, toxic components would rapidly evaporate so that relatively few planktonic organisms and fish (particularly those near the water surface) could be affected. For larger spills, however, the oil could spread over a considerable area before dispersing and thus could affect more organisms near the water surface. Eggs, larvae, juveniles, and adults of invertebrates and fish near the water surface and under the oil would be exposed to the water soluble factions of the oil, which could be toxic. Evaporation and dilution would rapidly reduce the concentration of these substances in the water (Jordan and Payne 1980) so that effects on large numbers of organisms would be unlikely to occur. Marine organisms of the open ocean are generally wide ranging and do not form local communities. Furthermore, the low frequency of large spills (less than once in 911 years for the proposed Project and less than once in 496 years for the Reduced Project Alternative) would only affect the fish and planktonic organisms in one year out of many, and long-term population size would not be reduced. Thus, oil spills would not cause a substantial reduction or alteration of local fish and plankton communities. The probability of offshore oil spills would be lower for the proposed Project than for the Reduced Project Alternative due to fewer vessels.

3.5.4 Effects on Food Web

Disturbances due to proposed Project or Reduced Project Alternative construction activities would not adversely affect the food web in the Harbor due to the short duration and small area affected by berth construction. The new pilings and rock in the water column would provide hard substrate habitat for colonization by invertebrates and thus would not reduce productivity.

Increased vessel traffic to Berth 408 for the proposed Project (201 vessels per year) and the Reduced Project Alternative (132 vessels per year) would cause minor, intermittent disturbances in the water column during vessel transit as described above in Section 3.5.3. Propeller wash would have minor effects on benthic invertebrates

(see Section 3.5.2). These disturbances would not affect the food web in the vicinity of Berth 408.

The potential for introduction of invasive exotic species could increase because more and larger vessels would use the Port as a result of the proposed Project or Reduced Project Alternative. These vessels would come primarily from outside the EEZ and would be subject to regulations to minimize the introduction of non-native species in ballast water. Thus, it is unlikely that any ballast water discharges during cargo transfers in the Port would contain non-native species.

Non-native algal and invertebrate species can also be introduced via vessel hulls. Of particular concern is the introduction of *Caulerpa taxifolia*. This species is most likely introduced from disposal of aquarium plants and water and is spread by fragmentation rather than from ship hulls or ballast water; therefore, risk of introduction is associated with movement of plant fragments from infected to uninfected areas by activities such as anchoring. The Port conducts surveys, consistent with the Caulerpa Control Protocol (NMFS 2008), prior to every in-water construction project to verify that *Caulerpa* is not present. This species has not been detected in the Harbors (MEC and Associates 2002) and has been eradicated from known localized areas of occurrence in southern California (http://swr.nmfs.noaa.gov/hcd/_caulerpa/factsheet203.htm); therefore, there is little potential for additional vessel operations from the proposed Project or Reduced Project Alternative to introduce the species. *Undaria pinnatifida* was discovered in the Los Angeles/Long Beach Harbor in 2000 (MEC and Associates 2002), may be introduced and/or spread as a result of hull fouling or ballast water, and therefore has the potential to increase in the Harbor via vessels traveling between ports within the EEZ. Invertebrates that attach to vessel hulls could also be introduced in a similar manner.

The proposed Project would result in 201 vessels per year at Berth 408, and the number of vessel calls at Berth 408 would be 132 per year for the Reduced Project Alternative. Relative to the total number of vessels entering the Port annually (approximately 2,800 in 2004), these increases would represent 7 and 4 percent, respectively. For the Reduced Project Alternative, an additional 240 vessels per year would access existing liquid bulk terminals in the Harbor. Tankers unloading oil would be taking on ballast water rather than discharging it. Considering this and the ballast water regulations currently in effect, the potential for introduction of additional marine exotic species via ballast water from vessels entering the Harbor would be low. The potential for introduction of exotic species via vessel hulls would be increased in proportion to the increase in number of vessels. However, vessel hulls are generally coated with antifouling paints and cleaned at intervals to reduce the frictional drag from growths of organisms on the hull (Global Security 2007) that would reduce the potential for transport of exotic species. For these reasons, while such effects could occur, the proposed Project or Reduced Project Alternative has a low potential to increase the introduction of non-native marine species into the Harbor.

As described in Section 3.5.3, oil spills could occur in the Outer Harbor for the proposed Project and in both the Outer and Inner Harbor for the Reduced Project Alternative. Impacts on the food web would be minor and of short duration because

benthic, intertidal, and water column communities would not be substantially disrupted and would recover rapidly as described above.

3.5.5 Effects on Special Aquatic Sites

No special aquatic sites (marine sanctuaries or refuges, wetlands, mudflats, coral reefs, riffle and pool complexes, vegetated shallows) are present in or near the site of the proposed Project. Eelgrass beds, mudflats, and saltmarsh wetlands are the only special aquatic sites within the Harbor, and these are located far enough from the site that no direct or indirect effects would result from proposed Project or Reduced Project Alternative construction and operations activities. The eelgrass beds and saltmarsh at Cabrillo Beach are located more than 1.4 miles (2.3 km) from the project site. Mudflats at LAHD Berth 78 in the Main Channel are located approximately 1.7 miles (2.7 km) from the proposed Berth 408 and across the channel from Berths 238-240. The small amount of vessel traffic for the proposed Project (201 vessels per year) would not affect any of these sites. For the Reduced Project Alternative, oil tanker traffic would use Berth 408 (132 vessels per year) plus 240 vessels per year would use Berths 238-240 in the Main Channel and two berths in the Port of Long Beach Inner Harbor. No saltmarsh, eelgrass beds, or mud flats are present near the Port of Long Beach berths or along the vessel routes to these berths. Thus, vessel traffic would not affect these habitats. Vessels using Berths 238-240 would not affect the mudflat at Berth 78 due to slow speeds within the Main Channel.

Oil spills during vessel transit within the Outer Harbor could reach the eelgrass beds near Cabrillo Beach. Spilled oil is less likely to reach the eelgrass beds in the Pier 300 Shallow Water Habitat due to the greater distance from transit routes and the ability to more effectively boom this area off. Effects on the plants, if spilled oil were to reach them, would be adverse but of short duration (Committee on Oil in the Sea 2003, Okada 2001). Invertebrates within eelgrass beds would also be adversely affected with rapid recovery for most species (Jacobs 1980, Jewett and Dean 1997, Den Hartog and Jacobs 1980). The oil would float, toxic volatile components would evaporate or be diluted (Jordan and Payne 1980) before the oil reaches these areas, and the oil would be cleaned up immediately in compliance with SPCC requirements and the proposed Project OSCP, thereby reducing the potential for toxic effects. Containment of the oil or placement of a boom across the narrow channel connecting the saltmarsh to the Harbor would prevent any from entering the Cabrillo Saltmarsh. Oil spills in offshore waters would not reach any special aquatic sites before being cleaned up or weathering until toxic components had evaporated. Thus, oil spills could cause a substantial reduction or alteration of eelgrass habitats but would not substantially affect other natural habitats. The potential for oil spills for the Reduced Project Alternative would be slightly higher than for the proposed Project due to a larger number of tankers, and spills could occur in the Outer Harbor or Inner Harbor. However, the potential for impacts to eelgrass beds would be similar to that for the proposed Project, and the mudflat at Berth 78 could be affected by a spill from a tanker while approaching Berths 238-240.

3.5.6 Effects on Essential Fish Habitat

The EFH analysis in the Draft SEIS/SEIR has shown that construction of the proposed Project or the Reduced Project Alternative would have no substantial

effects on Fisheries Management Plan (FMP) species. Construction of Berth 408 on the southwest side of Pier 400 would potentially affect EFH and fish listed in the FMPs through turbidity, temporary displacement of individuals due to construction activities, release of contaminants to the water column, temporary lighting, and underwater sound from the pile driving (see Appendix K in the Draft SEIS/SEIR). Installation of piles, and placement of rock around the base of the larger piles, for the berth structures would result in vibration in the water, as well as a small amount of turbidity.

Sound pressure waves caused by driving the steel piles could affect fish near the piles with mortality of some individuals. The four species in the Coastal Pelagics FMP (northern anchovy, Pacific sardine, Pacific mackerel, and jack mackerel) are common water-column species in the Harbor that could be affected by pile driving. The only common Pacific Coast Groundfish species, Pacific sanddab, likely to be present near construction activities could also be affected by pile driving. Fish in the Groundfish FMP, other than the Pacific sanddab, are generally not very abundant in the Harbor, and most occur in habitats away from the Marine Terminal work area. The number of fish affected would depend on the distribution and abundance of these species near the construction site at the time of construction. Although sound pressure waves from pile driving could cause mortality of a few fish in the Coastal Pelagics FMP, these species are abundant in the Harbor and loss of a few individuals would not cause a substantial reduction of their populations. Furthermore, there have been no documented cases of fish mortality as a result of pile driving in the Harbor. Fish would generally avoid the work area while construction activities were under way. Thus, few individuals would be present in or near the work area, and those present would likely move out of the work area.

Pile driving and rock placement would produce minimal turbidity that would be in a small area around the piles and of short duration. Fish eggs and larval fish are primarily found in the water column in the project area and are dispersed by water movement, while juvenile and adult fishes have the ability to move to avoid the disturbance during construction activities. Short-term water quality impacts (e.g., turbidity) may slightly affect resident fishes; however, these impacts would likely have no effect on the success of fish populations due to the ability of the juvenile and adult fishes to relocate to other areas, and the constant water replenishment that occurs in harbors and bays which transports fish larvae and eggs to various areas within harbors. A brief relocation of these transient species would not result in biologically significant impacts with regard to competition, predation, or spawning.

Construction of a temporary mooring adjacent to staging area 412 on Pier 400 would result in short-term disturbances from driving piles, mooring of vessels to unload gravel for the stone columns, and subsequently removing those piles. These disturbances would be less than for Berth 408 construction and would have no adverse effects on EFH and individuals of managed species.

A small amount of water column habitat (0.04 acre, 0.02 ha) would be converted to hard substrate (piles) due to Berth 408 construction, the addition of rock around the base of the piles installed in soft sediments would convert a small amount of soft bottom to hard substrate (0.1 acre, 0.04 ha), and 1.9 to 2.4 acres (0.8 to 1.0 ha) of hard substrate habitat would be created by the surface of the piles in the water column. Conversion of soft bottom and water column habitat to hard substrate

habitat would add structure in the water column that could increase productivity in the Harbor and provide shelter for individuals of FMP species or their prey. These effects on EFH would result in no loss of sustainable fisheries.

Construction activities on land would have no direct effects on EFH, which is entirely located in the water. Sediments eroded from construction areas, however, could runoff into the Harbor. As discussed in the Draft SEIS/SEIR, implementation of sediment control measures (e.g., sediment barriers) would minimize such runoff and result in minimal effects on water quality that could affect EFH.

Small to moderate spills of oil into Harbor waters during vessel transit to Berth 408 could drift into the Cabrillo Shallow Water Habitat before being contained and cleaned up. Although the small to moderate spills have a low probability of occurring, a spill could have short-term effects on Coastal Pelagics FMP species such as the northern anchovy, Pacific sardine, Pacific mackerel, and jack mackerel because juveniles and adults of these fish are frequently near the water surface and some individuals could be exposed to soluble factions of spilled oil until evaporation and dilution occurs. Of these five species, only the northern anchovy spawns in the Harbor (as well as outside the Harbor), and the planktonic eggs and larvae could be exposed to toxic components of spilled oil that dissolve in the water. However, the area affected would be a fraction of the entire Harbor, and the amount of eggs and larvae that could be adversely affected would not substantially reduce recruitment into the population. Like the anchovy, Pacific sardine, Pacific mackerel, and jack mackerel are coastal fish species that feed on planktonic organisms. However, in contrast to the anchovy, these species spawn offshore, in open water areas, and their larvae primarily develop as part of the pelagic plankton in the Pacific Ocean, using kelp forests and ocean piers as shelter from predators. In addition, no larvae of sardine, Pacific mackerel, and jack mackerel were found in the Los Angeles or Long Beach Harbors in the 2000 Baseline Study and the abundances of adults were also substantially lower than that of the anchovy (less than 0.15 percent of the total fish caught) (MEC and Associates 2002). Due to the ability of the adult Pacific sardine, Pacific mackerel, and jack mackerel to relocate from an oil-contaminated area, and the lack of their larvae and eggs within the Harbor, it is unlikely that a large oil spill would impact these fisheries in the long-term; however, short-term effects of oil exposure may be experienced some individuals within the area of the spill. The Pacific sanddab (Groundfish FMP) would not be adversely affected by an oil spill because the juveniles and adults remain on or near the bottom and they would not be exposed directly to floating oil.

Small to large oil spills could occur during offshore vessel transit (see the Draft SEIS/SEIR). Small oil spills (less than 238 bbl) would affect a relatively small area, and the volatile, toxic components would rapidly evaporate so that few if any individuals of FMP species (particularly those near the water surface) are likely to be affected. A larger spill, however, could spread over a considerable area before dispersing and, thus, could affect a greater number of individuals of FMP species. Eggs, larvae, juveniles, and adults near the water surface and under the oil would be exposed to the water soluble factions of the oil. However, evaporation and dilution would rapidly reduce the concentration of these substances in the water (Jordan and Payne 1980) so that effects on large numbers of fish would be unlikely to occur. Furthermore, due to the low frequency of large spills (once in 911 to 1,063 years), the long-term population size would not be reduced.

Oil spill effects would be the same for the proposed Project and the Reduced Project Alternative, but the probability of a spill would be higher for the Reduced Project Alternative due to a larger number of vessels.

Up to 201 oil tankers would visit the new berth each year for the proposed Project and represents approximately one vessel call every two days. The transit distance within the Harbor from Angels Gate to the new berth on Pier 400 would be short. For the Reduced Project Alternative, the number of oil tanker calls per year at Berth 408 would be 132. The small increase for both alternatives would not adversely affect EFH or individuals of the managed species in the Harbor.

3.5.7 Effects on Other Wildlife

Terrestrial wildlife in the project area is generally limited to those species adapted to industrial areas, and no wildlife migration or movement corridors are present. Construction and operation of the proposed Project or Reduced Project Alternative would have minor, temporary effects on common terrestrial wildlife. Individuals of water-associated bird species that are resident or transient visitors to the Harbor forage over or in the water, or may rest on the water surface. However, few individuals of these species would occur in the project area, and those present in the area during construction could use other areas of the Harbor for the duration of the disturbance. The only loss of surface water habitat would be that displaced by the Berth 408 piles for the proposed Project or the Reduced Alternative.

Several species of marine mammals protected under the Marine Mammal Protection Act and a number of bird species whose nesting is protected under the Migratory Bird Treaty Act are residents or visitors to the Harbor. The most common marine mammals are the California sea lion and harbor seal. Birds that could nest in the project area, particularly at Tank Farm Site 1, include the burrowing owl, black skimmer, Caspian tern, and elegant tern.

Black skimmers, Caspian terns, and elegant terns have used a portion of the Tank Farm Site 1 area for nesting in the past but would not be expected to nest there prior to project construction. In 2003 and 2004, vegetation was cleared from a portion of Tank Farm Site 1 adjacent to the California least tern nesting site to provide additional area for least tern nesting, and both Caspian and elegant terns as well as black skimmers used that area with approximately 10,000 elegant tern nests in 2004. Caspian and elegant terns began nesting adjacent to the least tern site in 2005 but abandoned the area in May and have not nested there since (Keane Biological Consulting 2007a,b). This area was not cleared in 2005 through 2007, and this made the site less attractive for nesting by Caspian, elegant, and least terns as well as black skimmers. (Elegant terns are presently nesting at Bolsa Chica wetlands.) If, however, vegetation were cleared in advance of Tank Farm Site 1 construction and prior to the nesting season, and if elegant and Caspian terns and black skimmers were in the area, they could use the site again, and construction activities could injure or kill nesting birds or cause them to abandon their nests.

Burrowing owls have been observed at and near the California least tern nesting site from 2003 through 2007 and appear to be preying on the California least terns. No observations of owl pairs or other indications of nesting have been observed during

the least tern monitoring (K. Keane, personal communication 2008). However, since individuals are present during the owl nesting season (February through August), it is assumed that nesting could occur on Pier 400. Construction activities could injure nesting birds or cause them to abandon their nests. Any reduction in the number of burrowing owls present, however, would be a benefit to the least terns.

Underwater noise levels during pile driving produces noise levels of 177 to 220 dB (re 1 µPa) at 33 ft (10 m) depending on material and size of piles (Hastings and Popper 2005). With the exception of pile driving, underwater noise levels associated with construction activities would be below the Level A harassment (potential to injure) level of 180 dB_{rms} (re 1 µPa) for marine mammals (Federal Register 2005). Sound pressure waves in the water caused by pile driving could affect the hearing of marine mammals (e.g., sea lions). Observations during pile driving for the San Francisco-Oakland Bay Bridge East Span seismic safety project showed sea lions swam rapidly out of the area when piles were being driven (Caltrans 2001). Thus, sea lions would be expected to avoid areas where sound pressure waves could affect them. Any harbor seals or California sea lions present during proposed Project or Reduced Project Alternative construction would likely avoid the disturbance areas and, thus, would not be injured.

Underwater sound from project-related vessels or tug boats used to maneuver them to and from the berth would add to the existing vessel traffic noise in the Harbor. Because a doubling in the number of vessels (noise sources) in the Harbor would be necessary to increase the overall underwater sound level by 3 dB(A) (FHWA 1978), the small increase in vessels relative to the total using the Harbor (2,800 per year in Los Angeles Harbor) would not result in a measurable change in overall noise. Noise levels associated with vessel traffic, including noise near heavily used ferry terminals, generally range between 130 and 136 dB (re 1 µPa) (WSDOT 2006), which are below the injury threshold of 180 dB_{rms} (re 1 µPa).

Oil spills from project-related vessels during transit in the Harbor (crude oil from tankers and MGO from barges) and in offshore waters along the coast would have a low frequency of occurrence (see Section 3.5.3), particularly for moderate to large spills. For marine birds (excluding those threatened or endangered species addressed in Section 3.5.1) loss of substantial numbers due to a moderate or large oil spill, even though of low probability, could have long-term, adverse effects on population size due to their low reproductive rates. Gulls are the most numerous group of marine birds present in the Harbor (MEC and Associates 2002) and, thus, would be the most likely to be affected. These birds often rest on the water surface and could come into contact with oil on the surface. Other bird species, for which a small proportion of their regional populations could be affected by an oil spill in the Harbor, would not be substantially affected.

3.5.8 Actions Taken to Minimize Impacts

LAHD has an MOA for Port activities that could affect the California least tern nesting site that is currently located on Pier 400. In addition to this, the following mitigation measures would be implemented to minimize impacts of the proposed Project and Reduced Project Alternative on biological resources.

Construction

1. A qualified biologist shall be present and monitor California least tern nesting during construction activities on Pier 400, including installation of Pipeline Segment 1 to Tank Farm Site 2 and use of staging area 412, that would occur from April through August. In the event of an imminent threat to nesting California least terns, and the Construction Manager is not immediately available, the monitor shall have the authority to redirect construction activities. If construction activities need to be redirected to prevent adverse effects on the least tern, the monitor shall immediately contact the LAHD Environmental Management Division, Port Inspector, and Construction Manager. The Construction Manager has the authority to halt construction if determined to be necessary. (SEIS/SEIR **MM BIO-1.1a**)

2. At Tank Farm Site 1, no stone column construction shall occur at night (sunset to sunrise), and if possible, stone column construction during daytime hours should be conducted outside the least tern nesting season. If stone column installation is unavoidable during the nesting season, the work shall be phased so that installation nearest the nesting site is conducted prior to or after the nesting season, and a qualified biologist shall monitor the least terns at the nesting site during stone column installation to identify adverse reactions of the birds to this activity. If the terns react adversely to work at any of these sites, work will be temporarily stopped. The LAHD Environmental Management Division, least tern biologist, and Construction Manager shall confer with the USFWS and CDFG regarding necessary further actions. (SEIS/SEIR **MM BIO-1.1b**)

3. Construction activities that are within 200 ft (61 m) of the California least tern nesting site and foraging areas shall be scheduled to occur between September and March, unless otherwise approved by the USFWS and CDFG. This includes installation and removal of mooring piles as well as gravel delivery at staging area 412 (see Port brochure in Appendix J of the SEIS/SEIR). (SEIS/SEIR **MM BIO-1.1c**)

4. The Port shall provide environmental training by a qualified biologist to all construction contractor personnel working at the site. This shall include, but not be limited to, information about the California least tern (e.g., seasonal presence, pictures of the birds, and regulatory protections) and measures required to avoid or minimize the potential for adverse effects to the species. The latter measure shall include placement of food in sealed containers and daily disposal of all food wastes in sealed containers, with off-site disposal at regular intervals during construction; prohibition of pets or animals of any kind during work on Pier 400; limiting activities within 200 ft (61 m), or other established buffer distance, of the nesting site from March through August, to the extent feasible; and scheduling construction activities that would be near the nesting site for the period between September and March. (SEIS/SEIR **MM BIO-1.1d**)

5. When California least terns are present at the nesting site, idle construction equipment and stockpiles of materials exceeding approximately 8 ft (2.4 m) in

height shall be placed so that they do not provide perches for birds that could prey on least terns. (SEIS/SEIR **MM BIO-1.1e**)

6. Night time construction at Tank Farm Site 1 and construction staging area 412 during the least tern nesting season should be avoided. All lighting (temporary and security) shall be directed away from the California least tern nesting site and shielded to minimize increased light in the nesting area. (SEIS/SEIR **MM BIO 1.1f**)

7. Vegetation growing at Tank Farm Site 1 shall only be cleared immediately prior to construction activities occurring from April through August to discourage and protect California least terns from nesting within the work area. Areas cleared at other times of the year will not be left barren and vacant during the nesting season. (SEIS/SEIR **MM BIO 1.1g**)

8. To avoid impacts to California least terns that might nest within in Tank Farm Site 1, a preconstruction survey shall be conducted by a qualified least tern biologist if construction commences during the normal nesting season (April through August) to determine any are nesting there. If any nesting is found, a buffer area of 200 ft (61 m) shall be established and protective measures shall be finalized in coordination with USFWS and CDFG. Nesting birds shall be protected until nesting is complete or young have fledges as determined by a qualified biologist. (SEIS/SEIR **MM BIO-1.1h**)

9. During construction, no unauthorized vehicles or persons shall be allowed within 100 ft (30 m) of the east side and northeast corner of the least tern nesting site (the "at grade portion") during the nesting season. Signs shall be posted, and barriers (e.g., temporary fencing) shall be provided if signage is not adequate. (SEIS/SEIR **MM BIO 1.1i**)

10. Construction of the north-south oriented containment dikes at Tank Farm Site 1 should occur early in site development to aid as noise buffers during construction. (SEIS/SEIR **MM BIO 1.1j**)

Operations

11. The portions of all structures (buildings, lights, etc.) at the proposed Tank Farm Site 1 on Pier 400 that have a direct line of sight to the least tern nesting site shall be designed to prevent birds from perching on them. The prevention measures cannot be specified at this time but shall be those approved by the USFWS at the time of installation (e.g., Nixalite currently used on high mast lights) and shall be monitored during the least tern nesting season to verify that predatory birds are not perching on proposed Project structures and to identify any repairs needed to keep the measures in good working order. Any such repairs shall be implemented immediately (i.e., within one day while least terns are present). (SEIS/SEIR **MM BIO-1.2a**)

12. A qualified biologist shall monitor the Tank Farm Site 1 for predators during the least tern nesting season. Any predators found will be controlled in coordination with CDFG and USFWS. (SEIS/SEIR **MM BIO-1.2b**)

13. If a project-related oil spill occurs during the least tern nesting season and has the potential to enter the Pier 300 Shallow Water Habitat, booms shall be deployed to prevent oil from entering this important foraging area. The applicant shall ensure quick deployment of oil booms at the south entrance of the Pier 300 Shallow Water Habitat or at the causeway gap bridge, either through storage of booms at the south entrance to the Pier 300 Shallow Water Habitat and at the causeway gap bridge or through deployment at these locations in accordance with the approved oil spill response plan. (SEIS/SEIR **MM BIO-1.2c**)

14. Security lighting standards on the eastern side of Tank Farm Site 1 near the least tern nesting site shall be no greater than 30 ft (9.1 m) in height and directed away from the nesting site. (SEIS/SEIR **MM BIO 1.2d**)

15. The Port shall provide environmental training by a qualified biologist to all operational workers at the PLAMT Pier 400 Marine Terminal and Tank Farm Site 1. This shall include, but not be limited to, information about the California least tern (e.g., seasonal presence, pictures of the birds, and regulatory protections) and measures required to avoid or minimize the potential for adverse effects to the species. The latter measure shall include placement of food in sealed containers and daily disposal of all food wastes in sealed containers, with off-site disposal at regular intervals; prohibition on bringing pets or animals of any kind to work on Pier 400; and scheduling significant maintenance/construction activities that would occur near the nesting site for the period between September and March. (SEIS/SEIR **MM BIO 1.2e**)

16. All ships calling (100 percent) at Berths 408 shall comply with the expanded VSR Program of 12 knots between 40 nm from Point Fermin and the Precautionary Area from Year 1 of operation. (SEIS/SEIR **MM BIO-1.2f**)

Implementation of measure #13 would reduce but not eliminate the potential for effects of small or large oil spills on the California least tern. There are no additional feasible measures that would reduce the potential for accidental oil spills to affect the California least terns when they are present and foraging in the area (i.e., during April through August). A small (e.g., up to 238 bbl) or larger oil spill, even though associated with a low probability of occurrence, that was not contained could, therefore, result in unavoidable adverse effects. Use of these booms would also reduce but not eliminate the potential for oil spill effects on the California brown pelican.

3.6 Proposed Disposal Site Determinations

3.6.1 Mixing Zone Determinations

Mixing zones will need to be established through the Regional Water Quality Control Board Section 401 Water Quality Certification for turbidity from the pile installation and rock placement activities. Effects of the proposed Project or Reduced Project Alternative on water quality and biological resources outside the mixing zones are expected to be less than significant because monitoring and adaptive management

would be used to ensure compliance with permit conditions and applicable BMPs would be used to control turbidity.

3.6.2 Compliance with Applicable Water Quality Standards

The proposed Project or Reduced Project Alternative would be implemented in accordance with all applicable federal and California water quality standards. Some of the measures to be implemented for in-water work to ensure compliance with these standards are:

- A Debris Management Plan and a Spill Prevention, Containment, and Cleanup Plan will be prepared and implemented.
- Monitoring will be conducted to ensure compliance with permit conditions, with adaptive management to address any exceedances.
- Silt curtains may be used as needed to minimize turbidity from pile driving.
- Stormwater discharges will be managed through the use of Best Management Practices in accordance with all permit requirements.

3.6.3 Potential Effect on Human Use Characteristics

Recreational and Commercial Fisheries. No recreational fisheries are present in the immediate vicinity of the proposed Project or Reduced Project Alternative area. Much of the recreational activities at the Port occur at the Cabrillo Beach recreational complex, approximately 1.3 miles (2.1 km) southwest of Pier 400. The Cabrillo Beach Fishing Pier, used by local anglers, is located near the beginning of the San Pedro Breakwater, approximately 1.2 miles (1.9 km) southwest of Pier 400. Fishing and other recreational activities near Cabrillo Beach would not be affected by construction or operations of the proposed Project or Reduced Project Alternative. A commercial bait fishery has operated in the Outer Harbor. Disturbances in the water during construction of Berth 408 would cause bait fish such as the northern anchovy to move away from the work area into adjacent areas. This would not reduce their availability for capture. Vessel traffic associated with operation of the proposed Project or Reduced Project Alternative would not affect the bait fishery because the vessels would use the established channel into the Harbor. The number of vessels for the Reduced Project Alternative, however, would be 171 per year more than for the proposed Project. In sum, project-related vessel traffic in offshore waters would not adversely affect commercial or recreational fisheries.

Water-Related Recreation. No recreation sites are present in or adjacent to the proposed Project or Reduced Project Alternative area. Water-related recreation at the Cabrillo Beach recreational complex would not be affected by construction or operations of the proposed Project or Reduced Project Alternative. Accident oil spills in the Harbor, however, would likely affect recreation. The probability of an oil spill would be greater for the Reduced Project Alternative than for the proposed Project, and spills could occur in Long Beach Harbor as well as in the Port.

Municipal and Private Water Supply. Not applicable.

Aesthetics. The proposed Project or Reduced Project Alternatives would not degrade the viewscapes of the Harbor, and the proposed Marine Terminal would be consistent with other Port facilities and activities.

3.6.4 Actions Taken to Minimize Impacts

Actions described in Section 3.3.3 to reduce turbidity from pile driving and rock placement would also minimize such temporary impacts to aesthetics and other beneficial uses of the water body. These actions include monitoring and adaptive management to control turbidity from the Berth 408 pile driving and rock placement (proposed Project and Reduced Project Alternative) and compliance with permit conditions.

3.7 Determination of Cumulative Effects on the Aquatic Ecosystem

Special Status Species. Construction of past landfill projects in the Harbor has reduced the amount of marine surface water present and thus foraging and resting areas for special status bird species, but these projects have also added more land and structures that can be used for perching near the water. Construction of Terminal Island, Pier 300, and then Pier 400 provided new nesting sites for the California least tern, and the Pier 400 site is still being used. Shallow water areas to provide foraging habitat for the California least tern and other bird species have been constructed on the east side of Pier 300 and inside the San Pedro breakwater as mitigation for loss of such habitat from past projects, and more shallow water habitat is to be constructed as part of the Channel Deepening Project. As affected by these construction projects, cumulative impacts of marine habitat loss on special status species would be less than significant. The proposed Project and Reduced Project Alternative would not involve any landfill construction and, therefore, would not contribute to cumulative effects on these species.

Construction of the Cabrillo Shallow Water Habitat Expansion and Eelgrass Habitat Area as part of the Channel Deepening Project and the Berths 302-305 APL Improvements have the potential to adversely affect California least tern foraging during construction activities by causing a decline in forage fish availability or ability of least terns to find forage fish during the nesting season. Impacts to the California least tern could be significant, but would be feasibly mitigated through timing of construction activities in or near areas used for foraging to avoid work when the least terns are present, or through control of turbidity. Construction of the Cabrillo Shallow Water Habitat would create more shallow water suitable for California least tern foraging, a long-term benefit. As affected by these actions, cumulative impacts to the California least tern would be less than significant. Installation of pilings and placement of rock during construction of Berth 408, as well as installation and removal of the piles for the temporary mooring at staging area 412, would have less than significant impacts to California least tern foraging (proposed Project or Reduced Project Alternative). The minor, localized, and short duration disturbances associated with these activities would not contribute substantially to cumulative effects on the least tern.

Nearly all of the cumulative projects involve construction activities on land. With respect to other special status species, it is not expected that any nesting, foraging habitat, or individuals would be lost as a result of cumulative project developments on land, and cumulative impacts would be less than significant. Construction activities for the proposed Project or Reduced Project Alternative would have significant impacts, prior to mitigation, on the California least tern at their nesting site on Pier 400 (SEA), burrowing owl (if nesting), and black skimmer (if nesting), and less than significant impacts on other special status species. Construction activities at Tank Farm Site 1 could result in a loss of individuals or nesting habitat for the burrowing owl and black skimmer, and these effects would result in a cumulatively significant impact. Operation of Tank Farm Site 1 could have significant impacts, prior to mitigation, on the California least tern at their nesting site (SEA) but would not affect other species status species. Therefore, operation of the proposed Project or Reduced Project Alternative facilities on land would contribute to cumulative impacts for the California least tern at their SEA and would not contribute to cumulative impacts for other special status species.

In-water construction activities could disturb or cause special status birds, other than the California least tern addressed above, to avoid the construction areas for the duration of the activities. Because these projects would occur at different locations throughout the Harbor, and only some are likely to overlap in time, the birds could use other undisturbed areas in the Harbor, and few individuals would be affected at any one time. Construction of the Schuyler F. Heim Bridge, however, would have the potential to adversely affect the peregrine falcon if any are nesting at the time of construction. If nesting were to be affected, impacts could be significant but feasibly mitigated by scheduling the work to begin after the nesting season is complete. Because no other related project would affect the peregrine falcon, significant cumulative impacts to the peregrine falcon would not occur. Cumulative impacts of in-water construction activities to other special status species would be less than significant. The proposed Project or Reduced Project Alternative would not contribute to cumulative impacts for other special status species.

In-water construction activities, and particularly pile driving, would also result in underwater sound pressure waves that could affect marine mammals. The locations of these activities (e.g., pile and sheetpile driving) are in areas where few marine mammals occur, projects in close proximity are not expected to occur concurrently, and the marine mammals would avoid the disturbance area by moving to other areas within the Harbor. Cumulative impacts of underwater sound from pile driving on marine mammals would be less than significant. Pile driving for the proposed Project or Reduced Project Alternative would not contribute substantially to cumulative impacts on marine mammals.

Past projects that have increased vessel traffic have also increased underwater noise levels in the Harbor and in the ocean from the vessel traffic lanes to Angels Gate and Queens Gate. Ongoing and future terminal upgrade and expansion projects would increase vessel traffic and its associated underwater sound. The frequency of vessel sound events would increase and contribute a small increment to the average underwater sound level within the Harbor that would not be expected to affect the hearing or behavior of marine mammals. Individual marine mammals would likely respond to noise from vessels that pass near them by moving away, and increased vessel traffic would increase the frequency of those movements. Cumulative impacts of underwater sound

from vessels on marine mammals would be less than significant. The proposed Project would have fewer vessel calls relative to the NEPA Baseline and, therefore, would not contribute to cumulative impacts. The Reduced Project Alternative would increase vessel traffic by a small amount (105 per year) and would not contribute substantially to cumulative impacts.

Past, present, and future projects have or would increase vessel traffic in coastal waters. Vessel traffic has resulted in collisions with marine mammals in coastal waters, and these collisions were usually fatal for the marine mammals. Whales are the primary group of marine mammals that have been involved. Vessel speed seems to influence the incidence of whale/ship collision. The Jensen and Silber Whale Strike Database (Jensen and Silber 2003) reported 134 cases of known vessel strikes in U.S. coastal waters, and vessel speed was known for 58 of these cases. Most vessels were traveling at speeds of 13 to 15 knots or higher. When vessel speed exceeds 10 knots, strikes are usually fatal (J. Cordaro, personal communication 2008). All of the ongoing and future projects that increase vessel traffic would also increase the potential for vessel strikes of whales. Many of the whale species involved in recorded strikes are federally-listed as endangered, and mortality of blue whales is a concern because their population size is below historic levels. This species migrates along the coast of California, and vessels using coastal shipping lanes cross this migration corridor to reach the Los Angeles-Long Beach Harbor. As the number of vessels increases, the number of incidents would also increase, and cumulative impacts would be significant and unavoidable for the blue whale. For other whale species, cumulative impacts would be less than significant. Project-related vessel traffic would be less than under the No Federal Action/No Project Alternative (baseline) for the proposed Project, and the potential for strikes to whales would be less than under baseline conditions. Therefore, the proposed Project would not result in a considerable contribution to cumulative impacts. For the Reduced Project Alternative, the number of project-related vessels would be 105 per year greater than the NEPA Baseline, but whale strikes, and particularly blue whale strikes, would be unlikely to occur. Any that do occur, however, would make a cumulatively considerable contribution to the significant and unavoidable cumulative impacts of vessel strikes to that species.

Oil spills from tankers in transit through the Harbor or during offloading at liquid bulk terminals could adversely affect special status birds that forage or rest on the water surface, such as the California least tern, California brown pelican, and black skimmer. The potential for impacts to these species would depend primarily on the location and size of the spill. Small spills would likely be contained and rapidly cleaned up with little or no impact to these birds. However, a small to moderate spill into the Cabrillo Shallow Water Habitat during the California least tern nesting season could have significant impacts to the population. A moderate spill could also have significant impacts to the California least tern if it occurred during their nesting season and reached any of their primary foraging areas. Such a spill would also have the potential to have significant impacts to the California brown pelican all year. Cumulative impacts to the California least tern and California brown pelican would be unlikely but significant and unavoidable if they occurred. Therefore, impacts of the proposed Project or Reduced Project Alternative would make a cumulatively considerable contribution to the significant and unavoidable cumulative impacts of oil spills to the least tern and brown pelican. Cumulative impacts of oil spills to other special status species would be less than significant because the number of individuals affected would be small relative to their regional population size, and the less than significant

impacts of the proposed Project or Reduced Project Alternative would not contribute substantially to cumulative impacts.

Loss of Marine Habitat. Numerous landfill projects have been implemented in the Harbor since the Harbor was first developed, and these projects have resulted in an unquantified loss of marine habitat. The cumulative impacts of past, present, and future projects prior to mitigation are significant. For those projects for which mitigation has been or will be implemented, cumulative impacts are less than significant. The proposed Project or the Reduced Project Alternative would not result in a loss of marine habitat and, thus, would not contribute to cumulative impacts.

Essential Fish Habitat. EFH has been and will be lost due to past, present, and future landfill projects in the Harbor. EFH protection requirements began in 1996, and thus, only apply to projects since that time. The losses since that date are significant but mitigable, and the use of mitigation bank credits for marine habitat loss also offset the losses of EFH. Temporary disturbances within EFH also occur during in-water construction activities from cumulative projects. These disturbances in the Harbor occur at specific locations that are scattered in space and time within the Harbor and do not represent a cumulatively significant impact to EFH. Increased vessel traffic and runoff from on-land construction and operations resulting from the cumulative projects would not result in a loss of EFH, nor would these activities substantially degrade habitat. Thus, cumulative impacts to EFH would be less than significant.

Neither the temporary construction disturbances for Berth 408, project-related increases in vessel traffic, nor runoff from proposed Project or Reduced Project Alternative backlands during construction and operations would be cumulatively considerable because these activities combined with those of other cumulative projects would not result in a loss or substantial degradation of EFH. Although a small amount (0.1 acre, 0.04 ha) of soft bottom would be converted to hard substrate (rock placed around base of piles), no fill resulting in a loss of aquatic habitat would occur as part of the proposed Project or Reduced Project Alternative that would contribute to cumulative impacts. Small oil spills (less than 238 bbl) that could occur as a result of vessel transit in the Harbor would be contained and cleaned up, and large spills would also be cleaned up immediately in compliance with SPCC requirements and the proposed Project OSCP. Even a large spill would not affect large numbers of managed species relative to their regional population size due to rapid weathering of the oil (i.e., loss of volatile/soluble toxic components) and cleanup activities. Therefore, the minor contribution of the proposed Project or the Reduced Project Alternative would not result in a significant cumulative impact.

Natural Habitats, Special Aquatic Sites, and Wetlands. Natural habitats, special aquatic sites (e.g., eelgrass beds, mudflats), and plant communities (wetlands) currently have a limited distribution and abundance in the Harbor. The 40-acre (16-ha) Pier 300 expansion project caused a loss of eelgrass beds that was mitigated as part of that project. The Southwest Slip fill in West Basin completed as part of the Channel Deepening Project resulted in a small loss of saltmarsh that was also mitigated. Prior to agreements to preserve natural habitats, losses of eelgrass, mudflats, and saltmarsh from early landfill and harbor development projects were not documented but were likely to have occurred due to the physical changes to the Port. Future projects could affect these habitats, such as the San Pedro Waterfront project

that would affect the mudflat at Berth 78. Therefore, cumulative impacts of construction activities to these habitats are considered significant. Oil spills from tankers in the Harbor would have the potential to affect eelgrass beds at Cabrillo Beach and the Pier 300 Shallow Water Habitat, mudflats, and the Cabrillo saltmarsh under a worst case scenario. Cumulative oil spill impacts would be short term, significant, and unavoidable for eelgrass beds and other natural habitats.

Impacts to the least tern SEA were addressed in **Cumulative Impact BIO-1** above. Construction and operation of the proposed Project or Reduced Project Alternative would have no impacts to natural habitats such as mudflats, wetlands (including saltmarsh), and native terrestrial plant communities, and less than significant impacts to marine algal communities. Oil spills would not affect the Cabrillo saltmarsh due its location behind the beach and the narrow connection to the Harbor that could be boomed to prevent oil from entering. For eelgrass beds, construction and normal operations would have no impacts, but impacts from potential oil spills would be significant in the short term if an oil spill were to occur. The negligible effects of the proposed Project or Reduced Project Alternative on natural habitats during construction and normal operation would not result in a cumulatively considerable contribution to a significant cumulative impact on such habitats, sites, or communities. Project-related oil spill impacts to eelgrass beds (both alternatives), however, would make a cumulatively considerable contribution to the significant and unavoidable cumulative impacts.

Wildlife Migration Corridors. No known terrestrial wildlife or aquatic species migration corridors are present in the Harbor. Migratory birds pass through the Harbor area, and some rest or breed, such as the California least tern, in this area. Past, present, and foreseeable future projects in the Harbor would not interfere with movement of these species, because the birds are agile and would avoid obstructions caused by equipment and structures. Some species of fish move into and out of the Harbor during different parts of their life cycle or seasonally, but no identifiable corridors for this movement are known. Marine mammals migrate along the coast, and vessel traffic associated with the cumulative projects could interfere with their migration. However, because the area in which the marine mammals can migrate is large and the cargo vessels generally use designated travel lanes, the probability of interference with migrations is low and cumulative impacts would be less than significant. The proposed Project, or Reduced Project Alternative, would not affect any migration or movement corridors in the Harbor or along the coast. Consequently, it would not contribute considerably to cumulative impacts on wildlife migration or movement corridors.

Biological Communities. Construction of past projects in the Harbor has involved in-water disturbances such as wharf construction that temporarily removed or permanently added hard substrate habitat (e.g., piles). These disturbances altered the benthic habitats present at the location of the specific projects, but effects on benthic communities were localized and of short duration as invertebrates colonized the new hard surfaces. Because these activities affected a small portion of the Harbor at a time and colonization has occurred or is in progress, biological communities in the Harbor have not been degraded. Similar construction activities (e.g., wharf construction/reconstruction) would occur for some of the cumulative projects that are currently under way and for some of those that would be constructed in the future. Because colonization of new piles and rock begins immediately and the attached

biota provide a food source for other species (e.g., fish), multiple projects spread over time and space within the Harbor would not substantially disrupt benthic communities. Construction disturbances at specific locations in the water and at different times that are caused by the cumulative projects, such as sound pressure waves from pile driving, can cause damage to fish and marine mammals or cause them to avoid the work area. These temporary disturbances are not expected to substantially alter the distribution and abundance of these organisms in the Harbor and thus would not substantially disrupt biological communities. Turbidity that results from in-water construction activities occurs in the immediate vicinity of the work and lasts just during the activities that disturb bottom sediments. Effects on marine biota are thus localized to relatively small areas of the harbor and are of limited duration for each project. Those projects that are occurring at the same time but which are not in close proximity would thus not have additive effects. Therefore, cumulative impacts would be less than significant.

Furthermore, based on biological baseline studies described in Section 3.3 of the Draft SEIS/SEIR, the benthic marine resources of the Harbor have not declined during Port development activities occurring since the late 1970s. The biological baseline conducted by MEC and Associates (2002) identified healthy benthic communities in the Outer Harbor despite major dredging and filling activities associated with the Port's Deep Draft Navigation Project (USACE and LAHD 1992).

Driving piles for construction of Berth 408 in the proposed Project or the Reduced Project Alternative would temporarily disturb benthic habitat in a small portion of the Outer Harbor adjacent to Pier 400 and would cause sound pressure waves at intervals as each pile is driven. Placement of rock at the base of the piles would convert a small amount of soft bottom to hard substrate habitat. Recolonization of disturbed marine environments and colonization of new rock and piles begins rapidly. Effects of sound pressure waves would be of short duration and would not be additive to effects of other cumulative projects due to the distance and intervening land masses between Berth 408 and other cumulative projects with pile driving that could occur at the same time. Since the cumulative impact is less than significant and the project-related impacts would be minor, the proposed Project or Reduced Project Alternative would not result in a cumulatively considerable contribution to a significant cumulative impact.

Upland Construction and Operations. Runoff from construction activities on land has reached Harbor waters at some locations during past project construction, particularly for projects implemented prior to the 1970s when environmental regulations were promulgated. The past projects included Pier 300, Pier J, Pier 400, and the remaining terminal land areas within the Los Angeles-Long Beach Harbor. Runoff also has the potential to occur during present and future projects. Construction runoff would only occur during construction activities so that projects that are not concurrent would not have cumulative effects. Construction runoff would add to ongoing runoff from operation of existing projects in the Harbor at specific project locations and only during construction activities. For past, present, and future projects, the duration and location of such runoff would vary over time. Measures such as berms, silt curtains, and sedimentation basins are used to prevent or minimize runoff from construction, and this keeps the concentration of pollutants below thresholds that could measurably affect marine biota. Runoff from past construction projects (e.g., turbidity and any pollutants) has either dissipated shortly

after construction was completed or settled to the bottom sediments. For projects more than 20 years in the past, subsequent settling of suspended sediments has covered the pollutants, or the pollutants have been removed by dredging projects. Runoff from operation of these past projects continues but is regulated. Biological baseline surveys in the Harbor (MEC 1988, MEC and Associates 2002) have not shown any disruption of biological communities resulting from runoff. Effects of runoff from construction activities and operations would not substantially disrupt local biological communities in the Harbor, and as a consequence, past, present, and reasonably foreseeable future projects would not result in significant cumulative biological resource impacts related to runoff. Much of the development in the Harbor has occurred and continues to occur on landfills that were constructed for that purpose. As a result, those developments did not affect terrestrial biota. Redevelopment of existing landfills to upgrade or change backland operations temporarily affected the terrestrial biota (e.g., landscape plants, weeds, rodents, and common birds) that had come to inhabit or use these industrial areas. Future cumulative developments such as hotels and other commercial developments on lands adjacent to the Harbor would be in areas that do not support natural terrestrial communities or are outside the region of analysis. Construction and operation of these projects would not substantially disrupt terrestrial biological communities because no well-developed communities are present. Based on this evaluation, past, present, and reasonably foreseeable future projects would not result in significant cumulative biological resource impacts related to upland development within the geographical scope.

Runoff from temporary disturbances on land during construction of the proposed Project, or Reduced Project Alternative, Marine Terminal, tank farms, and pipelines would add to the cumulative amount of construction runoff from all other projects in the Harbor that are being constructed concurrently with the proposed Project (or Reduced Project Alternative). Construction activities are closely regulated, and runoff of pollutants in quantities that could adversely affect marine biota is not likely to occur. Furthermore, runoff from the proposed Project (or Reduced Project Alternative) and most of the cumulative projects would not occur simultaneously but rather would be events scattered over time so that total runoff to harbor waters would be dispersed, both in frequency and location. Construction of the proposed Project (or Reduced Project Alternative) would result in less than significant impacts on local marine biological communities through runoff because runoff control measures, as specified in a SWPPP, would be implemented and maintained as required in project permits, and the small amounts of pollutants that could pass the BMPs would not substantially affect marine organisms in Harbor waters and on hard substrate due to expected low concentrations, relative to ambient conditions. Since the contribution from the proposed Project (or Reduced Project Alternative) would be minor, and would occur primarily in a portion of the Harbor that is not stressed [i.e., on the Section 303(d) list], the proposed Project or Reduced Project Alternative would not represent a cumulatively considerable contribution to a significant cumulative impact.

Construction and operation of the proposed Project (or Reduced Project Alternative) would have minimal effects on terrestrial habitats in an existing industrial area that would not disrupt local biological communities. At Tank Farm Site 1, however, Caspian and elegant terns have nested in the past and could nest there again prior to proposed Project (or Reduced Project Alternative) construction if conditions were

suitable and the terns were present in the area. In a worst case, if these or other birds were nesting as construction begins, impacts to nesting birds would be significant but feasibly mitigated. Construction activities at Tank Farm Site 1 could result in disruption of bird nesting, but these effects would not contribute to cumulative impacts as none were identified for the cumulative projects. Construction and operation of the proposed Project (or Reduced Project Alternative) would have less than significant impacts on other terrestrial biological communities because the species present are predominantly non-native and/or are adapted to the industrial area. the minor effects of the proposed Project (or Reduced Project Alternative) would not result in a cumulatively considerable contribution to a significant cumulative impact.

Vessel Traffic. Cumulative marine terminal/berth upgrade projects that involve vessel transport of cargo into and out of the Harbor have increased vessel traffic in the past and would continue to do so in the future. These vessels have introduced invasive exotic species into the Harbor through ballast water discharges and via their hulls. Ballast water discharges are now regulated so that the potential for introduction of invasive exotic species by this route has been greatly reduced. The potential for introduction of exotic species via vessel hulls has remained about the same, and use of antifouling paints and periodic cleaning of hulls to minimize frictional drag from growth of organisms keeps this source low. While exotic species are present in the Harbor, there is no evidence that these species have disrupted the biological communities in the Harbor. Biological baseline studies conducted in the Harbor continue to show the existence of diverse and abundant biological communities. However, absent the ability to eliminate the introduction of new species through ballast water or on vessel hulls, it is possible that additional invasive exotic species could become established in the Harbor over time, even with these control measures. As a consequence, past, present, and reasonably foreseeable future projects would result in significant cumulative biological resource impacts related to the introduction of invasive species. Compared to the NEPA Baseline, the proposed Project would have fewer vessel calls to the Harbor. Although project-related vessels could still introduce exotic species, the potential for such introductions would be less than under baseline conditions and impacts would be less than significant. Because the proposed Project would not increase the potential for introduction of exotic species it would not result in a cumulatively considerable contribution to a significant cumulative impact. For the Reduced Project Alternative, the small increase in vessel traffic in the Harbor (105 vessels per year over the NEPA Baseline) would add to the cumulative potential for introduction of exotic species. Many exotic species have already been introduced into the Harbor, and many of these introductions occurred prior to implementation of ballast water regulations. These regulations would reduce the potential for introduction of non-native species, including from Reduced Project Alternative-related vessels. Furthermore, oil tankers unloading at Berth 408 would be taking on ballast water and not discharging it. However, exotic species from vessel hulls could still be introduced into the Harbor. Reduced Project Alternative impacts relative to the introduction of non-native species have the potential to be significant prior to mitigation, and effects of the Reduced Project Alternative could make a cumulatively considerable contribution to the significant cumulative impact.

Contaminant inputs to Harbor waters from vessel hull antifouling paints would increase in proportion to the number of vessels resulting from cumulative projects. While contaminant leaching from hull paints would not cause water quality standards to be

exceeded at Berth 408, dispersion by currents of contaminants from Berth 408 could exacerbate water quality conditions in other portions of the Harbor. Although standard regulatory compliance measures would apply to the related projects, which would minimize their pollutant contributions to the Harbor, portions of the Harbor are still listed on the Section 303(d) list as being impaired, and would likely remain so until TMDLs can be fully implemented throughout the entire watershed. Even though a small decrease in vessel traffic in the Harbor relative to the NEPA Baseline would result from the proposed Project, the project-related vessels would add to the cumulative potential for impacts to water quality. Under the Reduced Project Alternative, a relatively greater number of vessel calls to existing berths in the inner portions of the Harbor would occur. Compared to the proposed Project, copper leaching from vessel hulls in the Inner Harbor would have a relatively greater cumulative effect on water quality due to lower potentials for mixing and dilution.

While the concentrations of chemicals (e.g., copper) may exceed water quality criteria at some locations within the Harbor, and cause significant impacts to marine quality, it is unlikely that concentrations would be increased to levels that would be toxic to marine biota or substantially disrupt local biological communities, and cumulative impacts to biological resources would be less than significant. The amount of chemicals added to Harbor waters from leaching of antifouling paints on proposed Project or Reduced Project Alternative vessel hulls using Berth 408 would not increase the concentration of chemicals toxic to marine biota to a level that would substantially disrupt local communities. The number of vessel calls to other terminals for the Reduced Project Alternative would be less than for the NEPA Baseline and thus would not increase the potential for effects on biological resources. the minor effects of the proposed Project or Reduced Project Alternative on marine biota would not result in a cumulatively considerable contribution to a significant cumulative impact on local biological communities (related to chemical concentrations affecting marine water quality).

A long-term increase in the transport of crude oil and/or petroleum products through the Los Angeles-Long Beach Harbor area would result from a number of future projects as well as the proposed Project. The potential for accidental spills of these products into Harbor waters would increase in proportion to the number of vessels and product transfers. A spill from the existing pipelines over the Dominguez Channel is unlikely to occur but could release oil into Inner Harbor waters at that location. Accidents during tanker transit through the Harbor to existing berths could also release oil to Harbor waters. While small spills of less than 238 bbl would exceed water quality standards for oil and grease, they are expected to have less than significant impacts on marine biological resources because the area affected would be localized, no sensitive species are likely to be affected, and containment and cleanup procedures would reduce the severity of impacts. In the worst case, however, a moderate to large spill that affects large numbers of water-associated birds such as gulls or large amounts of intertidal invertebrate communities could have significant cumulative impacts. The frequency of oil spills from proposed Project or Reduced Project Alternative tankers in offshore waters while approaching the Port, inside the Port while in transit to Berth 408, or while offloading oil at Berth 408 would be low to remote. Spills from MGO barges could occur during transit from existing terminals in the Harbor to Berth 408 and while unloading at Berth 408. The only pipeline spills likely to reach Harbor waters would be from the pipelines over Dominguez Channel and over the Pier 400 causeway gap. The proposed Project or Reduced Project Alternative would have the potential for significant impacts, prior to mitigation, to

marine birds, such as gulls, and intertidal invertebrate communities from accidental oil spills directly into Harbor waters and to marine birds in offshore waters. Therefore, effects of the proposed Project or Reduced Project Alternative would make a cumulatively considerable contribution to the significant cumulative impact.

Oil spills on land would most likely be at tank farms within containment berms where few to no biological resources are present and any spills would be cleaned up immediately. Spills from pipelines would likely be underground or in containment areas at oil facilities. Therefore, cumulative impacts to terrestrial biological resources would be less than significant. Oil spills at the tank farm facilities would be within bermed containment areas that have little to no biological resources present, and spills from most of the pipelines would be under ground with no impacts to terrestrial biological resources. While the impact to water quality and biological resources from a pipeline spill associated with the proposed Project or Reduced Project Alternative would be less than significant, both alternatives could result in a cumulatively considerable contribution to a significant cumulative impact.

3.8 Determination of Secondary Effects on the Aquatic Ecosystem

Runoff from onshore construction sites would enter the Harbor primarily through storm drains. Most runoff would occur during storm events although some could occur during use of water as part of construction activities, such as dust control. Runoff from the project site would be treated according to a construction SWPPP prepared by the project proponent and implemented prior to start of any construction activities. This construction SWPPP is expected to specify BMPs to control releases of soils and contaminants and adverse impacts to receiving water quality.

Runoff from a construction site could contain a variety of contaminants, including metals and PAHs, associated with construction materials, stockpiled soils, and spills of oil or other petroleum products. Specific concentrations and mass loadings of contaminants in runoff would vary greatly, depending on the amounts and composition of soils and debris carried by the runoff. Also, the phase of the storm event and period of time since the previous storm event would affect storm water quality because contaminant loadings typically are relatively higher during the initial phases (first flush) of a storm.

Runoff from the upland portions of the project site would flow into the Harbor, along with runoff from other adjacent areas of the Harbor's subwatershed. Runoff from the upland portion of the proposed Project, or Reduced Project Alternative, area would represent a negligible contribution to the total mass loading from stormwater runoff to the Harbor because the area of the project site represents only a small portion of the area of the Harbor subwatershed. Additionally, BMPs would minimize potential for off-site transport of materials from the project site that could degrade water quality within the Harbor. As mentioned, water quality within the Harbor is affected episodically by stormwater runoff from the watershed. While runoff from the project site would contribute to changes in receiving waters that could cause water quality standards to be exceeded, the proposed Project or Reduced Project Alternative would

not create conditions that increase the relative contribution or contaminant mass loadings relative to baseline conditions.

Runoff from the construction sites would form a plume of fresh or brackish water near the storm drain discharges. Depending on the strength and duration of the storm event, the plume could be more turbid and have lower salinity and DO levels compared to the receiving waters. A plume associated with runoff from the proposed Project, or Reduced Project Alternative, site could overlap with plumes from other drainage systems and storm drains discharging to the Harbor. Nevertheless, subsequent mixing of runoff and receiving waters, and settling of particles carried by runoff into the Harbor, would prevent persistent changes in the quality of receiving waters.

Based on past history for this type of work in the Harbor, accidental leaks and spills of large volumes of hazardous materials or wastes containing contaminants during onshore construction activities have a very low probability of occurring because large volumes of these materials typically are not used or stored at construction sites. Spills associated with construction equipment, such as oil/fluid drips or gasoline/ diesel spills during fueling, typically involve small volumes that can be effectively contained within the work area and cleaned up immediately (Port Spill Prevention and Control procedures [CA012]).

Actions Taken to Minimize Impacts. The WDRs for storm water runoff in the County of Los Angeles and incorporated cities covered under NPDES Permit No. CAS004001 (13 December 2001) require implementation of runoff control from all construction sites. Prior to the start of construction activities, the tenant or its contractors would prepare a pollutant control plan using WDRs that includes monitoring and maintenance of control measures. Control measures would be installed at the construction sites prior to ground disturbance. Implementation of all conditions of permits would minimize project-related runoff into the Harbor and impacts to water quality. Standard BMPs would be used during construction activities to minimize runoff of soils and associated contaminants in compliance with the State General Permit for Storm Water Discharges Associated with Construction Activity (Water Quality Order 99-08-DWQ) and a construction SWPPP.

Standard Port BMPs (e.g., excavating, stockpiling, and disposing of chemically impacted soils [02111]; solid waste management [CA020]; contaminated soil management [CA022]) specify procedures for handling, storage, and disposal of contaminated materials encountered during excavation. These procedures would be followed for upland construction activities to ensure that soil or groundwater contaminants were not transported off-site by runoff.

Construction and industrial SWPPPs and standard Port BMPs would reduce the potential for materials from onshore construction activities to be transported offsite and enter storm drains. The facilities associated with the proposed Project or Reduced Project Alternative would be operated in accordance with the industrial SWPPP that contains BMPs to control offsite transport of contaminants, as well as monitoring requirements to ensure that the quality of the stormwater runoff complies with the permit conditions. Regulatory controls for runoff and storm drain discharges are designed to reduce impacts to water quality and would be fully implemented for the proposed Project, or Reduced Project Alternative. Tenants would be required to

obtain and meet all conditions of applicable stormwater discharge permits as well as meet all Port pollution control requirements.

The tenant would be required to conform to applicable requirements of the Non-Point Source (NPS) Pollution Control Program. The tenant would design all terminal facilities whose operations could result in the accidental release of toxic or hazardous substances (including sewage and liquid waste facilities, solid and hazardous waste disposal facilities) in accordance with the state Non-Point Source Pollution Control Program administered by the State Water Resources Control Board (SWRCB). As a performance standard, the measures would be selected and implemented using the Best Available Technology that is economically achievable such that, at a minimum, relevant water quality criteria as outlined by the California Toxics Rule and the Basin Plan are maintained, or in cases where ambient water quality exceeds these criteria, maintained at or below ambient levels. The applicable measures include:

- Solid Waste Control - Properly dispose of solid wastes to limit entry of these wastes to surface waters.
- Liquid Material Control - Provide and maintain the appropriate storage, transfer, containment, and disposal facilities for liquid materials.
- Petroleum Control - Reduce the amount of fuel and oil that leaks from tanker and support vessels.

The tenant would be required to develop an approved Source Control Program with the intent of preventing and remediating accidental fuel releases. Prior to their construction, the tenant would develop an approved Source Control Program (SCP) in accordance with Port guidelines established in the General Marine Oil Terminal Lease Renewal Program. The SCP would address immediate leak detection, tank inspection, and tank repair.

As a condition of their lease, the tenant would be required to submit to the Port an annual compliance/performance audit in conformance with the Port's standard compliance plan audit procedures. This audit would identify compliance with regulations and BMPs recommended and implemented to ensure minimizing of spills that might affect water quality, or soil and groundwater.

Potential releases of pollutants from a large spill on land to harbor waters and sediments would be minimized through existing regulatory controls and are unlikely to occur during the life of the proposed Project, or Reduced Project Alternative. Activities that involve hazardous liquid bulk cargoes at the Port are governed by the Los Angeles Harbor Department Risk Management Plan (RMP) (LAHD 1983). The RMP contains policies that minimize the impacts of accidents associated with the release of hazardous materials. The Release Response Plan prepared in accordance with the Hazardous Material Release Response Plans and Inventory Law (California Health and Safety Code, Chapter 6.95), which is administered by the City of Los Angeles Fire Department (LAFD), also regulates hazardous material activities within the Port. These activities are conducted under the review of a number of agencies and regulations including the RMP, U.S. Coast Guard (USCG), fire department, and state and federal departments of transportation (49 CFR Part 176). These safety measures would minimize the likelihood of a large spill reaching harbor waters and sediments.

4.0 Findings

Evaluation of Compliance with 404(b)(1) guidelines (restrictions on discharge, 40 CFR 230.10). (A check in a block denoted by an asterisk indicates that the proposed project does not comply with the guidelines.)

No adaptations of the Section 404(b)(1) Guidelines were made relative to this evaluation.

4.1 Alternatives Test

Yes	No
___	X

4.1.1 Based on the discussion in Section 2.4, are there available, practicable alternatives having less adverse impacts on the aquatic ecosystem and without other significant adverse environmental consequences that do not involve discharges into "waters of the United States" or at other locations within these waters.

Discussion: The Draft SEIS/SEIR evaluated the proposed Project and Reduced Project Alternative as well as the No Federal Action/No Project Alternative considering several environmental resource areas (see Section 2.4). A number of other alternatives were considered but not carried forward for analysis for a variety of reasons described in Section 2.6 of the Draft SEIS/SEIR. The applicant's proposed Project is the PLAMT Crude Oil Terminal Project. This project would construct a new wharf at Berth 408 on Pier 400, two tank farms, and several pipelines to connect the new facilities to existing refineries. The Reduced Project Alternative has all the same components as the proposed Project. However, oil throughput would be capped at up to 127.75 million bbl in 2010 (average of 350,000 barrels per day [bpd]) and up to 164.25 million bbl in 2015 through 2040 (average of 450,000 bpd). As a result, additional demand for oil imports would be at least partially met by increased deliveries (average of 227,000 bpd) to existing oil terminals in the San Pedro Bay Ports. Under the No Federal Action/No Project Alternative, the demand for oil imports would be at least partially met by increased deliveries (average of 252,000 bpd) to the same existing oil terminals as for the Reduced Project Alternative.

The only in-water work for the proposed Project or Reduced Project Alternative would be construction of the new berth facilities, including pile driving and rock placement, and installation and removal of a temporary mooring at staging area 412. No dredging operations would occur. The No Federal Action/No Project Alternative, as the no action alternative, would not include any work, structures, or discharges in waters of the U.S.

Water Quality. For the proposed Project or Reduced Project Alternative, modifications to upland areas are not water-dependent activities, although their use is related to operation of the Marine Terminal berth. Runoff from construction activities at these locations, however, could affect water quality in the Harbor. Compliance with existing regulations and project permits would minimize such impacts. Under the No Federal Action/No Project Alternative, both of the tank farm sites would be paved and used for temporary container storage, a non-water-

dependent activity that would result in less runoff to Harbor waters than for the other two alternatives.

Construction activities in Harbor waters for the proposed Project or the Reduced Project Alternative would have short-term effects on water quality, but would remain in compliance with state and federal water quality standards. No contaminants would be discharged in concentrations that could be toxic to aquatic biota for the proposed Project or Reduced Project Alternative. No in-water construction would occur for the No Federal Action/No Project Alternative with no impact to water quality.

Operation of the Marine Terminal and associated on-shore facilities under the proposed Project or Reduced Project Alternative would have minor effects on water quality from runoff due to implementation of runoff control measures. Oil spills on land would be contained and cleaned up before reaching Harbor waters. Oil spills from tankers in transit to Berth 408 or during unloading would have short-term impacts to water quality. For the proposed Project, the frequency of such spills would be less than for the Reduced Project Alternative or No Federal Action/No Project Alternative, while the frequency for the Reduced Project Alternative would be greater than for the No Federal Action/No Project Alternative.

Aquatic Biota. The proposed Project, or Reduced Project Alternative, would not remove any aquatic habitat, but it would convert a small amount of water column and benthic habitat (in the footprint of the piles) to hard substrate habitat in the form of piles and a small amount of soft bottom to rocky habitat around the base of the larger steel piles. Approximately 0.04 acre (0.02 ha) of soft and rocky bottom would be lost in the footprint of the piles, 0.1 acre (0.04 ha) of soft and rocky bottom would be converted to hard substrate from placement of the rock around the piles, and 1.9 to 2.4 acres (0.8 to 1.0 ha) of hard substrate habitat would be created by the surface of the piles in the water column. This would have minimal effects on aquatic biota and Essential Fish Habitat because no habitat would be lost, the new hard substrate would provide habitat for invertebrates and structure in the water column for fish, and the area affected would be small. The No Federal Action/No Project Alternative would have no in-water construction and thus no effects on marine biota or EFH. Disturbances due to in-water construction activities would temporarily affect aquatic biota for the proposed Project or Reduced Project Alternative through turbidity, underwater noise, and habitat alteration. Impacts would be less than significant because the effects would occur in a small area and with a relatively short duration, be avoidable by mobile species, and not disrupt communities in the long term. No special aquatic sites would be adversely affected by construction and normal operations of the proposed Project or the Reduce Project Alternative. In a worst case, however, a moderate oil spill within the Harbor could have short-term adverse effects on the eelgrass beds at Cabrillo Beach or in the Pier 300 Shallow Water Habitat and Seaplane Lagoon. The No Federal Action/No Project Alternative would have no in-water construction but would include additional oil tanker traffic that could result in oil spills at a higher frequency than for the proposed Project and at a slightly lower frequency but at the same locations as for the Reduced Project Alternative.

Both the proposed Project and Reduced Project Alternative could affect threatened or endangered species through construction and operations activities. The species that would be affected within the Harbor is the California least tern. Construction and operation of Tank Farm Site 1 would be adjacent to the least tern nesting site, and

activities and structures could result in mortality of individuals through increased predation as well as disruption of nesting by noise and human presence. Under the No Federal Action/No Project Alternative, paving the Tank Farm Site 1 area and using it for temporary container storage could also affect the California least terns at their nesting site on Pier 400. Operation of the Marine Terminal could affect this species and the California brown pelican through infrequent small to moderate oil spills. The proposed Project would have 201 vessel calls to Berth 408, the Reduced Project Alternative would have 132 calls to Berth 408 plus 240 calls to other terminals, and the No Federal Action/No Project Alternative would have 267 calls to the other terminals. Thus, all three alternatives would affect the least tern and brown pelican through oil spills and the frequency of such spills would be related to the number of vessels. Project-related vessel traffic in offshore waters would have a low potential to result in mortality of whales through vessel strikes with the probability least for the proposed Project, slightly higher for the No Federal Action/No Project Alternative, and slightly higher still for the Reduced Project Alternative. Offshore oil spills under all three alternatives would have minimal to no effects on listed species because few to none would come in contact with such a spill or be adversely affected by contact with the oil.

The potential for introduction of invasive species via ballast water and vessel hulls would increase in proportion to the number of vessel calls above baseline conditions. The proposed Project would result in 66 fewer vessel calls per year in the San Pedro Bay Ports compared to the NEPA Baseline while the Reduced Project Alternative would have an additional 105 vessel calls, and the No Federal Action/No Project Alternative represents the baseline with an intermediate number of vessel calls. For the proposed Project, the decrease in number of vessels would reduce to below baseline, but not eliminate, the potential for introduction of invasive species. For the Reduced Project Alternative, the increase in vessel calls per year would be less than 4 percent of the total vessel calls in the Port of Los Angeles. Project-related oil tankers would be unloading oil in the Harbor and thus taking on ballast water rather than discharging it. Considering this and the ballast water regulations currently in effect, the potential for introduction of additional exotic species via ballast water would be low from vessels entering from or going outside the EEZ. Vessel hulls are generally coated with antifouling paints and cleaned at intervals to reduce the frictional drag from growths of organisms on the hull (Global Security 2007) that would reduce the potential for transport of exotic species. For these reasons, the proposed Project would have a low potential to increase the introduction of non-native species into the Harbor that could adversely affect local biological communities, while the Reduced Project Alternative would have a slightly higher but still low potential for such introductions.

Human Health and Welfare. The proposed Project, Reduced Project Alternative, or No Federal Action/No Project Alternative would have no significant impacts on human health and welfare, including recreational and commercial fishing, municipal and private water supplies, water-related recreation, and aesthetics. However, relative to the NEPA Baseline, the proposed Project would have lower operation phase criteria pollutant emissions due to the lower number of vessels, implementation of mitigation measures (that would not be implemented in the NEPA Baseline), and greater distance from the Harbor entrance to the berth (and therefore longer transit time). Air emissions under the Reduced Project Alternative would be higher than for the proposed Project due to the greater number of vessels and the fact that many of

those vessels would be using existing terminals that are at a greater distance from the Harbor entrance to the berth and do not currently employ the emission measures that would be installed at Berth 408. For the No Federal Action/No Project Alternative, air emissions would be greater than the Reduced Project Alternative (and the proposed Project) for the same reason that the proposed Project emissions are greater than those of the NEPA Baseline: more vessels, longer transit time within the Harbor, and the fact that the vessels in the No Federal Action/No Project Alternative would use existing terminals that do not currently employ the emission measures that would be installed at Berth 408.

Waters of the U.S. The proposed Project and Reduced Project Alternative would result in no permanent loss of waters of the U.S. but would each have the same temporary impacts within waters of the U.S. during construction of berth facilities at Berth 408 and the temporary mooring at staging area 412. They would also cover a small area (0.1 acre, 0.04 ha) of soft-bottom habitat with rock (aquatic habitat conversion) associated with pile installation, which would still be able to provide aquatic functions. The No Federal Action/No Project Alternative would not result in temporary or permanent loss of waters of the U.S.

Terminal Function. The need for the proposed Project is based on the following four current conditions: (1) the need to accommodate increasing foreign crude oil imports to offset declining domestic production; (2) a trend toward larger vessels and larger cargo sizes; (3) a projected shortfall in crude oil vessel berthing capacity at Port of Los Angeles and Port of Long Beach; and (4) increased need for crude oil tank capacity for efficient offloading of vessels at berth. Baker & O'Brien (2007) estimate that by 2040, the demand for marine crude oil deliveries in southern California will increase by 677,000 bpd compared to 2004. The proposed Project would include construction and operation of a new marine terminal at Berth 408 on Pier 400 (Marine Terminal), new tank farm facilities with a total of 4.0 million bbl of capacity, and pipelines connecting the Marine Terminal and the tank farms to local refineries. The new Marine Terminal would be designed to receive crude oil from marine vessels and transfer the oil to two new tank farm facilities via a new 42-inch diameter, high-volume pipeline. The terminal would be operated so as to minimize the time each marine tanker remains at the berth and would do so with a combination of high capacity pumps, large diameter pipelines, and adequate storage capacity in the tank farms. The Reduced Project Alternative would include all the same facilities as for the proposed Project, but the throughput of oil would be capped, and additional demand for oil would be met by deliveries to existing liquid bulk terminals in the Harbor. For the No Federal Action/No Project Alternative, no new oil terminal facilities would be build, and the demand would be met by deliveries of oil to existing terminals up to their capacity.

Conclusions. Even though it would not result in temporary or permanent loss of waters of the U.S., based on the analyses in Chapter 6 of the Draft SEIS/SEIR, the No Federal Action/No Project Alternative would not meet the overall project purpose of increasing the amount of oil imports and accommodation of larger oil tankers to meet the forecasted demand. The Reduced Project Alternative would have the same facilities as the proposed Project, but the throughput of oil would be less at the Berth 408 Marine Terminal, and additional oil would be delivered to existing terminals in the Port of Los Angeles and Port of Long Beach with an increased frequency of oil spills.

Comparison of Alternatives

	Proposed Project	*Reduced Project*	*No Federal Action/ No Project*
Terminal area (acres)	5.0 acres (2.0 ha)	5.0 acres (2.0 ha)	0
New vessel calls at the San Pedro Bay Ports (incremental over 2004)	201	372	267
Average crude oil throughput (in 2040)	677,000 bpd (at Berth 408)	450,000 bpd (at Berth 408 + 227,000 bpd at existing terminals)	252,000 bpd (at existing terminals)
Dredging (cy)	0	0	0
Area of waters of U.S. affected by fill	0.1 acre (0.04 ha)	0.1 acre (0.04 ha)	0
New wharf	yes	yes	no

While a small area (0.1 acre, 0.04 ha) of soft-bottom substrate would be covered with rock to protect installed piles, neither the proposed Project nor the Reduced Project Alternative would result in a permanent loss of waters of the U.S. that provide habitat for marine biota. From a Harbor perspective, the proposed Project would have a lower probability of oil spills (lower frequency of occurrence), and thus the potential for oil spill impacts to special status species and eelgrass, than the Reduced Project Alternative or No Federal Action/No Project Alternative. In addition, the proposed Project would have a lower potential for introduction of invasive species and tanker collisions with whales, and it would have lower air emissions, than either of the other alternatives. The maximum oil throughput (677,000 bpd) proposed is required because demands for oil through the year 2040 are forecast to exceed terminal capacity within the Port even with the anticipated and proposed addition of terminal and tank capacity. Thus, based on preliminary analysis, the proposed Project is the least environmentally damaging practicable alternative that meets the overall project purpose.

(NA)
Yes No 4.1.2 Based on Section 2.3, if the project is in a special aquatic site and is not water-dependent, has the applicant clearly demonstrated that there are no practicable alternative sites available?

4.2 Special Restrictions

Will the discharge:

___ _X_
Yes No 4.2.1 Violate state water quality standards?

___ X
Yes No 4.2.2 Violate toxic effluent standards (under Section 307 of the Act)

___ Yes	X No	4.2.3	Jeopardize endangered or threatened species or their critical habitat?
___ Yes	X No	4.2.4	Violate standards set by the Department of Commerce to protect marine sanctuaries?
X Yes	___ No	4.2.5	Evaluation of the information in Sections 2.4 and 2.5 above indicates that the proposed discharge material meets testing exclusions criteria for the following reason(s):

(X) based on the above information, the material is not a carrier of contaminants

( ) the levels of contamination are substantially similar at the extraction and disposal sites and the discharge is not likely to result in degradation of the disposal site and pollutants will not be transported to less contaminated areas

( ) acceptable constraints are available and will be implemented to reduce contamination to acceptable levels within the disposal site and prevent contaminants from being transported beyond the boundaries of the disposal site.

4.3 Other Restrictions

Will the discharge contribute to significant impacts to "waters of the U.S." through adverse impacts to:

___ Yes	X No	4.3.1	Human health or welfare, through pollution of municipal water supplies, fish, shellfish, wildlife and special aquatic sites?
___ Yes	X No	4.3.2	Life states of aquatic life and other wildlife?
___ Yes	X No	4.3.3	Diversity, productivity and stability of the aquatic ecosystem, such as the loss of fish or wildlife habitat, or loss of the capacity of wetland to assimilate nutrients, purify water or reduce wave energy?
___ Yes	X No	4.3.4	Recreational, aesthetic and economic values?

4.4 Actions to Minimize Potential Adverse Impacts (Mitigation)

X Yes ___ No

Will all appropriate and practicable steps (40 CFR 23.70-77) be taken to minimize the potential adverse impacts of the discharge on the aquatic ecosystem?

Discussion: Actions taken to minimize potential impacts are described in Section 3. The temporary impacts of berth construction to marine sediments would be minimized by limiting the area of disturbance to that needed for these activities. Temporary impacts of construction activities on water quality and aquatic biota would be minimized by compliance with conditions, such as standard WDRs, of the Project Section 401 Water Quality Certification and Section 404 and 10 permit. The quantity of rock added is the minimum necessary to protect the larger steel piles. Runoff from pollutants during upland construction activities would be minimized through use of construction and industrial SWPPPs and standard Port BMPs (e.g., use of drip pans, contained refueling areas, regular inspections of equipment and vehicles, and immediate repairs of leaks).

Based on the above information, the USACE has made a preliminary determination that the proposed Project would avoid and minimize impacts to waters of the U.S. to the maximum extent practicable while still providing the maximum throughput to meet as much of the forecasted demand as feasible (i.e., meets the overall project purpose), and, thus, preliminarily represents the least environmentally damaging practicable alternative.

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