3.2

AIR QUALITY AND METEOROLOGY

3.2.1 Introduction

3.2.2 Environmental Setting

3.2.2.2 Air Pollutants and Air Monitoring

Local Air Monitoring Levels

USEPA designates all areas of the United States according to whether they meet the NAAQS. A nonattainment designation means that a primary NAAQS has been exceeded more than once per year in a given area. USEPA currently designates the SCAB as an "extreme" nonattainment area for 1-hour ozone, a "severe-17" [1] nonattainment area for 8-hour ozone, a "serious" nonattainment area for both CO[2] and PM_{10}, and a nonattainment area for $PM_{2.5}$. The SCAB is in attainment of the NAAQS for SO_2, NO_2, and lead (USEPA 2006). States with nonattainment areas must prepare a State Implementation Plan (SIP) that demonstrates how those areas will come into attainment.

The CARB also designates areas of the state according to whether they meet the CAAQS. A nonattainment designation means that a CAAQS has been exceeded more than once in 3 years. The CARB currently designates the SCAB as an "extreme" nonattainment area for ozone, and a nonattainment area for both PM_{10}, and $PM_{2.5}$. The air basin is in attainment of the CAAQS for CO, SO_2, NO_2, sulfates, and lead, and is unclassified for hydrogen sulfide and visibility reducing particles.

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[1] Severe-17 = design value of 0.190 up to 0.280 ppm and has 17 years to reach attainment.

[2] The SCAB has been achieving the Federal 1-hour CO air quality standard since 1990, and the Federal 8-hour CO standard since 2002. The USEPA redesignated the SCAB as in attainment of the NAAQS for CO in June 2007. ~~. However, the SCAB is still considered a nonattainment area until a petition for redesignation is submitted by the State and is approved by USEPA.~~ A redesignation to attainment has already been made for the State CO standards.

3.2.3 Applicable Regulations

3.2.3.1 Federal Regulations

General Conformity Rule

Section 176(c) of the CAA states that a federal agency cannot support an activity unless the agency determines it will conform to the most recent USEPA-approved SIP. This means that projects using federal funds or requiring federal approval must not (1) cause or contribute to any new violation of a NAAQS, (2) increase the frequency or severity of any existing violation, or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone.

On November 30, 1993, USEPA promulgated final general conformity regulations at 40 C.F.R. Part 93 Subpart B for all Federal activities except those covered under transportation conformity. On September 14, 1994, SCAQMD adopted these regulations by reference as part of Rule 1901. The general conformity regulations apply to a Federal action in a nonattainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutants caused by the Federal action equal or exceed certain de minimis rates, thus requiring the Federal agency to make a determination of general conformity. Even if a Federal action's emissions would be below de minimis rates, if this total represents ten percent or more of the nonattainment or maintenance area's total emissions of that pollutant, the Federal action is considered regionally significant and the Federal agency must make a determination of general conformity. By requiring an analysis of direct and indirect emissions, USEPA intended the regulating Federal agency to make sure that only those emissions that are reasonably foreseeable and that the Federal agency can practicably control subject to that agency's continuing program responsibility will be addressed.

The general conformity regulations incorporate a stepwise process, beginning with an applicability analysis. According to USEPA guidance (USEPA 1994), before any approval is given for a Federal action to go forward, the regulating Federal agency must apply the applicability requirements found at 40 C.F.R. § 93.153(b) to the Federal action and/or determine the regional significance of the Federal action to evaluate whether, on a pollutant-by-pollutant basis, a determination of general conformity is required. The guidance states that the applicability analysis can be (but is not required to be) completed concurrently with any analysis required under the National Environmental Policy Act (NEPA). If the regulating Federal agency determines that the general conformity regulations do not apply to the Federal action, no further analysis or documentation is required. If the general conformity regulations do apply to the Federal action, the regulating Federal agency must next conduct a conformity evaluation in accordance with the criteria and procedures in the implementing regulations, publish a draft determination of general conformity for public review, and then publish the final determination of general conformity.

The currently approved SIPs for the SCAB are summarized below.

- O_3: SIP approved by USEPA on April 10, 2000 (65 FR 18903), based on the 1997 AQMP and a 1999 amendment to the 1997 AQMP.
- CO: SIP approved by USEPA on May 11, 2007 (72 FR 26718), based on 2005 redesignation request and maintenance plan. In this SIP approval, USEPA also redesignated the SCAB from nonattainment to attainment/maintenance for CO.
- PM_{10}: SIP approved by USEPA on April 18, 2003 (68 FR 19315), based on the 1997 AQMP, amendments to the 1997 AQMP submitted in 1998 and 1999, and further modifications to the 1997 AQMP submitted in a status report to USEPA in 2002.
- $PM_{2.5}$: No USEPA-approved SIP.
- NO_2: SIP approved by USEPA on July 24, 1998 (63 FR 39747), based on the 1997 AQMP. In this SIP approval USEPA also redesignated the SCAB from nonattainment to attainment/maintenance for NO_2.

Based on the present attainment status of the SCAB, a federal action would conform to the SIP if its annual emissions remain below 100 tons of CO or $PM_{2.5}$, 70 tons of PM_{10}, or 25 tons of NO_x or VOCs. However, the United States Court of Appeals ruled in December 2006 that areas in nonattainment of the 1-hour O_3 NAAQS that were superseded by the 8-hour nonattainment classifications must also consider the 1-hour requirements in conformity analyses (South Coast Air Quality Management Dist. v. EPA, 472 F.3d 882 [D.C.Cir. 2006]). Hence, 10 tons per year of NO_x or VOCs also are applicable conformity de minimis thresholds for the SCAB.

For purposes of the general conformity determination, the applicable SIP will be the most recent USEPA-approved SIP at the time of the release of the final general conformity determination. A conceptual plan for the proposed Project was included in the Port's 2020 Plan which was incorporated into the 1997 SIP. However, based on changes to the proposed Project since the 2020 Plan was approved, a general conformity determination may still be necessary for the proposed federal action. If necessary, the Draft Conformity Determination will be prepared and circulated for public review prior to Federal action associated with the proposed Project, consistent with Federal guidance.

~~Based on the present attainment status of the SCAB, a federal action would conform to the SIP if its annual emissions remain below 100 tons of CO or $PM_{2.5}$, 70 tons of PM_{10}, or 25 tons of NO_x or VOCs. However, the United States Court of Appeals ruled in December 2006 that areas in nonattainment of the 1-hour O_3 NAAQS that were superseded by the 8-hour nonattainment classifications must also consider the 1-hour requirements in conformity analyses (South Coast Air Quality Management Dist. v. EPA, 472 F.3d 882 [D.C.Cir. 2006]). Hence, 10 tons per year of NO_x or VOCs also are applicable conformity de minimis thresholds for the SCAB. These de minimis thresholds apply to both proposed construction and operational activities. (For proposed Project operations, the thresholds are compared to the net change in emissions relative to the NEPA Baseline.) If the proposed action exceeds one or more of the de minimis thresholds, a more rigorous conformity determination is the~~

~~next step in the conformity evaluation process. SCAQMD Rule 1901 adopts the guidelines of the General Conformity Rule.~~

Conformity Statement

The Southern California Association of Governments (SCAG) serves the project area as the Metropolitan Planning Organization (MPO) for Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial Counties. As the designated MPO, SCAG is mandated by the federal government to research and draw up plans for transportation and mobility portions of the SCAQMD air plan. SCAG performs the transportation conformity analysis as part of its approval of the Regional Transportation Plan (RTP). The last RTP was approved in 2004 and amended in 2006.

The Port regularly provides SCAG with its Portwide cargo forecasts for development of the AQMP. Cargo projections from Port activities have been included in the RTP of the MPO and thus were included in the most recent USEPA-approved 1997/1999 SIP and the 2003 SIP, should USEPA approve it. These same projections have also been included in the more recent 2007 RTP and SIP, which would also be submitted for USEPA approval. This has been acknowledged by the SCAG, which is the region's MPO. ~~Additionally, an analysis has been done pursuant to 40 CFR 93 Section 153 which determined that the proposed project criteria emissions are de minimis, as they are less than 10 percent of both the 1997 and 2007 RTP. As such, a General Conformity Determination is not required for the proposed project.~~

As part of the environmental review of the Federal action, the USACE will conduct a general conformity evaluation pursuant to 40 C.F.R. Part 93 Subpart B to determine whether a determination of general conformity is required. The Federal action, which is only a portion of the overall proposed Project, includes approval of all in water and over water work and structures; and temporary access, staging, and storage activities within 100 feet of the water needed to complete the in and over water work and structures (hereinafter the "Federal Action"). Consistent with the General Conformity Rule and guidance, including USACE guidance dated April 20, 1994, the USACE determined that other construction and operational activities and emissions associated with the proposed Project are not within the USACE's continuing program responsibility and control, and they were therefore, not included. The general conformity regulations apply at this time to any actions at POLA requiring USACE approval because the SCAB where POLA is situated is a nonattainment area for O_3, PM_{10}, and $PM_{2.5}$; and a maintenance area for NO_2 and CO. The USACE will conduct the general conformity evaluation following all regulatory criteria and procedures and in coordination with EPA and SCAG.

3.2.3.3 Local Regulations and Agreements

Through the attainment planning process, the SCAQMD develops the *SCAQMD Rules and Regulations* to regulate sources of air pollution in the SCAB. The most pertinent SCAQMD rules to the proposed Project are listed below.

Rule 201 – Permit to Construct. This rule requires anyone that installs or modifies equipment that will emit air contaminants to first obtain a Permit to Construct (PTC). For example, tank modifications would require a PTC.

Rule 203 – Permit to Operate. This rule specifies that equipment which may cause the issuance of air contaminants, or which may reduce or control the issuance of air contaminants, may not operate without first obtaining a written Permit to Operate (PTO).

Rule 402 – Nuisance. This rule prohibits discharge of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any such persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property.

Rule 403 – Fugitive Dust. This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area, such that the dust remains visible beyond the emission source property line. A person conducting active operations shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type. Operators of large operations (in excess of 50 acres (20 hectares) of disturbed surface area or any earth-moving operation that exceed a daily throughput of 5,000 cubic yards (cy) (3,825 cubic meters [m^3]) or more three times during the most recent 365-day period. shall either implement control measures identified in the rule or obtain an approved fugitive dust emissions plan from the SCAQMD. Since the proposed improvements would not qualify as a large operation, the Project construction manager would only have to implement best available control measures identified in the rule to minimize fugitive dust emissions from proposed earth-moving and grading activities.

Rule 431.1 – Sulfur Content of Gaseous Fuels. The purpose of this rule is to reduce sulfur oxides (SO_x) emissions from the burning of gaseous fuels in stationary equipment requiring a permit to operate by the SCAQMD.

Rule 463 – Organic Liquid Storage. This rule sets the requirements to control VOC emissions from any aboveground stationary tank with capacity of 75,000 liters (19,815 gallons) or greater used for storage of organic liquids, and any above-ground tank with a capacity between 950 liters (251 gallons) and 75,000 liters (19,815 gallons) used for storage of gasoline.

Rule 466 – Pumps and Compressors. This rule sets the requirements for operation of any pump or compressor that would handle ROCs. The requirements include (1) use of seals to prevent leaking or visible liquid mist, (2) repair and testing procedures, (3) regular inspection schedules, and (4) recordkeeping.

Rule 466.1 – Valves and Flanges. This rule sets the operating requirements for valves and flanges that would handle ROCs. The requirements include (1) use of seals to prevent leaking or visible liquid mist, (2) repair and testing procedures, (3) regular inspection schedules, and (4) recordkeeping.

Rule 466.1 – Pressure Relief Devices. This rule specifies that the operator of a refinery shall not use any pressure relief device on any equipment handling VOC unless the pressure relief device is vented to a vapor recovery or disposal system or inspected and maintained in accordance with the inspection, maintenance, recordkeeping and testing requirements of the rule.

Regulation IX, Subparts K, Ka, and Kb. Regulation IX, Subparts K, Ka, and Kb adopts the federal Standards of Performance for Storage Vessels for Petroleum Liquids (as contained in Part 60, Chapter I, Title 40, of the Code of Federal Regulations) into the SCAQMD Rules and Regulations.

Rule 1142 – Marine Tank Vessel Operations. This rule limits the marine tank vessel operation emissions of VOC during a loading, lightering, ballasting, or housekeeping event to 5.7 grams per cubic meter (2 lbs per 1,000 barrels) of liquid loaded into a marine tank vessel or requires reduction of at least 95 percent by weight of uncontrolled VOC emissions.

Rule 1149 – Storage Tank and Pipeline Cleaning and Degassing. This rule reduces VOCs and toxic emissions from roof landings, cleaning, maintenance, testing, repair and removal of storage tanks and pipelines. This rule applies to the cleaning and degassing of a pipeline opened to atmosphere outside the boundaries of a facility, stationary tank, reservoir, or other container, storing or last used to store VOCs.

Rule 1173 – Control of VOC Leaks and Releases from Components at Petroleum Facilities and Chemical Plants. This rule establishes leak thresholds, and sets requirements for identification, inspection, maintenance, recordkeeping, and testing of facility components and pressure relief devices. The intent of the rule is to control VOC leaks.

Rule 1178 – Further Reduction of VOC Emissions from Storage Tanks at Petroleum Facilities. This rule requires installation of a dome roof for external floating roof tanks containing products with a true vapor pressure greater than 3 pounds per square inch at atmospheric pressure (psia). In addition, at least 95 percent emission control is required for fixed roof tanks containing products with a true vapor pressure greater than 0.1 psia.

Regulation XIII – New Source Review. This rule requires new sources of any nonattainment air contaminant, ozone depleting compound, or ammonia to employ Best Available Control Technology (BACT). This rule further requires that any new source of a nonattainment air contaminant (1) demonstrate with modeling that the new facility will not cause a violation of a state or national ambient air quality standard, or make substantially worse an existing violation and (2) offset its emissions of VOC, NO_x, SO_x, and PM_{10} by a ratio of 1.2 to 1.0.

Subject to New Source Review, the Project would obtain a permit to construct and operate for some of its land based equipment, such as off-loading arms, tanks, and vapor destruction units (VDUs). Additionally, Rule 1306 (g) requires that Project (1) vessel emissions that occur at berth (during hoteling and unloading cargo) and (2) non-propulsion ship emissions that occur within SCAQMD Coastal Waters (transiting emissions – boiler warm-up) must be accumulated as part of the permitted source. As a result, these Project vessel emissions and stationary sources have to be "offset" in accordance with Rule 1303(b)(2).

In general, offset credits, also known as Emissions Reduction Credits (ERCs), must be obtained from other permitted sources in the SCAB that have decreased emissions or ceased operations. The SCAQMD certifies that proposed ERCs are real, quantifiable, permanent, enforceable and not greater than what the sources would emit if operated with current BACT (SCAQMD Rule 1309). When an ERC certificate is issued, it is identified as either "coastal" or "inland" depending on the location where the emissions reduction took place. As a coastal project, the Berth 408 project would be required to use coastal ERCs to offset the project's regulated emissions (SCAQMD Rule 1303 (b)(3)). PLAMT has obtained ERCs in the amount of 581 pounds per day of NO_x, 181 pounds per day of SO_x, and 352 pounds per day of VOC to fully offset proposed emissions.

Rule 1401 – New Source Review of Toxic Air Contaminants. This rule specifies limits for maximum individual cancer risk (MICR), cancer burden, and non-cancer acute and chronic hazard index (HI) from new permit units which emit TACs. The rule establishes allowable risks for permit units requiring new permits pursuant to Rules 201 and 203.

Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities. The purpose of this rule is to limit emissions of asbestos, a TAC, from structural demolition/renovation activities. The rule requires people to notify the SCAQMD of proposed demolition/renovation activities and to survey these structures for the presence of asbestos-containing materials (ACMs). The rule also includes notification requirements for any intent to disturb ACM; emission control measures; and ACM removal, handling, and disposal techniques. All proposed structural demolition activities associated with proposed Project construction would need to comply with the requirements of Rule 1403.

Regulation XVII – Prevention of Significant Deterioration. This regulation sets forth preconstruction review requirements for stationary sources to ensure that air quality in clean air areas does not significantly deteriorate while maintaining a margin for future industrial growth.

Rule 1901 – General Conformity - Rule 1901 states that a federal agency cannot support an activity unless the agency determines that the activity will conform to the most recent USEPA-approved SIP within the region of the proposed project. This means that federally supported or funded activities will not (1) cause or contribute to any new air quality standard violation, (2) increase the frequency or severity of any existing standard violation, or (3) delay the timely attainment of any standard, interim emission reduction, or other milestone. Any project in-water construction components would require approval from the USACE. Therefore, based on the present attainment status of the SCAB, these project components would conform to

the SIP if its annual construction emissions remain below 100 tons of CO, 70 tons of PM_{10}, or 10 tons of NO_x or VOCs. If the proposed federal action exceeds one of these *de minimis* thresholds, performance of a formal conformity analysis is the next step in the conformity determination process.

Vessel Speed Reduction (VSR) Program. The Ports of Los Angeles and Long Beach began this voluntary program in May 2001 for ships that call at the Ports to reduce their speed to 12 knots (kts) or less within 20 nm of the Point Fermin Lighthouse. A reduction in vessel speed in the offshore shipping lanes (up to 13 kts for the largest container ships) can substantially reduce emissions from the main propulsion engines of the ships. The CAAP adopted the VSR Program as control measure OGV-1 and it expands the program out to 40 nm from the Point Fermin Lighthouse.

3.2.4 Impacts and Mitigation Measures

3.2.4.3 Emissions for the Proposed Project

3.2.4.3.2 Operations

The PLAMT facility is designed to accommodate cargos of crude oil from around the world. The nature and extent of crude oil tanker traffic during facility operation would be highly variable based upon crude oil demand, availability, price, tanker availability, shipping costs and many other factors. The terminal operator would not own the crude oil nor participate in the chartering of vessels to deliver the cargo. To estimate air quality impacts for the proposed Project, a reasonable worst-case facility utilization scenario has been developed. Actual operation could vary from this scenario, but emissions are not expected to be greater than the chosen scenario.

Table 3.2-10 includes a synopsis of the regulations that were assumed in the emission calculations for Project operations. Regulations are not treated as mitigation measures, but rather as part of the Project because they represent enforceable rules with or without Project approval. Only currently adopted regulations and agreements were assumed in the Project emission calculations.

Vessel size, offloading speed, and the number of vessels offloading in a given period all play a direct role in air emissions for a facility of this type. The proposed Project is designed to accommodate Very Large Crude Carriers (VLCCs) with a total cargo of up to 2.5 million barrels (bbl). However, it is expected that smaller types of crude oil tanker vessels would also call at Berth 408, including Suezmax vessels (average capacity of 1.0 million bbl), Aframax vessels (average capacity of 700,000 bbl), and Panamax vessels (average capacity of 300,000 bbl). These vessel types normally supply crude from Mexico, Canada, West Africa, Alaskan North Slope (ANS), and South America. Based on the projected increase in demand for imported crude oil from the Middle East (Baker & O'Brien 2007) and the inherent economy of scale in large-scale crude oil transport over long distances, it is expected that the number of VLCCs would increase during the life of the Project and the number of smaller vessels coming into the berth would decrease. Emissions per barrel of oil delivered are lower for VLCCs than from smaller tankers.

Table 3.2-10. Regulations and Agreements Assumed as Part of the Proposed Project Operational Emissions

Ships	*Tugboats*	*Tanks*	*Trucks*	*Valves, Flanges and Pumps*
Vessel Speed Reduction Program – Ships coming into the Port would reduce their speed to 12 knots or less within 20 nm of Point Fermin.	**California Diesel Fuel Regulations** – 15-ppm sulfur effective September 2006. **Engine Standards for Marine Diesel Engines** – Gradual annual phase-in of Tier 2 standards due to normal tugboat fleet turnover.	**Marine Tank Vessel Operations** – Emission limits for the marine tank vessel operation of VOC during a loading, lighting, ballasting, or housekeeping event **Further Reduction of VOC emissions from Storage Tanks at Petroleum Facilities –** Installation of a dome roof for external floating roof tanks containing products with a true vapor pressure greater than 3 pounds per square inch at atmospheric pressure **Vapor Destruction Unit–** Each tank would be connected to a tank vapor recovery and incineration system used to destroy vapors.	**Emission Standards for Onroad Trucks** – Gradual annual phase-in of tiered standards due to normal truck fleet turnover. **California Diesel Fuel Regulations** – 15-ppm sulfur effective September 2006.	**Valves and Flanges** – Operating requirements for valves and flanges that would handle Reactive Organic Gases (ROGs). Requirements include (1) use of seals to prevent leaking or visible liquid mist, (2) repair and testing procedures, (3) regular inspection schedules, and (4) recordkeeping. **Pumps and Compressors** – Requirements for operation of any pump or compressor that would handle ROGs. Requirements include (1) use of seals to prevent leaking or visible liquid mist, (2) repair and testing procedures, (3) regular inspection schedules, and (4) recordkeeping.

The proposed Project's throughput is based on a forecast under which crude oil in southern California would increase over time. The Project's air quality impacts were estimated based on throughput at Berth 408 increasing from 350,000 barrels per day (bpd) in 2010 to 677,000 bpd in 2040. Table 2-9 presents the crude oil throughput and vessel mix projections for the proposed Project over time.

As part of the SCAQMD New Source Review process, Project emissions subject to Regulation XIII (NO_x, SO_x, CO, ROG, and PM_{10}) would be regulated via a monthly emissions cap, based on the planned operational scenarios. This cap would limit air emissions at the same level regardless of the size and frequency of vessels that offload at Berth 408. Therefore, the maximum amount of annual emissions that could be generated from the proposed Project would be limited to the same quantity regardless of the vessel mix. Operational impacts are based on the throughput and vessel mix estimates contained in the Project Description. The SCAQMD has not yet issued a permit for the Proposed Project. Limits which may contained on that permit, including the referenced emissions cap, were not considered in this analysis.

3.2.4.6 Proposed Project and Alternatives: Impacts and Mitigation

3.2.4.6.1 Proposed Project

Proposed Project – Impact AQ-1: The proposed Project would result in construction-related emissions that exceed a SCAQMD threshold of significance in Table 3.2-5.

Although there is no formal construction phasing for the proposed Project, for the emissions analysis it is useful to divide the construction activities into the following two phases:

- **Construction Phase I** – Construction of the Marine Terminal, Tank Farm Site 1, and pipelines, and beginning of construction of Tank Farm Site 2. Construction Phase I ends when the Marine Terminal, Tank Farm Site 1, pipelines, and eight tanks on Tank Farm Site 2 are complete (approximately 20 months after Project approval; see Section 2.4.3.1).
- **Construction Phase II** – Completion of the remaining tanks at Tank Farm Site 2. Construction Phase II would end approximately 30 months after Project approval. Construction Phase II will be concurrent with initial operations of the Berth 408 terminal.

The maximum daily emissions for Construction Phase I and Construction Phase II are shown below in Tables 3.2-11 and 3.2-12. The significance of Construction Phase I activities is considered under **Impact AQ-1**. Because Construction Phase II activities will be concurrent with the initial operation of the proposed Project, the significance of Construction Phase II is considered in the impact discussions for the Operations phase of the project (i.e., **Impact AQ-3**).

Table 3.2-11. Peak Daily Emissions for Proposed Project Construction Phase I Activities without Mitigation

Construction Activity	*Daily Emissions (Pounds)*					
	VOC	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Pier 400 Marine Terminal and Wharf Construction						
Mobilization of Landside and Marine Equipment	47	197	592	0.50	21	20
Demobilization of Landside and Marine Equipment	47	197	592	0.50	21	20
Unloading Platform	100	424	1,403	1.12	42	39
Breasting Dolphin Platforms	100	424	1,403	1.12	42	39
Mooring Dolphin Platforms	100	424	1,403	1.12	42	39
Trestle Abutments	8	29	70	0.08	4	4
Main Trestle	21	86	306	0.32	10	9
Single Lane Trestle to Breasting Dolphin	20	83	289	0.29	9	9
Emergency Spill Boom Platforms	17	72	244	0.22	8	7
Pipeline Construction						
42" Pipeline	46	293	726	0.76	50	39
36" Pipeline	66	454	1,027	1.04	68	57
24" Pipeline	35	223	566	0.59	34	29
Tank Farm Site 1	69	433	1,149	1.25	102	62
Tank Farm Site 2	127	828	2,094	2.20	141	108
Stone Delivery	104	262	3,130	168	58	49
Worker Commuter Vehicles	45	622	401	1	21	17
Peak Daily Emissions	**592** ~~**384**~~	**3,539** ~~**2,195**~~	**10,496** ~~**7,110**~~	**176** ~~**172**~~	**516** ~~**291**~~	**400** ~~**224**~~
CEQA Baseline Emissions	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**592** ~~**384**~~	**3,539** ~~**2,195**~~	**10,496** ~~**7,110**~~	**176** ~~**172**~~	**516** ~~**291**~~	**400** ~~**224**~~
CEQA Significance Thresholds	75	550	100	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Baseline Emissions	0	0	0	0	0	0
Net Change Versus NEPA Baseline	**592** ~~**384**~~	**3,539** ~~**2,195**~~	**10,496** ~~**7,110**~~	**176** ~~**172**~~	**516** ~~**291**~~	**400** ~~**224**~~
NEPA Significance Thresholds	75	550	100	150	150	55
Significance under NEPA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

Notes:

1. Peak daily construction emissions would occur from the concurrent activities: (a) any one of the following: (1) Unloading Platform, (2) Breasting Dolphin Platforms, or (3) Mooring Dolphin Platforms, (b) Pipeline Construction, (c) Tank Farm Site 1, (d) Tank Farm Site 2, (e) Stone Delivery, and (f) Worker Commuter Vehicles.
2. Fugitive construction emissions include PM_{10} emissions from stockpiles, material handling, general construction activities, and vehicle/equipment fugitive dust.
3. Emission controls were implemented on construction equipment to lower emissions. NO_x emission factors are higher in the unmitigated case than in the mitigated case, as would intuitively be expected. However, when emission controls are implemented to decrease NO emissions, an unequal air-to-fuel ratio results, which in turn means that CO emission factors, and emissions increase in the mitigated case, compared to the unmitigated case.

~~1.Peak daily construction emissions would occur from the concurrent activities: (a) any one of the following: (1) Unloading Platform, (2) Breasting Dolphin Platforms, or (3) Mooring Dolphin Platforms, (b) Pipeline Construction, (c) Tank Farm Site 1, (d) Stone Delivery, and (e) Worker Commuter Vehicles.~~

~~2. Fugitive construction emissions include PM_{10} emissions from stockpiles, material handling, general construction activities, and vehicle/equipment fugitive dust.~~

~~3.~~4. The peak daily construction emissions are obtained from H.1.PP.Un.Const-1 (Construction Activities Summary Phase I), H.1.PP.Un.Const-16 (Vessel Emissions from Stone Delivery) and H.1.PP.Un.Const-17 (Truck Emissions from Stone Delivery).

Table 3.2-12. Peak Daily Emissions for Proposed Project Construction Phase II Activities without Mitigation

Construction Activity	*Daily Emissions (Pounds)*					
	VOC	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Tank Farm Site 2	38	262	630	1	66	39
Worker Commuter Vehicle	41	584	367	1	20	16
Peak Daily Emissions	**80**	**846**	**997**	**2**	**86**	**55**

Notes:

1. Fugitive construction emissions include PM_{10} emissions from stockpiles, material handling, general construction activities, and vehicle/equipment fugitive dust.
2. Peak daily construction emissions would occur from the concurrent activities: (a) Tank Farm Site 2, and (b) Worker Commuter Vehicles.

MM AQ-1: Ridesharing or Shuttle Service

Ridesharing or shuttle service programs shall be provided for construction workers. Ridesharing or shuttle service programs would provide emissions benefit by reducing vehicle traffic related to the construction workforce. It is not known how much participation can be achieved for this measure. For this reason, the emissions benefit has not been quantified in this study.

This measure incorporates the requirements of **MM 4G-4** from the 1992 Deep Draft FEIS/FEIR.

MM AQ-2: Staging Areas and Parking Lots

On-site construction equipment staging areas and construction worker parking lots shall be located on either paved surfaces, or unpaved surfaces covered by gravel or subjected to soil stabilization treatments. The staging areas and worker parking lots shall be located as close as possible to public access routes. Access to public roadways from the staging areas and parking lots shall be controlled in order to minimize idling of Project construction equipment.

It is not known how much effectiveness can be achieved for this measure. For this reason, the emissions benefit has not been quantified in this study.

This measure incorporates the requirements of **MM 4G-11, 4G-13** and **4G-14** from the 1992 Deep Draft FEIS/FEIR.

MM AQ-3: Construction Equipment Standards

Prior to and including December 31, 2011: All on-site mobile diesel-powered construction equipment greater than 50 hp, except derrick barges and marine vessels shall meet the Tier 2 emission standards as defined in the USEPA Non-Road Diesel Engine Rule (USEPA 1998). In addition, all construction equipment greater than 50 hp shall be retrofitted with a CARB-certified Level 3 diesel emissions control device.

From January 1, 2012 through December 31, 2014: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier-3 emission off-road emission standards, at a minimum and shall be retrofitted with a CARB certified Level 3 diesel emissions control device.

From January 1, 2015 on: All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier-4 emission off-road emission standards, at a minimum and shall be retrofitted with a CARB certified Level 3 diesel emissions control device.

This mitigation measure shall be met, unless one of the following circumstances exists and the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable in a controlled form, or within the required Tier level, within the state of California, including through a leasing agreement.
- A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.
- A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.

While construction is anticipated to finish prior to 2011, the mitigation measure includes further requirements if construction is delayed beyond 2011. These measures are consistent with the Port's Sustainable Construction Guidelines. However, because construction is anticipated to be complete by 2011, and to provide a conservative analysis of construction emissions impacts, the quantitative analysis included in this Section only includes emission reductions from the use of Tier 2 emission standards.

MM AQ-4: Electricity Use

Electricity supplied by a public utility shall be used where available on the tank farm and pier construction sites in lieu of temporary diesel or gasoline-powered generators. The use of utility power would have a beneficial impact on local air quality as compared to temporary diesel or gasoline-powered generators. However, the level of feasibility for this measure cannot be predicted at this time. For this reason, the potential emission benefits of this measure have not been quantified in this study.

MM AQ-5: Best Management Practices (BMPs)

The following types of measures are required on construction equipment (including on-road trucks):

1. Use of diesel oxidation catalysts and catalyzed diesel particulate traps
2. Maintain equipment according to manufacturers' specifications
3. Restrict idling of construction equipment and on-road heavy-duty trucks to a maximum of 5 minutes when not in use
4. Install high-pressure fuel injectors on construction equipment vehicles
5. Maintain a minimum buffer zone of 300 meters between truck traffic and sensitive receptors
6. Improve traffic flow by signal synchronization

7. Enforce truck parking restrictions
8. Provide on-site services to minimize truck traffic in or near residential areas, including, but not limited to, the following services: meal or cafeteria services, automated teller machines, etc.
9. Re-route construction trucks away from congested streets or sensitive receptor areas
10. Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.

LAHD shall implement a process by which to select additional BMPs to further reduce air emissions during construction. The LAHD shall determine the BMPs once the contractor identifies and secures a final equipment list.

This measure incorporates the requirements of **MM 4G-3** from the 1992 Deep Draft FEIS/FEIR.

MM AQ-6: Additional Fugitive Dust Controls

The construction contractor shall reduce fugitive dust emissions by 90 percent from uncontrolled levels.[3] The Project construction contractor shall specify dust-control methods that will achieve this control level in a SCAQMD Rule 403 dust control plan. Their duties shall include holiday and weekend periods when work may not be in progress.

Measures to reduce fugitive dust include, but are not limited to, the following:

- Active grading sites shall be watered one additional time per day beyond that required by Rule 403.
- Contractors shall apply approved non-toxic chemical soil stabilizers according to manufacturer's specifications to all inactive construction areas or replace groundcover in disturbed areas (previously graded areas) inactive for ten days or more.
- Construction contractors shall provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel shall be covered ~~or shall maintain at least 2 feet of freeboard~~ in accordance with Section 23114 of the California Vehicle Code.
- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
- Pave road and road shoulders.

[3] The unmitigated emissions calculations assume that fugitive dust emissions would be reduced 75 percent from uncontrolled levels as required by applicable rules and regulations. The above mitigation measures are expected to further control fugitive dust emissions an additional 60 percent, resulting in a total of 90% control from uncontrolled levels.

- Require the use of clean-fueled sweepers pursuant to SCAQMD Rule 1186 and Rule 1186.1 certified street sweepers. Sweep streets at the end of each day if visible soil is carried onto paved roads on-site or roads adjacent to the site to reduce fugitive dust emissions.
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM_{10} generation.
- Traffic speeds on all unpaved roads shall be reduced to 15 mph or less.
- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.
- Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable.
- Require the use of electrified truck spaces for all truck parking or queuing areas if feasible. Alternatively, trucks could be required to turn off if parked or stopped in idle for more than 15 minutes.

The grading contractor shall suspend all soil disturbance activities when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed.

MM AQ-7: Expanded VSR Program

All ships and barges used primarily to deliver construction-related materials to a LAHD-contractor construction site shall comply with the expanded Vessel Speed Reduction (VSR) program of 12 knots from 40 nautical miles (nm) from Point Fermin to the Precautionary Area.

MM AQ-8: Low-Sulfur Fuel for Construction Delivery Vessels

All ships and barges used primarily to deliver construction-related materials to a LAHD-contractor construction site shall use low-sulfur fuel (maximum sulfur content of 0.2 percent) in main engines, auxiliary engines, and boilers within 40 nm of Point Fermin.

MM AQ-9: Engine Standards for Harbor Craft Used in Construction

Prior to December 31, 2010, all harbor craft with C1 or C2 marine engines must achieve a minimum emission reduction equivalent to a U.S. Environmental Protection Agency (USEPA) Tier-2 2004 level off-road marine engine. From January 1, 2011 on, all harbor craft with C1 or C2 marine engines must utilize a U.S. USEPA Tier-3 engine, or cleaner.

This mitigation measure shall be met unless one of the following circumstances exists and the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable in a controlled form, or within the required Tier level, within the state of California, including through a leasing agreement.
- A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.
- A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.

MM AQ-10: Fleet Modernization for On-Road Trucks

Prior to and including December 31, 2011: All on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used on-site or to transport materials to and from the site shall comply with USEPA 2004 on road emission standards for PM_{10} and NO_x (0.10 g/bhp-hr PM_{10} and 2.0 g/bhp-hr NO_x).

From January 1, 2012 on: All on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used at the Port of Los Angeles shall comply with EPA 2007 on-road emission standards for PM_{10} and NO_x (0.01 g/bhp-hr and 0.20 g/bhp-hr).

All years:

Trucks hauling materials such as debris or fill shall be fully covered while in operation off Port property.

In addition, all on-road heavy heavy-duty trucks with a GVWR of 19,500 pounds or greater used at the Port of Los Angeles shall be equipped with a CARB verified Level 3 device.

This mitigation measure shall be met unless one of the following circumstances exists and the contractor is able to provide proof that any of these circumstances exists:

- A piece of specialized equipment is unavailable in a controlled form, or within the required Tier level, within the state of California, including through a leasing agreement.
- A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.
- A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled

equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.

The effectiveness of this measure was determined by assuming that the mitigated construction truck fleet was 50 percent 2007 SCAB average fleet and 50 percent compliant with the year 2007 standards. Use of the EMFAC2007 emission factor model determined that the emission reductions associated with this mitigation measure would range from 9 to 15 percent, depending upon the pollutant.

While construction is anticipated to finish prior to 2011, the mitigation measure includes further requirements if construction is delayed beyond 2011. These measures are consistent with the Port's Sustainable Construction Guidelines. However, because construction is anticipated to be complete by 2011, and to provide a conservative analysis of construction emissions impacts, the quantitative analysis included in this Section only includes emission reductions from the use of USEPA 2004 on-road emission standards.

MM AQ-11: Special Precautions near Sensitive Sites

For construction activities that occur within 1,000 feet of sensitive receptors (defined as schools, playgrounds, daycares, and hospitals), the Port shall notify each of these sites in writing at least 30 days before construction activities begin.

MM AQ-12: General Mitigation Measure

For any of the above mitigation measures (MM AQ-1 through AQ-11), if a CARB-certified technology becomes available and is shown to be as good as or better in terms of emissions performance than the existing measure, the technology could replace the existing measure pending approval by the Port.

It is not known how much participation can be achieved for this measure. For this reason, the emissions benefit has not been quantified in this study.

In addition, the following mitigation measure from the Deep Draft FEIS/FEIR would also apply:

MM 4G-5: Discontinue construction activities during a Stage II Smog Alert.

Residual Impacts

Tables 3.2-13 and 3.2-14 presents the maximum daily criteria pollutant emissions associated with construction of the proposed Project, after the application of the proposed Mitigation Measures. The emission reductions that would be realized from the application of several measures are uncertain and would vary due to the transient nature of the construction activities. The emissions reductions from these measures would not be sufficient to reduce the total construction emissions to below the

significance criteria thresholds. Emissions of VOC, CO, NO_x, PM_{10}, and $PM_{2.5}$ during Phase I construction would remain significant under CEQA. As noted above, the impact for Construction Phase II is addressed under **Impact AQ-3**.

Uncalculated Revisions to Construction Mitigation Measures

The revisions to mitigation measures include further implementation of construction equipment and truck requirements. While construction is anticipated to finish prior to 2011, the mitigation measure includes further requirements if construction is delayed beyond 2011. These measures are consistent with the Port's Sustainable Construction Guidelines. However, because construction is anticipated to be complete by 2011, and to provide a conservative analysis of construction emissions impacts, the quantitative analysis included in this Section only includes emission reductions from measures required prior to 2011, consistent with the Draft SEIS/SEIR. Therefore, there are no changes to the daily construction emissions. The proposed Project would exceed the daily construction emission thresholds for VOC, CO, NO_x, SO_x, PM_{10}, and $PM_{2.5}$

Table 3.2-13. Peak Daily Emissions for Proposed Project Construction Phase I Activities with Mitigation [1,2]

Construction Activity	*Daily Emissions [1,2] (Pounds)*					
	VOC	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Pier 400 Marine Terminal and Wharf Construction						
Mobilization of Landside and Marine Equipment	26	273	443	0.50	17	15
Demobilization of Landside and Marine Equipment	26	273	443	0.50	17	15
Unloading Platform	56	605	1,006	1.12	35	32
Breasting Dolphin Platforms	56	605	1,006	1.12	35	32
Mooring Dolphin Platforms	56	605	1,006	1.12	35	32
Trestle Abutments	17	33	47	0.08	2	2
Main Trestle	15	117	176	0.32	6	6
Single Lane Trestle to Breasting Dolphin	14	113	173	0.29	6	6
Emergency Spill Boom Platforms	11	103	166	0.22	6	5
Pipeline Construction						
42” Pipeline	46	372	558	0.76	28	23
36” Pipeline	66	564	781	1.04	39	33
24” Pipeline	35	290	436	0.59	20	17
Tank Farm Site 1	69	574	932	1	100	48
Tank Farm Site 2	127	1,095	1,645	2	112	72
Stone Delivery	71	176	2,056	106	38	32
Worker Commuter Vehicles	45	622	401	1	21	17
Peak Daily Emissions	**515** ~~**307**~~	**4,298** ~~**2,541**~~	**7,815** ~~**5,176**~~	**114** ~~**110**~~	**393** ~~**233**~~	**274** ~~**162**~~
CEQA Baseline Emissions	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**515** ~~**307**~~	**4,298** ~~**2,541**~~	**7,815** ~~**5,176**~~	**114** ~~**110**~~	**393** ~~**233**~~	**274** ~~**162**~~
CEQA Significance Thresholds	75	550	100	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**
NEPA Baseline Emissions	0	0	0	0	0	0
Net Change Versus NEPA Baseline	**515** ~~**307**~~	**4,298** ~~**2,541**~~	**7,815** ~~**5,176**~~	**114** ~~**110**~~	**393** ~~**233**~~	**274** ~~**162**~~
NEPA Significance Thresholds	75	550	100	150	150	55
Significance under NEPA?	**Yes**	**Yes**	**Yes**	**No**	**Yes**	**Yes**

Notes:

1. Implementation of **MM AQ-1** through **MM AQ-2** and **MM AQ-4** through **MM AQ-6** would result in a reduction in combustion emissions and fugitive dust emissions. However, the amounts of emission reductions are quantifiable only for fugitive dust emissions.
2. Peak daily construction emissions would occur from the concurrent activities: (a) any one of the following: (1) Unloading Platform, (2) Breasting Dolphin Platforms, or (3) Mooring Dolphin Platforms, (b) Pipeline Construction, (c) Tank Farm Site 1, (d) Tank Farm Site 2, (e) Stone Delivery, and (f) Worker Commuter Vehicles.
3. Emission controls were implemented on construction equipment to lower emissions. NO_x emission factors are higher in the unmitigated case than in the mitigated case, as would intuitively be expected. However, when emission controls are implemented to decrease NO emissions, an unequal air-to-fuel ratio results, which in turn means that CO emission factors, and emissions increase in the mitigated case, compared to the unmitigated case.

~~1. Implementation of **MM AQ-1** through **MM AQ-2** and **MM AQ-4** through **MM AQ-6** would result in a reduction in combustion emissions and fugitive dust emissions. However, the amounts of emission reductions are quantifiable only for fugitive dust emissions.~~

~~2. Peak daily construction emissions would occur from the concurrent activities: (a) any one of the following: (1) Unloading Platform, (2) Breasting Dolphin Platforms, or (3) Mooring Dolphin Platforms, (b) Pipeline Construction, (c) Tank Farm Site 1, (d) Stone Delivery, (e) Worker Commuter Vehicles.~~

~~3.~~4. The peak daily construction emissions are obtained from H.1.PP.Mit.Const-1 (Construction Activities Summary Phase I), H.1.PP.Mit.Const-16 (Vessel Emissions from Stone Delivery) and H.1.PP.Mit.Const-17 (Truck Emissions from Stone Delivery).

Table 3.2-14. Peak Daily Emissions for Proposed Project Construction Phase II Activities with Mitigation

Construction Activity	*Daily Emissions (Pounds)*					
	VOC	**CO**	**NO_x**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Tank Farm Site 2	36	346	494	1	64	28
Worker Commuter Vehicle	28	387	244	1	13	11
Peak Daily Emissions	**64**	**733**	**739**	**2**	**77**	**39**

Notes:
1. Fugitive construction emissions include PM_{10} emissions from stockpiles, material handling, general construction activities, and vehicle/equipment fugitive dust.
2. Peak daily construction emissions would occur from the concurrent activities: (a) Tank Farm Site 2, and (b) Worker Commuter Vehicles.

NEPA Impact Determination

The proposed Project would exceed the daily construction emission thresholds for VOC, CO, NO_x, SO_x, $PM_{10,}$ and $PM_{2.5}$ during Construction Phase I. Therefore, significant impacts would occur under NEPA. As noted above, Construction Phase II emissions are considered under **Impact AQ-3**.

Mitigation Measures

MM AQ-1 through **AQ-12** and **MM 4G-5** would be applied to the proposed Project.

Residual Impacts

Tables 3.2-13 and 3.2-14 (above) present the maximum daily criteria pollutant emissions associated with construction of the proposed Project, after the application of the proposed mitigation measures. The emissions reductions from the mitigation measures would not be sufficient to reduce the construction emissions to a less than significant level. Emissions of VOC, CO, NO_x, $PM_{10,}$ and $PM_{2.5}$ during Construction Phase I would remain significant under NEPA. As noted above, Construction Phase II emissions are considered under **Impact AQ-3**.

Impact AQ-3: The proposed Project would result in operational emissions that exceed 10 tons per year of VOCs or a SCAQMD threshold of significance in Table 3.2-7.

The average daily emissions associated with the operation of Project emission sources are shown in Table 3.2-17. Average daily emissions are a good indicator of terminal operations over the long term since terminal operations can vary substantially from day-to-day depending on ship arrivals. Emissions were estimated for four Project study years: 2010, 2015, 2025, and 2040. Comparisons to the CEQA and NEPA Baseline emissions are presented to determine CEQA and NEPA significance, respectively. Assumptions and details of the calculations used to estimate emissions for all operational sources are presented in Appendix H. Calculation methodologies and inputs are consistent with recent emission estimation efforts performed by the Port (Starcrest 2007) and the CARB (CARB 2005b).

Peak daily emissions represent theoretical upper-bound estimates of activity levels at the terminal. Therefore, in contrast to average daily emissions, peak daily emissions would occur infrequently and are based upon a lesser known and therefore more theoretical set

of conservative assumptions. Comparisons to the CEQA and NEPA Baseline emissions are presented to determine CEQA and NEPA significance, respectively.

For determining CEQA significance, these AQ-3 significance thresholds are compared to the net change in peak daily project emissions relative to the CEQA Baseline. For determining NEPA significance, these thresholds are compared to the net change in project emissions relative to NEPA Baseline emissions.

Since VLCC vessels require more fuel in the main engines and auxiliary generators for cruising and maneuvering than smaller vessels (e.g., Suezmax, Panamax, Aframax), VLCC vessels calling on the Port will have higher daily emissions than other types of vessels calling at Berth 408. VLCC deliveries will reduce the terminal's annual emissions as compared to smaller tankers because emissions from VLCCs are lower on a per barrel of oil delivered basis.

The proposed Project would have four distinct modes of operation:

- Vessel Arrival – Emissions from tanker cruising and maneuvering, transiting operations, tanks, VDUs, valves, flanges and pumps
- Vessel at Berth and Offloading – Emissions from tanker hoteling, offloading, tanks, VDUs, valves, flanges and pumps
- Vessel Departure – Emissions from tanker cruising and maneuvering, transiting operations, tanks, VDUs, valves, flanges and pumps
- No Vessel/Empty Berth – Emissions from tanks, VDUs, valves, flanges and pumps.

Table 3.2-17. Average Daily Emissions for Proposed Project Operations without Mitigation

Emission Source	Daily Emissions (Pounds)						
	VOC	CO	NO_x	SO_x	PM	PM_{10}	$PM_{2.5}$
Project Year 2010							
Tanker Cruising and Maneuvering [1]	46	93	1,160	697	104	103	93
Tanker Hoteling [2]	14	38	482	116	14	14	11
Offloading Emissions [3]	28	18	87	351	15	11	7
Transiting Operations [4]	0	1	15	117	5	4	2
Tug Assistance	5	23	144	0	--	6	6
Tanks	14	--	--	--	--	--	--
Vapor Destruction Units	2	9	32	6	- - -	2	- - -
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.3	0.7	8	0.5	0.4	0.4	0.4
Average Daily Operational Emissions without Mitigation	**112**	**183**	**1,928**	**1,288**	**138**	**140**	**119**
Project Year 2015							
Tanker Cruising and Maneuvering [1]	62	122	1,505	896	135	134	121
Tanker Hoteling [2]	17	47	602	141	18	17	13
Offloading Emissions [3]	4	26	123	482	22	16	11
Transiting Operations [4]	0	2	18	152	7	6	2
Tug Assistance	5	28	151	0	--	7	6
Tanks	20	--	--	--	--	--	--
Vapor Destruction Units	2	10	38	7	--	2	- -
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.4	0.9	11	0.7	0.6	0.6	0.6
Average Daily Operational Emissions without Mitigation	**113**	**236**	**2,448**	**1,679**	**183**	**183**	**154**
Project Year 2025							
Tanker Cruising and Maneuvering [1]	85	166	2,044	1,217	183	182	165
Tanker Hoteling [2]	23	65	820	192	24	23	18
Offloading Emissions [3]	5	35	166	653	30	22	15
Transiting Operations [4]	1	2	25	206	9	8	3
Tug Assistance	7	38	171	0	--	7	7
Tanks	27	--	--	--	--	--	--
Vapor Destruction Units	2	11	41	7	--	2	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.6	1.4	16	1	0.9	0.9	0.9
Average Daily Operational Emissions without Mitigation	**154**	**318**	**3,283**	**2,276**	**247**	**245**	**209**
Project Year 2040							
Tanker Cruising and Maneuvering [1]	85	166	2,044	1,217	183	182	165
Tanker Hoteling [2]	23	65	820	192	24	23	18
Offloading Emissions [3]	5	35	166	653	30	22	15
Transiting Operations [4]	1	2	25	206	9	8	3
Tug Assistance	7	38	154	0	--	7	6
Tanks	27	--	--	--	--	--	--
Vapor Destruction Units	2	11	41	7	--	2	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.6	1.4	16	1	0.9	0.9	0.8
Average Daily Operational Emissions without Mitigation	**154**	**318**	**3,266**	**2,276**	**247**	**245**	**208**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.

Five 24-hour scenarios involving the above modes were considered to identify peak daily emissions:

1. A vessel could arrive at an empty berth (5 hrs) and offload (19 hrs).
2. A vessel could offload (19 hrs) and then depart (5 hrs).
3. A vessel could depart (5 hrs), a second vessel could arrive (5 hrs) and offload for as much as 14 hrs.
4. A vessel could offload for a full 24-hour period.
5. The berth could be empty for a full 24-hour period.

The emissions associated with scenario one and two above would definitely be less than scenario three. The emissions associated with scenario three, four, and five are presented in Tables 3.2-18, 3.2-19, and 3.2-20.

Table 3.2-18. Daily Emissions Scenario for Proposed Project Operations Without Mitigation (Scenario 3)

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Vessel Departure							
Tanker Cruising and Maneuvering [1]	124	218	2,594	1,499	234	233	212
Transiting Operations [4]	1	5	51	463	32	28	18
Tug Assistance	16	82	514	0	--	21	20
Vessel Arrival							
Tanker Cruising and Maneuvering [1]	124	218	2,594	1,499	234	233	212
Transiting Operations [4]	1	5	51	463	32	28	18
Tug Assistance	16	82	514	0	--	21	20
Vessel Offloading							
Tanker Hoteling [2, 5]	32	88	1,113	245	31	30	24
Offloading Emissions [3, 5]	12	56	282	1,011	51	38	26
Tanks	86	- - -	--	--	--	--	--
Vapor Destruction Units	3	17	63	19	--	4	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Daily Emissions for Scenario 3	**418**	**771**	**7,776**	**5,199**	**614**	**636**	**550**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. Tanker Hoteling and Offloading Emissions were based on 14 hours of Vessel Offloading. The calculations were based off of a 24 hour day. As such, the emissions were based on a 14:24 hour ratio.

Table 3.2-19. Daily Emissions Scenario for Proposed Project Operations Without Mitigation (Scenario 4)

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Vessel Offloading							
Tanker Hoteling [1, 3]	32	88	1,113	245	31	30	24
Offloading Emissions [2, 3]	12	56	282	1,011	51	38	26
Tanks	86	- - -	--	--	--	--	--
Vapor Destruction Units	3	17	63	19	--	4	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Daily Emissions for Scenario 4	**136**	**161**	**1,458**	**1,275**	**82**	**72**	**50**

Notes:

1. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
2. Offloading emissions include emissions from the boiler during offloading.
3. Tanker Hoteling and Offloading Emissions were based on 14 hours of Vessel Offloading. The calculations were based off of a 24 hour day. As such, the emissions were based on a 14:24 hour ratio.

Table 3.2-20. Daily Emissions Scenario for Proposed Project Operations Without Mitigation (Scenario 5)

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
No Vessel/empty berth							
Tanks	86	- - -	--	--	--	--	--
Vapor Destruction Units	3	17	63	19	--	4	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Daily Emissions for Scenario 5	**92**	**17**	**63**	**19**	**0**	**4**	**0**

Scenario 3 has the highest daily emissions. Thus, the peak daily emissions will occur during this scenario when a vessel departs, another vessel arrives, and would offload for the remainder of the day. Since Phase II Construction emissions will coincide with the first 10 months of operations, they are included in the peak daily emissions.

Peak daily emissions are presented in Table 3.2-21.

Table 3.2-21. Peak Daily Emissions for Proposed Project Operations Without Mitigation

Emission Source	*Daily Emissions (Pounds)*						
	VOC	*CO*	*NO_x*	*SO_x*	*PM*	*PM_{10}*	*$PM_{2.5}$*
Peak Daily Emissions (from Table 3.2-18)	418	771	7,776	5,199	614	636	550
Construction Phase II Totals (from Table 3.2-12)	80	846	997	2	86	86	55
Sum of Peak Daily Emissions including Construction Phase II	**498**	**1,617**	**8,773**	**5,201**	**700**	**722**	**605**
CEQA Baseline Emissions	0	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**498**	**1,617**	**8,773**	**5,201**	**700**	**722**	**605**
CEQA Significance Thresholds	55	550	55	150	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Baseline Emissions	923	853	8,744	4,980	533	549	427
Net Change Versus NEPA Baseline	**-425**	**764**	**29**	**221**	**167**	**173**	**178**
NEPA Significance Thresholds	55	550	55	150	150	150	55
Significance under NEPA?	**No**	**Yes**	**No**	**Yes**	**Yes**	**Yes**	**Yes**

CEQA Impact Determination

Proposed Project emissions would exceed the CEQA significance thresholds for daily emissions of all criteria pollutants. Therefore, the unmitigated air quality impacts associated with proposed Project operations would be significant for NO_x, SO_x, PM, PM_{10}, $PM_{2.5}$, VOC, and CO under CEQA.

Mitigation Measures

Mitigation measures for project operations were developed based on review of a variety of measures, including: (1) measures contained in the proposed San Pedro Bay Ports CAAP (LAHD and Port of Long Beach 2006), which includes measures that were proposed under the Port *No Net Increase Plan Report* (LAHD 2005), (2) measures practiced and recognized by the petroleum and tankering industries, and (3) measures contained in PLAMT environmental policies.

The following mitigation measures would reduce criteria pollutant emissions associated with proposed Project operations.

MM AQ-13: Expanded Vessel Speed Reduction (VSR) Program

All ships calling (100%) at Berth 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.

MM AQ-14: Low Sulfur Fuel Use in Main Engines, Auxiliary Engines and Boilers

All ships (100%) calling at Berth 408 shall use 0.2% low sulfur fuel within 40 nm of Point Fermin on their outbound leg and while hotelling at the Project, beginning on day one of operation. Vessels calling at Berth 408 shall also use 0.2% low sulfur fuel within 40 nm of Point Fermin on their inbound leg, except where circumstances (such as ships with a mono-tank system or ships originating from a Port where low sulfur fuel is not available) make such use infeasible on the inbound leg. Regardless, the applicant shall adhere to the following annual phase-in schedule which identifies the minimum allowable annual percentage of vessels in the fleet calling at Berth 408 which shall use 0.2% low sulfur fuel within 40 nm of Point Fermin on their inbound leg.

~~Ships calling at Berth 408 shall use low-sulfur fuel in main engines, auxiliary engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships) in the annual percentages in fuel requirements as specified below~~:

PLAMT Fuel Switch for Main Engines, Auxiliary Engines, and Boilers

	Main Engines/Auxiliary Engines/Boilers					
	Inbound			*Hoteling and Outbound*		
Year	**HFO**	**0.50%**	**0.20%**	**HFO**	**0.50%**	**0.20%**
1	0	100	0	0	0	100
2	0	100	0	0	0	100
3	0	100	0	0	0	100
4	0	80	20	0	0	100
5	0	50	50	0	0	100
6	0	50	50	0	0	100
7-30	0	10	90	0	0	100

~~In addition, all callers carrying 0.2% low sulfur shall use 0.2% low sulfur fuel within 40 nm of Point Fermin both on the inbound and outbound leg.~~

Six months prior to operation of Berth 408 the applicant shall lead the effort, with Port support, in notifying all fuel suppliers/shippers of the low sulfur fuel requirements. This notification shall be achieved through publication of a notice in Bunker World (or other similar fuel supply trade publication) and by notification to all Berth 408 customers.

This measure effectively incorporates the objectives of **MM 4G-7** and **MM 4G-8** from the 1992 Deep Draft FEIS/FEIR.

MM-AQ 15: Alternative Maritime Power (AMP)

By the end of year 2 of operation, all ships capable of utilizing AMP and all frequent callers (2 or more a year), shall use AMP at the facility. At a minimum, ~~S~~ships calling at Berth 408 facility shall use AMP while hoteling at the Port in the following ~~at~~ minimum percentages:

- By end of year 2 of operation – 6 (4%) vessel calls
- By end of year 3 of operation – 10% of annual vessel calls
- By end of year 5 of operation – 15% of annual vessel calls
- By end of year 10 of operation – ~~40%~~50% of annual vessel calls
- By end of year 16 of operation – ~~70%~~80% of annual vessel calls.

Use of AMP would enable ships to turn off their auxiliary engines during hoteling, leaving the boiler as the only source of direct emissions. An increase in regional power plant emissions associated with AMP electricity generation is also assumed. Including the emission from ship boilers, a ship hoteling with AMP reduces its criteria pollutant emissions 88 to 98 percent, depending on the pollutant, when compared to a ship hoteling without AMP and burning residual fuel in the boilers.

AMP on container vessels and cruise ships is directed at reducing emissions from the relatively large hoteling loads present on these vessels. Tankers have smaller hoteling loads but also must support cargo offloading operations by producing steam power. The steam production capability cannot be replaced without complete vessel

reconstruction. However, as mentioned earlier, the Project design includes a feature to minimize steam generation requirements via the use of shore-side electric pumps.

The Port will design and incorporate into Berth 408 all the necessary components to make full AMP available for those vessels capable of utilizing such facilities.

In the alternative, the Port may, upon application by the tenant, and subject to all applicable laws and regulations, permit the tenant to install and employ an Alternative Maritime Emission Control System (AMECS) system, either in combination with or in place of AMP as designated in the Port's permit, to satisfy the requirements of this mitigation measure; provided that the Port first finds, based on environmental review prepared pursuant to CEQA, all of the following:

(1) that AMECS is a feasible mitigation measure;

(2) that the Port and CARB have verified that use of AMECS, as permitted by the Port, would achieve emissions reductions equivalent to or better than those identified in this SEIS/SEIR as occurring under this mitigation measure through the use of AMP alone; and

(3) that either

a. the use of AMECS, as permitted by the Port to achieve the purposes of this mitigation measure, would result in no new or substantially more severe significant adverse impact to the environment, or

b. any new or substantially more severe adverse impact to the environment resulting from the use of AMECS as permitted by the Port to achieve the purposes of this mitigation measure would be mitigated to a less than significant level, or

c. overriding considerations, as defined under CEQA, make appropriate the use of AMECS as permitted by the Port to achieve the purposes of this mitigation measure.

This measure incorporates the requirements of **MM 4G-7** and **MM 4G-8** from the 1992 Deep Draft FEIS/FEIR.

MM AQ-16: Slide Valves

Ships calling at Berth 408 shall be equipped with slide valves or a slide valve equivalent (an engine retrofit device designed to reduce the sac volume in fuel valves of main engines in Category 3 marine engines) to the maximum extent possible.

MM AQ-17: Parking Configuration

Configure parking during operation to minimize traffic interference. Because the effectiveness of this measure cannot be predicted, it is not quantified in this study. This measure incorporates the requirements of MM 4G-14 from the 1992 Deep Draft FEIS/FEIR.

MM AQ-18: New Vessel Builds

The purchaser shall confer with the ship designer and engine manufacture to determine the feasibility of incorporating all emission reduction technology and/or design options and when ordering new ships bound for the Port of Los Angeles. Such technology shall be designed to reduce criteria pollutant emissions (NO_x, SO_x, and PM) and GHG emission (CO, CH_4, O_3, and CFCs). Design considerations and technology shall include, but is not limited to:

1. Selective Catalytic Reduction Technology
2. Exhaust Gas Recirculation
3. In-line fuel emulsification technology
4. Diesel Particulate Filters (DPFs) or exhaust scrubbers
5. Common Rail
6. Low NO_x Burners for Boilers
7. Implement fuel economy standards by vessel class and engine
8. Diesel-electric pod propulsion systems

New/Alternative Technology

The following measures are lease measures that will be included in the lease for Berth 400 due to projected future emissions levels. The measures do not meet all of the criteria for CEQA or NEPA mitigation measures but are considered important lease measures to reduce future emissions. This lease obligation is distinct from the requirement of further CEQA or NEPA mitigation measures to address impacts of potential subsequent discretionary Project approvals.

MM AQ-19: Equivalent Measures

General Mitigation Measure. For any of the above mitigation measures (**MM AQ-13** through **AQ-18**), if any kind of technology becomes available and is shown to be as good or better in terms of emissions reduction performance than the existing measure, the technology could replace the existing measure pending approval by the Port of Los Angeles. The technology's emissions reductions must be verifiable through USEPA, CARB, or other reputable certification and/or demonstration studies to the Port's satisfaction.

This measure is intended to provide PLAMT the flexibility to achieve required emissions mitigation using alternative methods that may not be apparent at present.

The applicant may use an AMP alternative emission reduction technology so long as the alternative technology will achieve emission reductions equivalent to the emission reductions that would have been achieved through the use of AMP.

MM AQ-20: Periodic Review of New Technology and Regulations

The Port shall require the tenant to review, in terms of feasibility, any Port-identified or other new emissions-reduction technology, and report to the Port. Such technology feasibility reviews shall take place at the time of the Port's consideration of any lease amendment or facility modification. If the technology is determined by the Port to be feasible in terms of cost, technical and operational feasibility, the tenant shall work with the Port to implement such technology at sole cost to the tenant.

Potential technologies that may further reduce emission and/or result in cost-savings benefits for the tenant may be identified through future work on the CAAP. Over the course of the lease, the tenant and the Port shall work together to identify potential new technology. Such technology shall be studied for feasibility, in terms of cost, technical and operational feasibility. The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies. If the tenant requests future Project changes that would require environmental clearance and a lease amendment, future CAAP mitigation measures would be incorporated into the new lease at that time.

As partial consideration for the Port's agreement to issue the permit to the tenant, tenant shall implement not less frequently than once every 7 years following the effective date of the permit, new air quality technological advancements, subject to the parties' mutual agreement on operational feasibility and cost sharing which shall not be unreasonably withheld.

MM AQ-21: Throughput Tracking

If the project exceeds project throughput assumptions/projections anticipated through the years 2015, 2025, or 2040, staff shall evaluate the effects of this on the emission sources (ship calls, crude oil throughput) relative to the SEIS/SEIR. If it is determined that these emission sources exceed SEIS/SEIR assumptions, staff would evaluate actual air emissions for comparison with the SEIS/SEIR and if the criteria pollutant emissions exceed those in the SEIS/SEIR, then new or additional mitigations would be applied through MM AQ-20.

Emission Control Measures for Permitted Stationary Source Operations

The proposed Project would incorporate BACT for stationary sources, an overall facility emissions cap, and customer incentives to reduce vessel emissions. In addition, all emissions increases from permitted stationary equipment, as well as the emissions from vessels while at berth and during non-propulsion operations, would be fully offset at a ratio of 1.2 to 1.0 to satisfy SCAQMD permitting requirements. Since BACT is defined as the most stringent level of emission limitation or control technique that has been achieved in practice without consideration of cost, the analysis did not consider any mitigation measures for stationary sources.

Use of All Applicable CAAP Measures

Table 3.2-22 details how the proposed Project mitigation measures compare to the Control Measures identified in the San Pedro Bay Ports CAAP.

Residual Impacts under CEQA

Table 3.2-23 presents the average daily emissions for the Project with mitigation.

As discussed above, unmitigated peak daily emissions were determined by considering five 24-hour scenarios. After analysis, Scenario 3 had the highest daily emissions. The mitigated peak daily emissions will be analyzed in the same manner. Thus, the peak daily emissions will occur when a vessel departs, another vessel arrives, and would offload for the remainder of the day. Table 3.2-24 presents the peak daily emissions for the proposed Project with mitigation. Table 3.2-24 has emissions broken out by Project Year as a result of phase-in of **MM AQ-13** through **MM AQ-21**.

Table 3.2-25 compares the mitigated peak daily emissions to CEQA and NEPA significance thresholds.

The maximum mitigated Project operations would exceed the significant thresholds for all pollutants. No other feasible mitigation measures are known that could achieve further reductions in these pollutants. Significant impacts would occur despite the application of all reasonably applicable mitigation measures.

NEPA Impact Determination

Proposed Project emissions would exceed the NEPA significance thresholds for CO, SO_x, PM, PM_{10}, and $PM_{2.5}$. Therefore, the unmitigated air quality impacts associated with proposed Project operations would be significant for these pollutants under NEPA.

Mitigation Measures

Specific mitigation measures identified above under **MM AQ-13** through **MM AQ-21** would be incorporated into the proposed Project.

Residual Impacts

As shown in Table 3.2-25, significant impacts would occur for CO despite the application of all reasonably applicable mitigation measures.

Uncalculated Revisions to Operational Assumptions/Mitigation Measures

The revisions to mitigation measures include revisions to MM AQ-14 and MM AQ-15. In regards to AMP, the new requirements call for all frequent callers to use AMP at the facility by the end of year two of operations thereby increasing AMP participation for frequent callers beyond the Draft SEIS/SEIR requirements. In regards to low sulfur fuel, the new requirement calls for low sulfur fuel use in 100% of all ships from day one unless there are either technical or operational feasibility

issues, thereby increasing low sulfur fuel use for a portion of the ships beyond the Draft SEIS/SEIR requirements. The net effect of the revised assumptions/mitigation measures would reduce mitigated operational emissions compared to the uncorrected values presented in Tables 3.2-23, and 3.2-24. However, because the new requirements capture a yet to be determined number of ships, and to provide a conservative analysis of operational emissions impacts, the revised mitigated operational emissions are assumed to still exceed the CEQA and NEPA emissions thresholds identified in Table 3.2-25. Therefore, the revisions to operational assumptions/mitigation measures used in the Draft SEIS/SEIR that are included in the Final SEIS/SEIR were not evaluated for precise quantification of their potential to reduce emissions form proposed operational activities.

Table 3.2-22. Comparison between San Pedro Bay Ports CAAP Control Measures and PLAMT Crude Oil Terminal SEIS/SEIR Proposed Mitigation Measures

SPBP Measure #	*SPBP Measure Name*	*SPBP CAAP Measure Description*	*SEIS/SEIR Mitigation Measure*	*Discussion*
HDV-1	Performance Standards for On-Road Heavy-Duty Vehicles (HDVs)	All frequent caller trucks and semi-frequent caller container trucks model year (MY) 1992 and older will meet or be cleaner than the USEPA 2007 on-road emissions standard (0.015 g/bhp-hr for PM) and the cleanest available NO_x at time of replacement. Semi-frequent caller container trucks MY1993-2003 will be equipped with the maximum CARB verified emissions reduction technologies currently available.	No mitigation assumed.	The proposed Project operations do not involve the use of any on-road heavy-duty vehicles. Therefore, this mitigation measure is not applicable to the Project.
HDV-2	Alternative Fuel Infrastructure for Heavy-Duty Natural Gas Vehicles	Construct LNG or compressed natural gas (CNG) refueling stations.	No applicable measure.	This measure will be implemented directly by the Ports. The Port of Long Beach, in conjunction with the Port, recently released a RFP seeking proposals to design, construct and operate a public LNG fueling and maintenance facility on Port property.
OGV-1	OGV Vessel Speed Reduction (VSR)	OGVs that call at the SPB Ports shall not exceed 12 knots (kts) within 20 nautical miles (nm) of Point Fermin (extending to 40 nm in future).	**MM AQ-13:** Expanded Vessel Speed Reduction Program. From the beginning of operation, all inbound and outbound vessels calling at Berth 408 shall travel at a maximum speed of 12 knots within 40 nautical miles of Point Fermin.	**MM AQ-13** fully complies with **OGV-1**. The CAAP targets a 95% compliance rate through lease provisions.

Table 3.2-22. Comparison between San Pedro Bay Ports CAAP Control Measures and PLAMT Crude Oil Terminal SEIS/SEIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP CAAP Measure Description*	*SEIS/SEIR Mitigation Measure*	*Discussion*
OGV-2	Reduction of At-Berth OGV Emissions	Each Port will develop the infrastructure required to provide shore-power capabilities to all container and cruise ship berths. On a case-by-case basis, other vessel types, like specially outfitted tankers or reefer terminals, will be evaluated for the application of shore-power.	**MM AQ-15:** Alternative Maritime Power (AMP). By the end of year 2 of operation, all ships capable of utilizing AMP and all frequent callers (2 or more a year), shall use AMP at the facility. At a minimum, ~~Vessels~~ ships calling at Berth 408 shall utilize emissions reduction methods to reduce auxiliary engine emissions by 90% during hoteling in the following numbers and percentages: By end of year 2 – 6 vessel calls, by end of year 3 – 10% of annual vessel calls vessels, by end of year 5 – 15% of annual vessel calls vessels, by end of year 10 – ~~40%~~ 50% of annual vessel calls vessels, by end of year 16 – ~~70%~~ 80% of annual vessel calls vessels.	**MM AQ-15** fully complies with **OGV-2**.
OGV-3	OGV Auxiliary Engine Fuel Standards	Require ship's auxiliary engines to operate using MGO fuels with sulfur content ≤0.2% S in their auxiliary engines, while inside the VSR zone (described in SPBP-OGV1). The program would start out at 20 nm from Point Fermin and would be expanded to 40 nm from Point Fermin.	**MM AQ-14:** All ships (100%) calling at Berth 408 shall use 0.2% low sulfur fuel within 40 nm of Point Fermin on their outbound leg and while hotelling at the Project, beginning on day one of operation. Vessels calling at Berth 408 shall also use 0.2% low sulfur fuel within 40 nm of Point Fermin on their inbound leg, except where circumstances (such as ships with a mono-tank system or ships originating from a Port where low sulfur fuel is not available) make such use infeasible on the inbound leg. Regardless, the applicant shall adhere to the following annual phase-in schedule which identifies the minimum allowable annual percentage of vessels in the fleet calling at Berth 408 which shall use 0.2% low sulfur fuel within 40 nm of Point Fermin on their inbound leg: ~~Vessels calling at Berth 408 shall use low sulfur fuel in main engines, auxiliary engines, and boilers within 40nm of Point Fermin in percentages determined on an annual basis~~ (see the text under MM AQ-14). ~~From the beginning of operation, all inbound vessels shall utilize MDO or MGO with an average sulfur content equal to or less than 0.2% determined on an annual basis in auxiliary engines and boilers when within 40 nm of Point Fermin.~~	**MM AQ-14** fully complies with **OGV-3** and **OGV-4.** The CAAP assumes full compliance of OGV-3 and OGV-4 pending technical feasibility and fuel availability. The phase-in schedule for **MM AQ-14** allows time for technical equipment upgrades, including installing new tanks and piping on ships. These measures go beyond the pending CARB regulation by requiring ≤ 0.2% S MGO (prior to 2010) in both auxiliary and main engines, instead of requiring ≤0.5% S MDO or MGO for only OGV auxiliary engines.
OGV-4	OGV Main Engine Fuel Standards	Require ship's main engines to operate using MGO fuels with sulfur content ≤0.2% S in their main engines, while inside the VSR zone (described in SPBP-OGV1). The program would start out at 20 nm from Point Fermin and would be expanded to 40 nm from Point Fermin		

Table 3.2-22. Comparison between San Pedro Bay Ports CAAP Control Measures and PLAMT Crude Oil Terminal SEIS/SEIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP CAAP Measure Description*	*SEIS/SEIR Mitigation Measure*	*Discussion*
OGV-5	OGV Main & Auxiliary Engine Emissions Improvements	Focus on reducing DPM, NO_x, and SO_x emissions from OGV main engines and auxiliary engines. The goal of this measure is to reduce main and auxiliary engine DPM, NO_x, and SO_x emissions by 90%. The first engine emissions reduction technology for this measure will be the use of MAN B&W slide valves for main engines.	**MM AQ-18: New Vessel Builds.** All new vessels ordered by applicant shall incorporate NO_x and PM control devices on auxiliary and main engines. NO_x and SO_x control devices include the following technology where appropriate: Slide Valves, Selective Catalytic Reduction (SCR) technology, exhaust gas recirculation, in line fuel emulsification technology, Diesel Particulate Filters (DPFs), and common rail.	**MM AQ-18** fully complies~~y~~ with **OGV-5**.
CHE-1	Performance Standards for CHE	Sets fuel neutral purchase requirements for CHE, starting in 2007. Requires by 2010, all yard tractors operating at the ports will have the cleanest engines meeting USEPA on-road 2007 or Tier IV engine standards for PM and NO_x. All remaining CHE less than 750 hp will meet at a minimum the 2007 or Tier IV standards for PM and NO_x by 2012. Requires that all remaining CHE greater than 750 hp to meet Tier IV standards for PM and NO_x by 2014 and prior to that, be equipped with the cleanest available VDEC.	No mitigation assumed.	The proposed Project operations do not involve the use of any CHE. Therefore, this mitigation measure is not applicable to the Project.

Table 3.2-22. Comparison between San Pedro Bay Ports CAAP Control Measures and PLAMT Crude Oil Terminal SEIS/SEIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP CAAP Measure Description*	*SEIS/SEIR Mitigation Measure*	*Discussion*
HC-1	Performance Standards for Harbor Craft	This measure will focus on harbor craft that have not already been repowered/retrofitted (including construction related harbor craft like dredges and support vessels). When candidate vessels are identified, the Ports will assist/require the owner/operator to repower or retrofit propulsion and auxiliary engines. For non-construction related candidates, Ports staff will assist the owners in applying for Carl Moyer Program incentive funding for the cleanest available engine that meets the emissions and cost effectiveness requirements. It should be noted, that several tugs operating at the Port of Long Beach are home-ported on private property (not Port property) and therefore will not be affected by this measure.	No mitigation assumed.	This measure is a Portwide measure. Terminal operators and shipping lines do not have a direct contractual relationship with tugboat operators and may be limited in providing the infrastructure necessary to implement **HC-1**. The Ports of Los Angeles and Long Beach shall implement **HC-1** through a Port-wide Program as described in the CAAP. The Project air quality analysis assumes that a portion of the Port tugboat fleet will be re-powered through the CARB Carl Moyer Program.
RL-1	PHL Rail Switch Engine Modernization	A voluntary program initiated by the Ports in conjunction with PHL to modernize switcher locomotives used in Port service to meet Tier 2 locomotive engine standards and initiate the use of fuel emulsion in those engines. Also includes evaluation of alternative-powered switch engines including LNG and hybrid locomotives. In addition, a locomotive DOC and DPF will be evaluated and based on a successful demonstration, will be applied to all Tier 2 switcher locomotives. Also restricts future purchases to the cleanest locomotives available.	No mitigation assumed.	The proposed Project operations do not involve the use of any locomotives. Therefore, this mitigation measure is not applicable to the Project.

Table 3.2-22. Comparison between San Pedro Bay Ports CAAP Control Measures and PLAMT Crude Oil Terminal SEIS/SEIR Proposed Mitigation Measures (continued)

SPBP Measure #	*SPBP Measure Name*	*SPBP CAAP Measure Description*	*SEIS/SEIR Mitigation Measure*	*Discussion*
RL-2	Existing Class 1 Railroad Operations	Effects only existing Class 1 railroad operations on Port property. Lays out stringent goals for switcher, helper, and long haul locomotives operating on Port properties. By 2011, all diesel-powered Class 1 switcher and helper locomotives entering Port facilities will be 90% controlled for PM and NO_x, will use 15-minute idle restrictors, and after January 1, 2007, the use of ULSD fuels. Starting in 2012 and fully implemented by 2014, the fleet average for Class 1 long haul locomotives calling at Port properties will be Tier III equivalent (Tier 2 equipped with DPF and SCR or new locomotives meeting Tier 3) PM and NO_x and will use 15-minute idle restrictors. Class 1 long haul locomotives will operate on USLD while on Port properties by the end of 2007. Technologies to get to these levels of reductions will be validated through the Technology Advancement Program.	No mitigation assumed.	The proposed Project operations do not involve the use of any railroad operations. Therefore, this mitigation measure is not applicable to the Project.
RL-3	New and Redeveloped Rail Yards	New rail facilities, or modifications to existing rail facilities located on Port property, will incorporate the cleanest locomotive technologies, meet the requirements specified in SPBP-RL2, utilize "clean" CHE and HDV, and utilize available "green-container" transport systems.	No mitigation assumed.	The proposed Project operations do not involve the use of any rail facilities. Therefore, this mitigation measure is not applicable to the Project.

Table 3.2-23. Average Daily Emissions for Proposed Project Operation with Mitigation

Emission Source	Daily Emissions (Pounds)						
	VOC	CO	NO_x	SO_x	PM	PM_{10}	$PM_{2.5}$
Project Year 2010							
Tanker Cruising and Maneuvering [1]	47	81	896	75	19	19	17
Tanker Hoteling [2]	14	38	479	35	10	10	8
Offloading Emissions [3]	2	19	80	115	12	9	6
Transiting Operations [4]	0	1	6	21	1	1	1
Tug Assistance	5	23	144	0	--	6	6
Tanks	14	--	--	--	--	--	--
Vapor Destruction Units	32	9	2	6	- - -	2	- - -
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.3	0.7	8	0.5	0.4	0.4	0.4
Emissions from AMPed off-site electricity generation	0	0	0	0	0	0	0
Average Daily Operational Emissions with Mitigation	**117**	**172**	**1,615**	**253**	**42**	**47**	**38**
Project Year 2015							
Tanker Cruising and Maneuvering [1]	52	98	1,127	75	22	22	20
Tanker Hoteling [2]	15	40	508	35	11	11	8
Offloading Emissions [3]	4	26	114	153	17	12	8
Transiting Operations [4]	0	2	8	18	1	1	1
Tug Assistance	5	28	151	0	--	7	6
Tanks	20	--	--	--	--	--	--
Vapor Destruction Units	2	10	38	7	--	2	- -
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.4	0.9	11	0.7	0.6	0.6	0.6
Emissions from AMPed off-site electricity generation	0	3	20	2	1	1	1
Average Daily Operational Emissions with Mitigation	**101**	**208**	**1,977**	**291**	**53**	**57**	**45**
Project Year 2025							
Tanker Cruising and Maneuvering [1]	71	133	1,531	78	28	28	25
Tanker Hoteling [2]	14	39	489	32	11	10	8
Offloading Emissions [3]	5	35	155	199	23	16	11
Transiting Operations [4]	0	2	10	16	2	1	1
Tug Assistance	7	38	171	0	--	7	7
Tanks	27	--	--	--	--	--	--
Vapor Destruction Units	2	11	41	7	--	2	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.6	1.4	16	1	0.9	0.9	0.9
Emissions from AMPed off-site electricity generation	0	3	19	2	1	1	1
Average Daily Operational Emissions with Mitigation	**130**	**261**	**2,432**	**335**	**66**	**66**	**54**
Project Year 2040							
Tanker Cruising and Maneuvering [1]	71	133	1,531	78	28	28	25
Tanker Hoteling [2]	7	19	245	16	5	5	4
Offloading Emissions [3]	5	35	155	199	23	16	11
Transiting Operations [4]	0	2	10	16	2	1	1
Tug Assistance	7	38	154	0	--	7	6
Tanks	27	--	--	--	--	--	--
Vapor Destruction Units	2	11	41	7	--	2	--
Valves, Flanges, and Pumps	3	--	--	--	--	--	--
Barge Fuel Deliveries for OGVs	0.6	1.4	16	1	0.9	0.9	0.8
Emissions from AMPed off-site electricity generation	0	2	9	1	0	0	0
Average Daily Operational Emissions with Mitigation	**123**	**241**	**2,161**	**318**	**59**	**60**	**48**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. Tanker Hoteling and Offloading Emissions were based on 14 hours of Vessel Offloading. The calculations were based off of a 24 hour day. As such, the emissions were based on a 14:24 hour ratio.

Table 3.2-24. Peak Daily Emissions for Proposed Project Operation with Mitigation

Emission Source	Daily Emissions (Pounds)						
	VOC	CO	NO_x	SO_x	PM	PM_{10}	$PM_{2.5}$
Project Year 2010 - Vessel Departure							
Tanker Cruising and Maneuvering [1]	106	175	1,925	159	41	41	37
Transiting Operations [4]	1	6	28	84	4	3	2
Tug Assistance	16	82	514	0	- -	21	20
Project Year 2010 - Vessel Arrival							
Tanker Cruising and Maneuvering [1]	106	175	1,925	159	41	41	37
Transiting Operations [4]	1	6	28	84	4	3	2
Tug Assistance	16	82	514	0	- -	21	20
Project Year 2010 - Vessel Offloading							
Tanker Hoteling [2]	32	88	1,108	78	24	23	19
Offloading Emissions [3]	12	56	271	343	38	26	17
Tanks	86	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	3	17	63	19	- -	4	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	0	0	0	0	0	0	0
Maximum Daily Emissions, Year 2010	**382**	**687**	**6,376**	**926**	**152**	**183**	**154**
Project Year 2015 - Vessel Departure							
Tanker Cruising and Maneuvering [1]	106	175	1,925	123	38	38	34
Transiting Operations [4]	1	6	28	58	4	3	2
Tug Assistance	16	82	442	0	- -	19	18
Project Year 2015 - Vessel Arrival							
Tanker Cruising and Maneuvering [1]	106	175	1,925	123	38	38	34
Transiting Operations [4]	1	6	28	58	4	3	2
Tug Assistance	16	82	442	0	- -	19	18
Project Year 2015 - Vessel Offloading							
Tanker Hoteling [2]	27	75	943	64	20	20	16
Offloading Emissions [3]	12	56	269	327	37	26	17
Tanks	86	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	4	18	67	20	- -	4	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	**0.53**	**11**	**61**	**6**	**2**	**2**	**2**
Maximum Daily Emissions, Year 2015	**379**	**686**	**6,130**	**779**	**143**	**172**	**143**
Project Year 2025 - Vessel Departure							
Tanker Cruising and Maneuvering [1]	106	175	1,925	95	36	36	32
Transiting Operations [4]	1	6	28	38	4	3	2
Tug Assistance	15	82	367	0	- -	16	15
Project Year 2025 - Vessel Arrival							
Tanker Cruising and Maneuvering [1]	106	175	1,925	95	36	36	32
Transiting Operations [4]	1	6	28	38	4	3	2
Tug Assistance	15	82	367	0	- -	16	15
Project Year 2025 - Vessel Offloading							
Tanker Hoteling [2]	19	53	665	44	15	14	11
Offloading Emissions [3]	12	56	271	321	38	26	17
Tanks	86	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	4	18	66	20	- -	4	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	**0.37**	**7**	**43**	**4**	**2**	**2**	**2**
Maximum Daily Emissions, Year 2025	**368**	**660**	**5,685**	**655**	**135**	**156**	**128**

Table 3.2-24. Peak Daily Emissions for Proposed Project Operation with Mitigation (continued)

Emission Source	Daily Emissions (Pounds)						
	VOC	CO	NO_x	SO_x	PM	PM_{10}	$PM_{2.5}$
Project Year 2040 - Vessel Departure							
Tanker Cruising and Maneuvering [1]	106	175	1,925	95	36	36	32
Transiting Operations [4]	1	6	28	38	4	3	2
Tug Assistance	15	82	330	0	- -	14	13
Project Year 2040 - Vessel Arrival							
Tanker Cruising and Maneuvering [1]	106	175	1,925	95	36	36	32
Transiting Operations [4]	1	6	28	38	4	3	2
Tug Assistance	15	82	330	0	- -	14	13
Project Year 2040 - Vessel Offloading							
Tanker Hoteling [2]	9	26	332	22	7	7	6
Offloading Emissions [3]	12	56	271	321	38	26	17
Tanks	86	- -	- -	- -	- -	- -	- -
Vapor Destruction Units	4	18	66	20	- -	4	- -
Valves, Flanges, and Pumps	3	- -	- -	- -	- -	- -	- -
Emissions from AMPed off-site electricity generation	**0.19**	**4**	**22**	**2**	**0.75**	**0.75**	**0.75**
Maximum Daily Emissions, Year 2040	**358**	**630**	**5,257**	**631**	**126**	**144**	**118**
Maximum Daily Emissions	**382**	**687**	**6,376**	**926**	**152**	**183**	**154**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. Tanker Hoteling and Offloading Emissions were based on 14 hours of Vessel Offloading. The calculations were based off of a 24 hour day. As such, the emissions were based on a 14:24 hour ratio.

Table 3.2-25. Peak Daily Emissions for Proposed Project Operation With Mitigation

Emission Source	Daily Emissions (Pounds)						
	VOC	CO	NO_x	SO_x	PM	PM_{10}	$PM_{2.5}$
Peak Daily Operation Emissions (From Table 3.2-24)	**382**	**687**	**6,376**	**926**	**152**	**183**	**154**
Construction Phase II Emissions (From Table 3.2-14)	64	733	739	1	77	77	39
Sum of Peak Daily Emissions including Construction Phase II	**446**	**1,420**	**7,115**	**927**	**229**	**260**	**193**
CEQA Baseline Emissions	0	0	0	0	0	0	0
Net Change Versus CEQA Baseline	**446**	**1,420**	**7,115**	**927**	**229**	**260**	**193**
CEQA Significance Thresholds	55	550	55	150	150	150	55
Significance under CEQA?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
NEPA Baseline Emissions	923	853	8,744	4,980	533	549	427
Net Change Versus NEPA Baseline	**-477**	**567**	**-1,629**	**-4,053**	**-304**	**-289**	**-234**
NEPA Significance Thresholds	55	550	55	150	150	150	55
Significance under NEPA?	**No**	**Yes**	**No**	**No**	**No**	**No**	**No**

Impact AQ-4: Proposed Project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-8.

A dispersion modeling analysis of project operational emissions was performed to assess the impact of the proposed Project on local ambient air concentrations. The analysis

focused on Project Year 1 as Project sources would produce the highest amount of daily and annual emissions during this year. A summary of the dispersion analysis is presented here and the dispersion modeling report is included in Appendix H.

Table 3.2-26 presents the maximum project-related impacts of NO_2, CO, PM_{10} and $PM_{2.5}$ from operational activities without mitigation.

Table 3.2-26. Offsite Ambient Air Pollutant Concentrations Associated with Operation of the Proposed Project without Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Impact ($\mu g/m^3$)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
NO_2	1-hour	83.25	263.2	346.45	338	Y
	Annual	3.38	54.5	57.88	56	Y
CO	1-hour	7.76	6,670	6,677.76	23,000	N
	8-hour	2.66	5,405	5,407.66	10,000	N
PM_{10}	24-hour	0.52	51.0	- - -	2.5	N
	Annual	0.18	30.6	- - -	20	N
$PM_{2.5}$	24-hour	0.42	58.5	- - -	2.5	N

Notes:
1. The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from operation activities is added to the background concentration for the Project vicinity and compared to the threshold.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from operation activities (without adding the background concentration) is compared to the threshold.

CEQA Impact Determination

The maximum 1-hour NO_2 and annual NO_2 concentrations would exceed the SCAQMD thresholds of 338 $\mu g/m^3$ and 56 $\mu g/m^3$, respectively. Therefore, these impacts would be significant under CEQA.

Mitigation Measures

Specific mitigation measures identified above under **Impact AQ-3** (**MM AQ-13** through **MM AQ-21**) would be incorporated into the proposed Project.

Residual Impacts

Table 3.2-27 presents the maximum mitigated project-related impacts of NO_2, CO, PM_{10} and $PM_{2.5}$ from operational activities. The maximum annual NO_2 concentration would exceed the SCAQMD thresholds.

Maximum offsite ambient pollutant concentrations associated with the proposed Project are expected to result in air pollutant concentration in excess of the applicable significance thresholds for NO_2. This would occur despite the application of all reasonably applicable mitigation measures. Therefore, significant impacts would occur under CEQA.

Table 3.2-27. Offsite Ambient Air Pollutant Concentrations Associated with Operation of the Proposed Project with Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Impact ($\mu g/m^3$)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
NO_2	1-hour	20.37	263.2	283.57	338	N
	Annual	3.44	54.5	57.94	56	Y
CO	1-hour	3.32	6,670	6,673.32	23,000	N
	8-hour	2.32	5,405	5407.32	10,000	N
PM_{10}	24-hour	0.35	51.0	- - -	2.5	N
	Annual	0.17	30.6	- - -	20	N
$PM_{2.5}$	24-hour	0.20	58.5	- - -	2.5	N

Notes:

1. The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from operation activities is added to the background concentration for the Project vicinity and compared to the threshold.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from operation activities (without adding the background concentration) is compared to the threshold.

NEPA Impact Determination

Maximum offsite ambient pollutant concentrations associated with the proposed Project are expected to result air pollutant concentration in excess of the applicable significance thresholds for 1-hour and annual NO_2. Therefore, significant impacts under NEPA would occur.

Mitigation Measures

To reduce the level of impact during proposed Project operation, the MMs described above for **Impact AQ-3** would be applied to the proposed Project.

Residual Impacts

Maximum offsite ambient pollutant concentrations associated with the proposed Project are expected to result in air pollutant concentration in excess of the applicable significance thresholds for annual NO_2. This would occur despite the application of all reasonably applicable mitigation measures. Therefore, significant impacts would occur under NEPA.

As mentioned in the discussion of Impact AQ-3, the revisions to the operational assumptions/mitigation measures used in the Draft SEIS/SEIR that are included in the Final SEIS/SEIR were not evaluated for their potential to change emissions from proposed operational activities. The combined effect of these revised assumptions/mitigation measures would reduce the ambient impact of mitigated Project operational emissions compared to the uncorrected values presented in Tables 3.2-27. However, the revised mitigated impacts still would result in exceedances of the SCAQMD thresholds, as identified in Table 3.2-27.

Impact AQ-6: The proposed Project would expose receptors to significant levels of toxic air contaminants.

Project construction and operations would emit TACs that could impact public health. An HRA was conducted for the proposed Project pursuant to a Protocol

reviewed and approved by both CARB and SCAQMD (LAHD 2006b). The HRA evaluated potential public health impacts based on the estimated TAC emissions from the construction and operation of the proposed Project. Appendix H contains documentation of the Project HRA.

The primary constituent of concern from the proposed Project would be particulate matter emissions from the combustion of diesel fuel and other distillates in internal combustion engines. DPM would primarily be emitted from the ocean-going vessels which employ large horsepower internal combustion engines for propulsion and auxiliary internal combustion engines for various on-board power needs.

While diesel engine exhaust includes many compounds considered to be TACs, the State of California (i.e., CARB OEHHA) generally uses DPM as the surrogate for the aggregate health risk associated with the combustion of diesel fuel. As such, DPM was treated as a surrogate for the cancer and chronic non-cancer risk analysis. Since the State of California has not adopted an acute non-cancer Reference Exposure Level (REL) for DPM, the acute non-cancer analysis was performed using a multi-pollutant speciation of the TACs known to be in diesel internal combustion engine exhaust.

In addition to DPM, the HRA also considered other TAC emissions which would result from the construction and operation of the proposed Project. These would include diesel and distillate fuel combustion from external combustion sources such as boilers, fugitive organic compound emissions from the handling of crude oil, emissions for TACs from the thermal destruction of crude oil vapors in the VDUs, as well as natural gas combustion in the VDUs.

CEQA Impact Determination

As explained in Section 3.2.4.2, the applicable significance threshold for maximum incremental cancer risk is 10 in a million (10.0×10^{-6}). The significance impact for non-cancer health effects (acute or chronic) would occur when the non-cancer Hazard Index (HI) exceeds a threshold of 1.0. Since both of these are incremental thresholds, the predicted cancer and non-cancer impacts were compared to the predicted impacts under the CEQA Baseline on a location-specific basis.

Figure 3.2-1 presents the maximum incremental cancer risk results for the proposed Project without mitigation under CEQA. The maximum impacted residential receptor location for cancer risk was predicted to be located at the Cabrillo Marina. While not zoned for residential use, the Cabrillo Marina does have some long-term residents living aboard small boats. Although it is not clear whether these residents could permanently reside in this area (i.e., 70 years), this was assumed to be the case for the HRA. This is a conservative assumption. All other residential receptors in the local communities and vicinity would experience lower impacts than what is identified for the maximum impact location. DPM is the primary driver for cancer health risks predicted by the HRA.

Table 3.2-28 presents the maximum predicted cancer and non-cancer health risk impacts for the proposed Project without Mitigation. As shown therein, the cancer impacts from the proposed Project without mitigation would be significant when compared to the SCAQMD's significance threshold. The maximum chronic and

acute non-cancer Hazard Indices would be below the applicable significance threshold for all receptor types.

Mitigation Measures

The mitigation measures described above for **Impact AQ-1** and **Impact AQ-3** (**MM AQ-1** through **MM AQ-21** and **MM 4G-5**) would also serve the benefit of reducing TAC emissions from the proposed Project.

Residual Impacts

Figure 3.2-2 and Table 3.2-29 present the maximum incremental cancer risk results for the proposed Project with mitigation under CEQA. As shown therein, the cancer impacts from the proposed Project after mitigation would be less than significant when compared to the SCAQMD's significance threshold. The maximum chronic and acute non-cancer Hazard Indices would also be below the applicable significance thresholds for all receptor types.

Table 3.2-28. Maximum Cancer and Non-Cancer Health Risk Impacts from Operation of the Proposed Project without Mitigation under CEQA

Health Impact	*Receptor Type*	*Maximum Impact* [1, 2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	12×10^{-6} (12 in a million)	10.0×10^{-6} (10 in a million)	Yes
	Occupational Area	9.7×10^{-6} (9.7 in a million)		No
	Sensitive Receptor	12×10^{-6} (12 in a million)		Yes
	Student	6.9×10^{-6} (6.9 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	0.017	1.0	No
	Occupational Area	0.073		No
	Sensitive Receptor	0.017		No
	Student	0.012		No
Non-Cancer Acute Hazard Index	Residential	0.040	1.0	No
	Occupational Area	0.043		No
	Sensitive Receptor	0.040		No
	Student	0.028		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Reservation Point; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Reservation Point; student receptor, Point Fermin Elementary School.

NEPA Impact Determination

The applicable significance threshold for maximum incremental cancer risk is 10 in a million (10.0×10^{-6}). The significance impact for non-cancer health effects (acute or chronic) would occur when the non-cancer Hazard Index (HI) exceeds a threshold of 1.0. Since both of these are incremental thresholds, the predicted cancer and non-

cancer impacts were compared to the predicted impacts under the NEPA Baseline on a location-specific basis. The NEPA Baseline is equivalent to the No Federal Action/No Project Alternative.

Figure 3.2-3 presents the maximum incremental cancer risk results for the proposed Project without mitigation as compared to the NEPA Baseline. Table 3.2-30 shows that the maximum residential NEPA cancer risk increment associated with the unmitigated proposed Project is predicted to be less than significant. Both the maximum chronic hazard index increment and the maximum acute hazard index increment associated with the unmitigated Project are predicted to be less than significant for all receptors.

Mitigation Measures

While not required for this impact, the mitigation measures described above for **Impact AQ-1** and **Impact AQ-3** (**MM AQ-1** through **MM AQ-21** and **MM 4G-5**) would also serve the benefit of reducing TAC emissions from the proposed Project.

Table 3.2-29. Maximum Cancer and Non-Cancer Health Risk Impacts from Operation of the Proposed Project with Mitigation under CEQA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	5.3×10^{-6} (5.3 in a million)	10.0×10^{-6} (10 in a million)	No
	Occupational Area	4.8×10^{-6} (4.8 in a million)		No
	Sensitive Receptor	5.3×10^{-6} (5.3 in a million)		No
	Student	2.4×10^{-6} (2.4 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	0.0095	1.0	No
	Occupational Area	0.044		No
	Sensitive Receptor	0.0095		No
	Student	0.0064		No
Non-Cancer Acute Hazard Index	Residential	0.019	1.0	No
	Occupational Area	0.026		No
	Sensitive Receptor	0.019		No
	Student	0.013		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Reservation Point; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Reservation Point; student receptor, Point Fermin Elementary School.

Table 3.2-30. Maximum Cancer and Non-Cancer Health Risk Impacts from Operation of the Proposed Project without Mitigation under NEPA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	5.5×10^{-6} (5.5 in a million)	10.0×10^{-6} (10 in a million)	No
	Occupational Area	5.1×10^{-6} (5.1 in a million)		No
	Sensitive Receptor	5.5×10^{-6} (5.5 in a million)		No
	Student	2.8×10^{-6} (2.8 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	0.0047	1.0	No
	Occupational Area	0.043		No
	Sensitive Receptor	0.0047		No
	Student	0.0047		No
Non-Cancer Acute Hazard Index	Residential	-0.095	1.0	No
	Occupational Area	-0.10		No
	Sensitive Receptor	-0.052		No
	Student	-0.052		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Reservation Point; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Reservation Point; student receptor, Point Fermin Elementary School.

Residual Impacts

Figure 3.2-4 presents the maximum incremental cancer risk results for the proposed Project with mitigation as compared to the NEPA Baseline. Table 3.2-31 presents the maximum predicted cancer and non-cancer health risk impacts for the proposed Project with mitigation. As shown therein, the potential health risk impacts from the proposed Project with mitigation would be less than significant. Thus, the proposed Project is considered less than significant under NEPA.

Table 3.2-31. Maximum Cancer and Non-Cancer Health Risk Impacts from Operation of the Proposed Project with Mitigation under NEPA

Health Impact	*Receptor Type*	*Maximum Impact* [1,2]	*Significance Thresholds*	*Significant Impact*
Cancer Risk	Residential	-2.1×10^{-6} (-2.1 in a million)	10.0×10^{-6} (10 in a million)	No
	Occupational Area	0.24×10^{-6} (0.24 in a million)		No
	Sensitive Receptor	-0.83×10^{-6} (-0.83 in a million)		No
	Student	-0.83×10^{-6} (-0.83 in a million)		No
Non-Cancer Chronic Hazard Index	Residential	-0.0068	1.0	No
	Occupational Area	0.014		No
	Sensitive Receptor	0.00051		No
	Student	0.00051		No
Non-Cancer Acute Hazard Index	Residential	-0.11	1.0	No
	Occupational Area	-0.13		No
	Sensitive Receptor	-0.057		No
	Student	-0.057		No

Notes:

1. Maximum impacts for cancer risk values are presented in terms of a probability of contracting cancer. For example a cancer risk of 10.0×10^{-6} would equate to 10 chances in a million of contracting cancer. Maximum impacts for acute or chronic health risk are presented as a Hazard Index that is calculated as the maximum Project exposure concentration divided by the acceptable concentration.
2. Location of the maximum cancer impacts were predicted as follows: residential receptor, Cabrillo Marina; occupational receptor, Pier 400 container terminal (APM/Maersk); sensitive receptor, Signal Hill Head Start; student receptor, Signal Hill Head Start.

As mentioned in the discussion of Impact AQ-3 and AQ-4, the revisions to the operational assumptions/mitigation measures used in the Draft SEIS/SEIR that are included in the Final SEIS/SEIR were not evaluated for their potential to change emissions from proposed operational activities. The combined effect of these revised assumptions/mitigation measures would reduce the ambient health impacts of mitigated Project operational emissions compared to the uncorrected values presented in Tables 3.2-29 and 3.2-31. However, the revised mitigated impacts still would result in exceedances of the cancer risk threshold, as identified in Table 3.2-29 and 3.2-31.

Particulate Matter Morbidity & Mortality

Of great concern to public health are the particles small enough to be inhaled into the deepest parts of the lung. Respirable particles (particulate matter less than about 10 micrometers in diameter [PM_{10}]) can accumulate in the respiratory system and aggravate health problems such as asthma, bronchitis and other lung diseases. Children, the elderly, exercising adults, and those suffering from asthma are especially vulnerable to adverse health effects of PM_{10} and $PM_{2.5}$.

The proposed Project would emit DPM during project construction and operation. This discussion addresses potential health effects caused by DPM emissions and discusses existing standards and thresholds developed by regulatory agencies to address health impacts.

Health Effects of DPM Emissions

Epidemiological studies substantiate the correlation between the inhalation of ambient PM and increased mortality and morbidity (CARB 2002a and CARB 2007). Recently, CARB conducted a study to assess the potential health effects associated with exposure to air pollutants arising from ports and goods movement in the State (CARB 2006da and CARB 2006b). CARB's assessment evaluated numerous studies and research efforts, and focused on PM and ozone as they represent a large portion of known risk associated with exposure to outdoor air pollution. CARB's analysis of various studies allowed large-scale quantification of the health effects associated with emission sources. CARB's assessment quantified premature deaths and increased cases of disease linked to exposure to PM and ozone from ports and goods movement. Table 3.2-32 presents the statewide PM and ozone health effects identified by CARB (CARB 2006b).

Table 3.2-32: Annual 2005 Statewide PM and Ozone Health Effects Associated with Ports and Goods Movement in California[1]

Health Outcome	*Cases Per Year*	*Uncertainty Range (Cases per Year)* [2]
Premature Death	2,400	720 to 4,100
Hospital Admissions (respiratory causes)	2,000	1,200 to 2,800
Hospital Admissions (cardiovascular causes)	830	530 to 1,300
Asthma and Other Lower Respiratory Symptoms	62,000	24,000 to 99,000
Acute Bronchitis	5,100	1,200 to 11,000
Work Loss Days	360,000	310,000 to 420,000
Minor Restricted Activity Days	3,900,000	2,200,000 to 5,800,000
School Absence Days	1,100,000	460,000 to 1,800,000

Notes:

1. Does not include the contributions from particle sulfate formed from SO_x emissions, which is being addressed with several ongoing emissions, measurement, and modeling studies.
2. Range reflects uncertainty in health concentration-response functions, but not in emissions or exposure estimates. A negative value as a lower bound of the uncertainty range is not meant to imply that exposure to pollutants is beneficial; rather, it is a reflection of the adequacy of the data used to develop these uncertainty range estimates.

In addition, although epidemiologic studies are numerous, few toxicology studies have investigated the responses of human subjects specifically exposed to DPM, and the available epidemiologic studies have not measured the DPM content of the outdoor pollution mix. CARB has made quantitative estimates of the public health impacts of DPM based on the assumption that DPM is as toxic as the general ambient PM mixture (CARB 2006c).

CARB's study concluded that there are significant uncertainties involved in quantitatively estimating the health effects of exposure to outdoor air pollution. Uncertain elements include emission and population exposure estimates, concentration-response functions, baseline rates of mortality and morbidity that are entered into concentration response functions, and occurrence of additional not-quantified adverse health effects (CARB 2006b). Many of these elements have a factor-of-two uncertainty. Numerous new studies, ongoing and proposed, will likely increase scientific knowledge and provide better estimates of DPM health effects.

It should be noted that PM in ambient air is a complex mixture that varies in size and chemical composition, as well as varying spatially and temporally. Different types of particles may cause different effects with different time courses, and perhaps only in susceptible individuals. The interaction between PM and gaseous co-pollutants adds additional complexity because in ambient air pollution, a number of pollutants tend to co-occur and have strong inter-relationships with each other (e.g., PM, SO_2, NO_2, CO, and O_3) (SCAQMD 2006b~~7~~, CARB 2006d~~a~~, and CARB 2006b).

Nevertheless, various studies have been published over the past ten years that substantiate the correlation between the inhalation of ambient PM and increased cases of premature death from heart and/or lung diseases (Pope et al. 1995, 2002; Jerrett et al. 2005; Krewski et al. 2001). Studies such as these and studies that have followed since serve as the fundamental basis for PM air quality standards promulgated by AQMD, CARB, USEPA, and the World Health Organization.

Existing CEQA Thresholds

Concentration Thresholds

Regulatory agencies set protective health-based short and long-term ambient concentration standards designed "in consideration of public health, safety, and welfare, including, but not limited to, health, illness, irritation to the senses, aesthetic value, interference with visibility, and effects on the economy" (Health and Safety Code Section 39606(a)(2)). Ambient Air Quality Standards (AAQS) specify concentrations and durations of exposure to air pollutants that reflect the relationships between the intensity and composition of air pollution and undesirable effects. The fundamental objective of an AAQS is to provide a basis for preventing or abating adverse health or welfare effects of air pollution.

In developing the AAQS, federal, state, and local air quality regulatory agencies consider existing health science literature and recommendations from OEHHA. Standards are set to ensure that sensitive population sub-groups are protected from exposure to levels of pollutants that may cause adverse health effects. In the case of PM, CAAQS are peer reviewed by the Air Quality Advisory Committee (AQAC), an external scientific peer review committee, comprised of world-class scientists in the PM field.

Within the SCAB, the SCAQMD furthermore identifies localized ambient significance thresholds. These ambient concentration thresholds target those pollutants the SCAQMD has determined are most likely to cause or contribute to an exceedence of the NAAQS or CAAQS. SCAQMD's localized significance threshold for PM_{10} and $PM_{2.5}$ is 10.4 $\mu g/m^3$ and 2.5 $\mu g/m^3$ for construction and operation, respectively. These values were developed based on CARB guidance and epidemiological studies showing significant toxicity (resulting in mortality and morbidity) related to exposure to fine particles. The proposed Project conducted dispersion analysis to determine ambient air concentrations and determined localized significance.

Emission Thresholds

PM emissions also affect air quality on a regional basis. When fugitive dust enters the atmosphere, the larger particles of dust typically fall quickly to the ground, but smaller particles less than 10 microns in diameter may remain suspended for longer periods, giving the particles time to travel across a regional area affecting receptors at some distance from the original emissions source.

For this reason, the SCAQMD established mass daily thresholds for construction and operational activities for PM. The mass daily thresholds are emissions-based thresholds used to assess the potential significance of criteria air pollutants on the regional level. Emissions that exceed the regional significance thresholds are mass daily emissions that may have significant adverse regional effects. The proposed Project quantified mass daily emissions and determined significance.

Health Risk Assessment Thresholds

SCAQMD specifies thresholds for cancer risk and noncancer chronic and acute hazard impacts. The cancer risk calculation methodology accounts for the cancer potency of a pollutant and the expected dose for exposure pathways. For chronic non-cancer and acute exposures, maximum annual concentrations and peak daily concentrations, respectively are compared with the OEHHA Reference Exposure Levels (REL), which are used as indicators of potential adverse non-cancer health effects. The RELs are concentrations, at or below which no adverse health effects are anticipated in the general human population and are based on the most sensitive relevant adverse health effect reported in the medical and toxicological literature. RELs are designed to protect the most sensitive individuals in the population by the inclusion of margins of safety.

Risk assessment and health impact determination methodologies rely on risk assessment health values published by OEHHA, which in turn are based on results of numerous toxicology and epidemiology studies. For DPM, OEHHA has established health values for cancer and non-cancer chronic effects to be used in quantification of health impacts. The proposed Project quantified both cancer risk and non-cancer chronic impacts from DPM exposure, per OEHHA risk assessment methodology.

In addition, the Port has adopted SCAQMD's CEQA threshold of 10 in a million excess cancer risk and a 1.0 Hazard Index in evaluating new projects. The thresholds set by USEPA, CARB, and SCAQMD for localized, regional and toxic impacts are designed to account for health impacts, such as premature deaths, cardiac and respiratory hospitalizations, asthma, lost work/school days. The proposed Project has quantified localized, regional and toxic impacts of DPM.

Quantifying Morbidity and Mortality

CARB's recent study (CARB 2006d~~a~~ and CARB 2006b) used a health effects model, based on multiple epidemiological studies, which quantified expected non-cancer impacts of mortality and morbidity from ambient PM exposure (for example premature deaths, cardiac and respiratory hospitalizations, asthma and other lower

respiratory symptoms, and lost work/school days). The study focused on large-scale applications such as the benefits of attaining the State air quality standard for $PM_{2.5}$, the impacts of goods movement emissions on a statewide and broad regional level, and the impacts from combined operations at the Ports of Los Angeles and Long Beach (CARB 2006da and CARB 2006b).

CARB staff have stated that it would be neither appropriate nor meaningful to apply the health effects model used in the CARB study to quantify the mortality and morbidity impacts of PM on a project of the proposed Project's size because values quantified for a specific location would fall within the margin of error for their methodology (CARB 2007). Because CARB's methodology was designed for larger-scaled projects affecting a much larger population, the methodology may not be sensitive enough to provide accurate results for projects affecting much smaller populations. The proposed Project is located adjacent to the San Pedro and Wilmington communities and, based on the HRA completed for this Project, the potential health impacts of PM emissions will largely be restricted to an area 4 miles east-west by 6 miles north-south around the terminal area (about 20,000 people). In contrast, CARB's study looked at a 40 mile by 50 mile area with a population of over 400,000 people.

Due to potential scale issues, Port staff also contacted OEHHA to discuss an appropriate methodology to assess the potential morbidity and mortality impacts from the Project. OEHHA is in the process of developing further guidance on health impacts from PM exposure. This guidance will be released later this summer for public comment and peer review. In the absence of further guidance, staff was directed to the "Public Hearing to Consider Amendments to Ambient Air Quality Standards for Particulate Matter and Sulfates" (CARB 2002b). This document pools together different research papers and epidemiological studies and describes how different impacts of morbidity and mortality (for example, long-term mortality, chronic bronchitis, and hospital admissions for asthma) were quantified in considering AAQS revisions for PM. The document used concentration-response (C-R) functions to determine morbidity and mortality impacts. C-R functions are equations that relate the change in the number of adverse health effect incidences in a population to a change in pollutant concentration experienced by that population. Normally, epidemiological studies are used to estimate the relationship between a pollutant and a particular health endpoint at different locations. Most common C-R functions are represented in log-linear form.

This is the basic form of a C-R function:

$$\Delta y = y_0 (e^{\beta \Delta PM} - 1) * \text{population}$$

where:

Δy = changes in the incidence of a health endpoint corresponding to a particular change in PM

y_0 = baseline incidence rate per person

ß = coefficient (PM_{10}: 0.00231285); this coefficient is based on the relative risk that is associated with a particular concentration and varies from one study to another.

ΔPM = change in PM concentration

Using the guidance presented in the document, and using a coefficient based on a 1.12 relative risk that is associated with a mean change of 24.5 µg/m^3 (CARB 2002b and OEHHA 2002), the following represents the result of a sample calculation for long-term mortality due to PM_{10} for the proposed Project (without mitigation). The calculation is dependent on the following:

Location: Lat 33.755368, Long –118.277490

Population (>25 years of age): 3,347 within a 1-mile radius

Change in annual PM_{10} concentration: 0.18~~13.7~~ µg/m^3 (unmitigated peak Project minus CEQA Baseline ~~15.~~0 µg/m^3, excluding background).

The increase in incidence of long-term mortality corresponding to this change in PM_{10} concentration was calculated to be: ~~0.0073~~0.0010 cases per year.

However, as shown in Section 3.2.4.3, proposed **MMs AQ-13** through **AQ-21** are expected to reduce DPM emissions relative to baseline DPM emissions, thereby reducing potential impacts on morbidity and mortality.

According to CARB (2002b), the standard error of the ß coefficient is 0.0006023 for PM_{10}.

It is important to note that the parameters in the C-R functions can vary widely depending on the study. For example, some studies exclude accidental deaths from their mortality counts while others include all deaths. Furthermore, some studies consider only members of a particular subgroup of the population, e.g., individuals 30 and older, while other studies consider the entire population in the study location. When applying a C-R function from an epidemiological study to estimate changes in the incidence of a health endpoint corresponding to a particular change in PM in a location, it is important to use the appropriate value of parameters for the C-R function. That is, the measure of PM, the type of population, and the characterization of the health endpoint should be the same as or as close as possible to those used in the study that estimated the C-R function. The sample analysis presented here attempted to use parameters as closely related to the chosen C-R function as possible.

Among the uncertainties in the risk estimates is the degree of transferability of the concentration-response functions to California. Many of the epidemiologic studies used by CARB/OEHHA do include several California cities, but not all. For example, the C-R function for long-term mortality (Krewski et al. 2001~~0~~) included eight California cities out of a total of 63 cities. Another uncertainty stems from the issue of co-pollutants. Specifically, it is possible that some of the estimated health effects include the effects of both PM and other correlated pollutants. Finally, the studies used in developing the C-R functions do not usually take into consideration estimates of averting behaviors. Examples of averting behaviors include measures

that prevent symptoms from occurring in the first place, such as avoiding strenuous exertion on days with high PM, staying indoors, the use of filters, etc.

However, perhaps the most compelling use limitation of C-R functions for site-specific projects is the consideration of whether it is valid to apply the C-R functions to changes in PM concentrations that are far below the ambient concentration. For example, the CARB/OEHHA analysis applied a threshold of 18 μg/m^3 for the long-term mortality C-R function because this was the lowest concentration level observed in the long-term mortality studies evaluated. In other words, CARB/OEHHA assumed that the C-R functions were continuous and differentiable down to threshold levels. In the case of trying to quantify project-specific impacts, it may not be appropriate to use C-R functions that were developed with a threshold significantly higher than the change in PM due to the project.

Following public release of the Draft SEIS/SEIR, CARB developed a long-term mortality methodology for particulate matter of less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$) that would be appropriate for individual projects (CARB 2008). The methodology is similar to that used in the Draft SEIS/SEIR, but it is based on a more conservative estimate of the relative risk of premature death.

Based on the new CARB methodology, the long-term impacts associated with the proposed Project after mitigation would be an increase in the mortality incidence rate from the CEQA baseline. The incremental increase would be 0.0062 premature deaths (per year) based on the ambient concentration in the peak year, including construction and operation.

Ambient $PM_{2.5}$ concentrations were not modeled on an annual basis for this project. Instead, predicted increases in ambient PM_{10} concentrations were used as a conservative, worst-case measure of the project's impact on particulate concentrations. The maximum predicted increase in annual PM_{10} concentration for the proposed Project with mitigation was 0.17 μg/m^3 during the maximum impact year, as predicted by the AERMOD dispersion model. This means that the increase in annual $PM_{2.5}$ concentrations associated with the mitigated Project would be less than that value during all project analysis years. The impact to the neighboring community would not see a measurable increase in annual $PM_{2.5}$ concentrations associated with the mitigated Project relative to baseline conditions.

Impact AQ-8: The proposed Project would produce GHG emissions that would exceed CEQA and NEPA Baseline levels.

Climate change, as it relates to man-made GHG emissions, is by nature a global impact. An individual project does not generate enough GHG emissions to significantly influence global climate change by itself (AEP 2007). The issue of global climate change is, therefore, a cumulative impact. Nevertheless, for the purposes of this ~~Draft~~ SEIS/SEIR, the LAHD has opted to address GHG emissions as a project-level impact and a cumulative impact. In actuality, an appreciable impact on global climate change would only occur when the project's GHG emissions combine with GHG emissions from other man-made activities on a global scale.

GHG emissions associated with the proposed Project and alternatives were calculated based on methodologies provided in the California Climate Action Registry's

General Reporting Protocol, version 2.2 (CCAR 2007). The General Reporting Protocol is the guidance document that the Port and other CCAR members use to prepare annual port-wide GHG inventories for the Registry. Therefore, for consistency, the General Reporting Protocol was also used in this study. However, to adapt the Protocol for NEPA/CEQA purposes, a modification to the Protocol's operational and geographical boundaries was made, as discussed later in this section.

The Project-related emission sources for which GHG emissions were calculated include:

- Ships
- Tugboats
- Tanks
- Vapor Destruction Units
- Valves, Flanges, and Pumps
- AMP electricity consumption (for the mitigated project)
- On-terminal electricity consumption

The adaptation of the General Reporting Protocol methodologies to these project-specific emission sources is described in Appendix H.

Under CCAR's General Reporting Protocol, emissions associated with the Port and LAHD would be divided into 3 categories:

- Scope 1: Direct emissions from sources owned or operated by the Port and LAHD
- Scope 2: Indirect emissions from purchased and consumed electricity
- Scope 3: Indirect emissions from sources not owned or operated by the Port and LAHD

Examples of Scope 1 sources would be ships, tugboats, tanks, VDUs, valves, flanges and pumps. Scope 2 emissions would be indirect GHG emissions from electricity consumption on the terminal. CCAR has not yet developed a protocol for determining the operational or geographical boundaries for some Scope 3 emissions sources.

CCAR does not require Scope 3 emissions to be reported because they are considered to belong to another reporting entity (i.e., whomever owns, leases, or operates the sources). For the purposes of this NEPA/CEQA document, however, GHG emissions were calculated for all project-related sources (Scope 1, 2, and 3). For those sources that travel out of California, the GHG emissions were based on that portion of their travel that is within California borders. In the case of electricity consumption, all GHG emissions were included regardless of whether they are generated by in-state or out-of-state power plants.

This approach is consistent with CCAR's goal of reporting all GHG emissions within the State of California.

Table 3.2-33 presents the annual GHG emissions associated with the construction of the proposed Project without mitigation. At this time, there are no established significance criteria for GHG emissions.

Table 3.2-33. Average Annual GHG Emissions for Proposed Project Construction without Mitigation

Construction Activity	*Annual Emissions (Tons)*			
	N_2O	CO_2	CH_4	CO_2e
Phase I				
Pier 400 Marine Terminal and Wharf Construction	0.1	7,658	1	7,710
Pipeline Construction	0.2	14,700	2	14,804
Tank Farm Site 1	0.1	10,170	1	10,222
Tank Farm Site 2	0.2	18,751	3	18,876
Phase II				
Tank Farm Site 2	0.04	3,368	1	3,401

Table 3.2-34 presents the annual GHG emissions associated with the construction of the proposed Project with mitigation. At this time, there are no established significance criteria for GHG emissions. As seen in reviewing Table 3.2-33 and 3.2-34, the average annual CO_2 equivalent emissions associated with the proposed Project are expected to be the same without and with mitigation.

Table 3.2-34. Average Annual GHG Emissions for Proposed Project Construction with Mitigation

Construction Activity	*Annual Emissions (Tons)*			
	N_2O	CO_2	CH_4	CO_2e
Phase I				
Pier 400 Marine Terminal and Wharf Construction	0.1	7,658	1	7,710
Pipeline Construction	0.2	14,700	2	14,804
Tank Farm Site 1	0.1	10,170	1	10,222
Tank Farm Site 2	0.2	18,751	3	18,876
Phase II				
Tank Farm Site 2	0.04	3,368	1	3,401

Table 3.2-35 presents the annual GHG emissions associated with the operation of the proposed Project without mitigation. At this time, there are no established significance criteria for GHG emissions.

Table 3.2-35. Average Annual GHG Emissions for Proposed Project Operation without Mitigation

Emission Source	Annual Emissions (Tons)			
	N_2O	CO_2	CH_4	CO_2e
Project Year 2010				
Tanker Cruising and Maneuvering [1]	0.060.05	6,6835,347	0.880.71	6,7205,376
Tanker Hoteling [2]	0.040.06	4,1406,523	0.550.86	4,1636,559
Offloading Emissions [3]	0.11 0.16	12,868 16,093	1.64 2.22	12,936 16,188
Transiting Operations [4]	0.010.03	1,0082592	0.130.36	1,0142,608
Tug Assistance	0.0060.0045	566453	0.080.0625	569456
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02 0.02	10,564	1.18	10,595
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.0007	71.39	0.01	72
Average Annual Operational Emissions	**0.25 0.3134**	**35,900 41,572**	**4.47 5.39**	**36,069 41,782**
Project Year 2015				
Tanker Cruising and Maneuvering [1]	0.080.06	8,6097,622	1.141.01	8,6577,662
Tanker Hoteling [2]	0.05 0.08	5,164 9,302	0.68 1,23	5,193 9,353
Offloading Emissions [3]	0.15 0.23	17,869 22,947	2.27 3.16	17,963 23,084
Transiting Operations [4]	0.010.04	1,3073,697	0.170.51	1,3143,719
Tug Assistance	0.01	645516	0.090.07	649519
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.0009	95	0.01	96
Average Annual Operational Emissions	**0.320.43**	**45,18555,580**	**5.657.26**	**45,40255,867**
Project Year 2025				
Tanker Cruising and Maneuvering [1]	0.100.08	11,6909,352	1.541.23	11,7559,404
Tanker Hoteling [2]	0.060.10	7,03611,009	0.931.45	7,07511,070
Offloading Emissions [3]	0.210.30	24,23030,289	3.084.18	24,35930,469
Transiting Operations [4]	0.020.04	1,7734,559	0.230.63	1,7834,586
Tug Assistance	0.01	882706	0.120.10	887710
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	143	0.02	144
Average Annual Operational Emissions	**0.42 0.55**	**57,250 67,411**	**7.21 8.87**	**57,533 67,769**
Project Year 2040				
Tanker Cruising and Maneuvering [1]	0.100.08	11,6909,352	1.541.23	11,7559,404
Tanker Hoteling [2]	0.060.10	7,03611,009	0.931.45	7,07511,070
Offloading Emissions [3]	0.210.30	24,23030,289	3.084.18	24,35930,469
Transiting Operations [4]	0.020.04	1,7734,559	0.230.63	1,7834,586
Tug Assistance	0.01	882706	0.120.10	887710
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	143	0.02	144
Average Annual Operational Emissions	**0.42 0.55**	**57,250 67,411**	**7.21 8.87**	**57,533 67,769**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. The additional row "Barge Fuel Deliveries for OGVs" was added to this table for the Final SEIS/SEIR because these emissions were inadvertently omitted from the Draft SEIS/SEIR. These additional emissions, however, do not change any of the significance determinations.

CEQA Impact Determination

The proposed Project would result in a significant CEQA impact if CO_2e emissions exceed the CEQA Baseline, which is equivalent to zero. As the data in Tables 3.2-34 and 3.2-35 show, annual CO_2e emissions would increase from the CEQA Baseline levels for both construction and operation. As such, the proposed Project would result in a significant impact under CEQA.

Mitigation Measures

Measures that reduce electricity consumption or fossil fuel usage from the proposed Project emission sources would reduce proposed GHG emissions. The following operational mitigation measures already developed for criteria pollutant emissions (**Impact AQ-3**) would also reduce GHG emissions:

MM AQ-13: Expanded Vessel Speed Reduction (VSR) Program

All ships calling (100%) at Berth 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.

MM AQ-15: AMP

By the end of year 2 of operation, all ships capable of utilizing AMP and all frequent callers (2 or more a year), shall use AMP at the facility. At a minimum, ships calling at Berth 408 facility shall use AMP while hoteling at the Port in the following minimum percentages:

- By end of year 2 of operation – 6 (4%) vessel calls
- By end of year 3 of operation – 10% of annual vessel calls
- By end of year 5 of operation – 15% of annual vessel calls
- By end of year 10 of operation – 50% of annual vessel calls
- By end of year 16 of operation – 80% of annual vessel calls.

Use of AMP would enable ships to turn off their auxiliary engines during hoteling, leaving the boiler as the only source of direct emissions. An increase in regional power plant emissions associated with AMP electricity generation is also assumed. Including the emission from ship boilers, a ship hoteling with AMP reduces its criteria pollutant emissions 88 to 98 percent, depending on the pollutant, when compared to a ship hoteling without AMP and burning residual fuel in the boilers.

AMP on container vessels and cruise ships is directed at reducing emissions from the relatively large hoteling loads present on these vessels. Tankers have smaller hoteling loads but also must support cargo offloading operations by producing steam power. The steam production capability cannot be replaced without complete vessel reconstruction. However, as mentioned earlier, the Project design includes a feature to minimize steam generation requirements via the use of shore-side electric pumps.

The Port will design and incorporate into Berth 408 all the necessary components to make full AMP available for those vessels capable of utilizing such facilities.

In the alternative, the Port may, upon application by the tenant, and subject to all applicable laws and regulations, permit the tenant to install and employ an Alternative Maritime Emission Control System (AMECS) system, either in combination with or in place of AMP as designated in the Port's permit, to satisfy the requirements of this mitigation measure; provided that the Port first finds, based on environmental review prepared pursuant to CEQA, all of the following:

(1) that AMECS is a feasible mitigation measure;

(2) that the Port and CARB have verified that use of AMECS, as permitted by the Port, would achieve emissions reductions equivalent to or better than those identified in this SEIS/SEIR as occurring under this mitigation measure through the use of AMP alone; and

(3) that either

a. the use of AMECS, as permitted by the Port to achieve the purposes of this mitigation measure, would result in no new or substantially more severe significant adverse impact to the environment, or

b. any new or substantially more severe adverse impact to the environment resulting from the use of AMECS as permitted by the Port to achieve the purposes of this mitigation measure would be mitigated to a less than significant level, or

c. overriding considerations, as defined under CEQA, make appropriate the use of AMECS as permitted by the Port to achieve the purposes of this mitigation measure.

~~Ships calling at the Berth 408 facility shall use AMP while hoteling at the Port in the following at minimum percentages:~~

- ~~By end of year 2 of operation – 6 (4%) vessel calls~~
- ~~By end of year 3 of operation – 10% of annual vessel calls~~
- ~~By end of year 5 of operation – 15% of annual vessel calls~~
- ~~By end of year 10 of operation – 40% of annual vessel calls~~
- ~~By end of year 16 of operation – 70% of annual vessel calls~~

~~Use of AMP would enable ships to turn off their auxiliary engines during hoteling, leaving the boiler as the only source of direct emissions. An increase in regional power plant emissions associated with AMP electricity generation is also assumed for Greenhouse Gas emissions. Including the emission from ship boilers and power plant emissions, a ship hoteling with AMP reduces its greenhouse gas emissions by 88 to 98 percent, depending on the GHG, when compared to a ship hoteling without AMP and burning residual fuel in the boilers.~~

~~AMP on container vessels and cruise ships is directed at reducing emissions from the relatively large hoteling loads present on these vessels. Tankers have smaller hoteling loads but also must support cargo offloading operations by producing steam~~

~~power. The steam production capability cannot be replaced without complete vessel reconstruction. However, as mentioned earlier, the Project design includes a feature to minimize steam generation requirements via the use of shore-side electric pumps.~~

~~The Port will design and incorporate into Berth 408 all the necessary components to make full AMP available for those vessels capable of utilizing such facilities~~.

This measure incorporates the requirements of **MM 4G-7** and **MM 4G-8** from the 1992 Deep Draft FEIS/FEIR.

The following additional mitigation measures specifically target the Project's GHG emissions. They were developed through an applicability and feasibility review of possible measures identified in the *Climate Action Team Report to Governor Schwarzenegger* and *the California Legislature* (CalEPA 2006) and CARB's *Proposed Early Actions to Mitigate Climate Change in California* (CARB 2007). The strategies proposed in these two reports for the commercial/industrial sector are listed in Table 3.2-36, along with an applicability determination for the proposed Project.

Table 3.2-36. Project Applicability Review of Potential GHG Emission Reduction Strategies

Operational Strategy	*Applicability to Proposed Project*
Commercial and Industrial Design Features	
Vehicle Climate Change Standards	Regulatory measure implemented by CARB
Other Light duty Vehicle Technology	Regulatory measure implemented by CARB (standards will phase in starting 2009)
HFCs Reduction	Future regulatory measure planned by CARB
Transportation Refrigeration Units, Off Road Electrification, Port Electrification	**MM AQ-15** (AMP for ships); vessels are electrified as part of the Project; also a future regulatory measure is planned by CARB
Alternative Fuels: Biodiesel blends	Future regulatory measure planned by CARB
Alternative Fuel: Ethanol vehicles or enhanced ethanol/gasoline blends	Future regulatory measure planned by CARB
Heavy Duty Vehicle Emissions Reduction Measures	**MM AQ-13** (VSR Program for ships); Portwide CAAP measure HDV2 (trucks); also a regulatory measure implemented by CARB
Reduced Venting in Gas Systems	Not applicable to Project
Building Operations Strategy	
Recycling	**MM AQ-26;** also a regulatory measure implemented by the Integrated Waste Management Board
Building Energy Efficiency	**MM AQ-22 through MM AQ-26;** also a regulatory measure implemented by the California Energy Commission
Green Buildings Initiative	Future regulatory measure planned by the State and Consumer Services and Cal/EPA
California Solar Initiative	**MM AQ-25**; also a future regulatory measure is planned by the California Public Utilities Commission

Note:
These strategies are found in the *California Climate Action Team's report to the Governor* (CalEPA 2006) and CARB's *Proposed Early Actions to Mitigate Climate Change in California* (CARB 2007).

MM AQ-22: Leadership in Energy and Environmental Design (LEED)

The administration building shall obtain the Leadership in Energy and Environmental Design (LEED) gold certification level.

LEED certification is made at one of the following four levels, in ascending order of environmental sustainability: certified, silver, gold, and platinum. The certification level is determined on a point-scoring basis, where various points are given for design features that address the following areas (U.S. Green Building Council 2005):

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Innovation and Design Process

As a result, a LEED-certified building will be more energy efficient, thereby reducing GHG emissions compared to a conventional building design. Electricity consumption at the on-terminal buildings represents about 7 percent of on terminal electrical consumption and about 0.1 percent of overall Project GHG emissions.

Although not quantified in this analysis, implementation of this measure is expected to reduce the Project's GHG emissions by less than 0.1 percent.

MM AQ-23: Compact Fluorescent Light Bulbs

All interior terminal building lighting shall use compact fluorescent light bulbs and the tenant shall maintain and replace all compact fluorescent bulbs.

Fluorescent light bulbs produce less waste heat and use substantially less electricity than incandescent light bulbs. Although not quantified in this analysis, implementation of this measure is expected to reduce the Project's GHG emissions by less than 0.1 percent.

MM AQ-24: Energy Audit

The tenant shall conduct a third party energy audit every 5 years and install innovative power saving technology where feasible, such as power factor correction systems and lighting power regulators. Such systems help to maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use.

This mitigation measure primarily targets large on-terminal electricity consumers such as on-terminal lighting and shoreside electric gantry cranes. These sources consume the majority of on-terminal electricity, and account for about 1 percent of overall Project GHG emissions. Therefore, implementation of power saving

technology at the terminal could reduce overall Project GHG emissions by a fraction of 1 percent.

MM AQ-25: Solar Panels

The applicant shall install solar panels on the administration building.

Solar panels would provide the terminal building with a clean source of electricity to replace some of its fossil fuel-generated electricity use. Although not quantified in this analysis, implementation of this measure is expected to reduce the Project's GHG emissions by less than 0.1 percent.

MM AQ-26: Recycling

The tenant shall ensure a minimum of 40 percent of all waste generated in all terminal buildings is recycled by 2012 and 60 percent of all waste generated in all terminal buildings is recycled by 2015. Recycled materials shall include: (a) white and colored paper; (b) post-it notes; (c) magazines; (d) newspaper; (e) file folders; (f) all envelopes including those with plastic windows; (g) all cardboard boxes and cartons; (h) all metal and aluminum cans; (i) glass bottles and jars; and (j) all plastic bottles.

In general, products made with recycled materials require less energy and raw materials to produce than products made with unrecycled materials. This savings in energy and raw material use translates into GHG emission reductions. The effectiveness of this mitigation measure was not quantified due to the lack of a standard emission estimation approach.

MM AQ-27: Tree Planting

The applicant shall plant shade trees around the administration building. All shade trees shall be maintained over the life of the project.

Trees act as insulators from weather thereby decreasing energy requirements. Onsite trees also provide carbon storage (AEP 2007). Although not quantified, implementation of this measure is expected to reduce the Project's GHG emissions by less than 0.1 percent.

Future Portwide greenhouse gas emission reductions are also anticipated through AB 32 rule promulgation. However, such reductions have not yet been quantified, as AB 32 implementation is still under development by the CARB.

Residual Impacts

Table 3.2-37 presents the annual mitigated GHG emissions associated with operation of the proposed Project. Table 3.2-34 presents the annual mitigated GHG emissions associated with construction of the proposed Project. As shown therein, the impacts for the proposed Project would remain significant under CEQA.

NEPA Impact Determination

The construction and operational CO_2e emissions summarized in ~~Table~~Tables 3.2-34 and 3.2-37, which are with mitigation, would increase relative to the NEPA Baseline for each project year (the combined mitigated construction and operational CO_2e emissions would be lower than the total unmitigated construction and operational CO_2e emissions shown in Tables 3.2-33 and 3.2-35). However, because no NEPA significance threshold has been established, no determination has been made of the significance of this impact.

Table 3.2-37. Average Annual GHG Emissions for Proposed Project Operation with Mitigation

Emission Source	Annual Emissions (Tons)			
	N_2O	CO_2	CH_4	CO_2e
Project Year 2010				
Tanker Cruising and Maneuvering [1]	0.05 ~~0.04~~	5,265 ~~4,411~~	0.73 ~~0.58~~	5,296 ~~4,435~~
Tanker Hoteling [2]	0.04 ~~0.06~~	3,957 ~~6,233~~	0.55 ~~0.86~~	3,980 ~~6,270~~
Offloading Emissions [3]	0.12 ~~0.16~~	12,381 ~~16,032~~	1.71 ~~2.21~~	12,454 ~~16,127~~
Transiting Operations [4]	0.01 ~~0.02~~	920 ~~2,454~~	0.13 ~~0.34~~	926 ~~2,468~~
Tug Assistance	0.006 ~~0.004~~	566 ~~453~~	0.08 ~~0.06~~	569 ~~456~~
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	10,564	1.18	10,595
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	71	0.01	72
Emissions from AMPed off-site electricity generation	0	0	0	0
Average Annual Operational Emissions	**0.25 ~~0.31~~**	**33,723 ~~40,145~~**	**4.38 ~~5.24~~**	**33,892 ~~40,350~~**
Project Year 2015				
Tanker Cruising and Maneuvering [1]	0.07 ~~0.05~~	6,715 ~~5,372~~	0.93 ~~0.74~~	6,755 ~~5,404~~
Tanker Hoteling [2]	0.04 ~~0.06~~	4,195 ~~6,866~~	0.58 ~~0.91~~	4,220 ~~6,904~~
Offloading Emissions [3]	0.17 ~~0.22~~	17,197 ~~22,266~~	2.37 ~~3.07~~	17,300 ~~22,398~~
Transiting Operations [4]	0.01 ~~0.003~~	1,107 ~~320~~	0.15 ~~0.04~~	1,113 ~~322~~
Tug Assistance	0.01	516	0.07	519
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	95	0.01	96
Emissions from AMPed off-site electricity generation	0.03	3,825	0.02	3,836
Average Annual Operational Emissions	**0.35 ~~0.40~~**	**45,147 ~~50,661~~**	**5.41 ~~6.13~~**	**45,369 ~~50,913~~**
Project Year 2025				
Tanker Cruising and Maneuvering [1]	0.09 ~~0.07~~	9,123 ~~7,298~~	1.26 ~~1.01~~	9,177 ~~7,342~~
Tanker Hoteling [2]	0.04 ~~0.06~~	4,035 ~~6,606~~	0.56 ~~0.87~~	4,059 ~~6,642~~
Offloading Emissions [3]	0.23 ~~0.30~~	23,319 ~~30,170~~	3.22 ~~4.16~~	23,458 ~~30,350~~
Transiting Operations [4]	0.01 ~~0.004~~	1,561 ~~436~~	0.20 ~~0.06~~	1,570 ~~438~~
Tug Assistance	0.01	882 ~~706~~	0.12 ~~0.10~~	887 ~~710~~
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	143	0.02	144
Emissions from AMPed off-site electricity generation	0.03	3,680	0.02	3,690
Average Annual Operational Emissions	**0.43 ~~0.49~~**	**54,239 ~~60,392~~**	**6.67 ~~7.50~~**	**54,515 ~~60,702~~**
Project Year 2040				
Tanker Cruising and Maneuvering [1]	0.09 ~~0.07~~	9,123 ~~7,298~~	1.26 ~~1.01~~	9,177 ~~7,342~~
Tanker Hoteling [2]	0.02 ~~0.03~~	2,026 ~~3,303~~	0.28 ~~0.44~~	2,038 ~~3,321~~
Offloading Emissions [3]	0.23 ~~0.30~~	23,319 ~~30,170~~	3.22 ~~4.16~~	23,458 ~~30,350~~
Transiting Operations [4]	0.002 ~~0.004~~	163 ~~436~~	0.02 ~~0.06~~	164 ~~438~~
Tug Assistance	0.01	706	0.10	710
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	143	0.02	144
Emissions from AMPed off-site electricity generation	0.02	1,840	0.01	1,845
Average Annual Operational Emissions	**0.39 ~~0.45~~**	**48,816 ~~55,249~~**	**6.19 ~~7.05~~**	**49,066 ~~55,535~~**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. The additional row "Barge Fuel Deliveries for OGVs" was added to this table for the Final SEIS/SEIR because these emissions were inadvertently omitted from the Draft SEIS/SEIR. These additional emissions, however, do not change any of the significance determinations.

3.2.4.6.2 No Federal Action/No Project Alternative

Impact AQ-8: The No Federal Action/No Project Alternative would produce GHG emissions that would exceed CEQA Baseline levels.

Table 3.2-43 shows the annual GHG emissions that would occur within California from the operation of the No Federal Action/No Project Alternative. The No Federal Action/No Project Alternative would result in GHG emissions that would exceed CEQA Baseline levels. Therefore, the No Federal Action/No Project Alternative would produce significant GHG emissions under CEQA.

Table 3.2-43. Average Annual GHG Emissions Associated with the No Federal Action/No Project Alternative

Emission Source	Annual Emissions (Tons)			
	N_2O	CO_2	CH_4	CO_2e
Project Year 2010				
Tanker Cruising and Maneuvering [1]	0.07 ~~0.06~~	7,400 ~~5,725~~	0.99 ~~0.79~~	7,441 ~~5,759~~
Tanker Hoteling [2]	0.06 ~~0.09~~	5,968 ~~9,712~~	0.80 ~~1.28~~	6,002 ~~9,765~~
Offloading Emissions [3]	0.11 ~~0.16~~	12,316 ~~15,737~~	1.64 ~~2.17~~	12,386 ~~15,831~~
Transiting Operations [4]	0.01 ~~0~~	1,115 ~~317~~	0.15 ~~0.04~~	1,122 ~~318~~
Tug Assistance	0.01	1,005 ~~804~~	0.14 ~~0.11~~	1,011 ~~809~~
Tanks	- - -	- - -	- - -	- - -
Vapor Destruction Units	0.05	27,879	3.12	27,961
Valves, Flanges, and Pumps	- - -	- - -	- - -	- - -
Emissions from AMPed off-site electricity generation	0	0	0	0
Average Annual Operational Emissions	**0.31 ~~0.37~~**	**55,683 ~~60,174~~**	**6.84 ~~7.51~~**	**55,923 ~~60,443~~**
CEQA Baseline	**0**	**0**	**0**	**0**
Project minus CEQA Baseline	**0.31 ~~0.37~~**	**55,683 ~~60,174~~**	**6.84 ~~7.51~~**	**55,923 ~~60,443~~**
Project Year 2015				
Tanker Cruising and Maneuvering [1]	0.08 ~~0.07~~	8,401 ~~6,674~~	1.15 ~~0.92~~	8,450 ~~6,714~~
Tanker Hoteling [2]	0.06 ~~0.09~~	6,321 ~~10,495~~	0.87 ~~1.38~~	6,359 ~~10,553~~
Offloading Emissions [3]	0.06 ~~0.10~~	6,817 ~~10,156~~	0.91 ~~1.4~~	6,856 ~~10,216~~
Transiting Operations [4]	0.01 ~~0~~	1,284 ~~369~~	0.17 ~~0.05~~	1,291 ~~371~~
Tug Assistance	0.01	1,172 ~~937~~	0.16 ~~0.13~~	1,178 ~~943~~
Tanks	- - -	- - -	- - -	- - -
Vapor Destruction Units	0.05	28,337	3.17	28,421
Valves, Flanges, and Pumps	- - -	- - -	- - -	- - -
Emissions from AMPed off-site electricity generation	0.03	2,606	0.012	2,616
Average Annual Operational Emissions	**0.3 ~~0.35~~**	**54,938 ~~59,574~~**	**6.44 ~~7.06~~**	**55,171 ~~59,834~~**
CEQA Baseline	**0**	**0**	**0**	**0**
Project minus CEQA Baseline	**0.3 ~~0.35~~**	**54,938 ~~59,574~~**	**6.44 ~~7.06~~**	**55,171 ~~59,834~~**
Project Year 2025				
Tanker Cruising and Maneuvering [1]	0.08 ~~0.07~~	8,342 ~~6,674~~	1.15 ~~0.92~~	8,392 ~~6,714~~
Tanker Hoteling [2]	0.04 ~~0.07~~	4,495 ~~7,469~~	0.62 ~~0.98~~	4,522 ~~7,510~~
Offloading Emissions [3]	0.14 ~~0.18~~	14,113 ~~18,329~~	1.95 ~~2.53~~	14,197 ~~18,438~~
Transiting Operations [4]	0.01 ~~0~~	1,275 ~~369~~	0.18 ~~0.05~~	1,282 ~~371~~
Tug Assistance	0.01	1,172 ~~937~~	0.16 ~~0.13~~	1,178 ~~943~~
Tanks	- - -	- - -	- - -	- - -
Vapor Destruction Units	0.05	28,337	3.17	28,421
Valves, Flanges, and Pumps	- - -	- - -	- - -	- - -
Emissions from AMPed off-site electricity generation	0.01	920	0.004	923
Average Annual Operational Emissions	**0.34 ~~0.39~~**	**58,654 ~~63,035~~**	**7.23 ~~7.78~~**	**58,915 ~~63,320~~**
CEQA Baseline	**0**	**0**	**0**	**0**
Project minus CEQA Baseline	**0.34 ~~0.39~~**	**58,654 ~~63,035~~**	**7.23 ~~7.78~~**	**58,915 ~~63,320~~**
Project Year 2040				
Tanker Cruising and Maneuvering [1]	0.08 ~~0.07~~	8,342 ~~6,674~~	1.15 ~~0.92~~	8,392 ~~6,714~~
Tanker Hoteling [2]	0.04 ~~0.07~~	4,495 ~~7,469~~	0.62 ~~0.98~~	4,522 ~~7,510~~
Offloading Emissions [3]	0.14 ~~0.18~~	14,113 ~~18,329~~	1.95 ~~2.53~~	14,197 ~~18,438~~
Transiting Operations [4]	0.01 ~~0~~	1,275 ~~369~~	0.18 ~~0.05~~	1,282 ~~371~~
Tug Assistance	0.01	1,172 ~~937~~	0.16 ~~0.13~~	1,178 ~~943~~
Tanks	- - -	- - -	- - -	- - -
Vapor Destruction Units	0.05	28,337	3.17	28,421
Valves, Flanges, and Pumps	- - -	- - -	- - -	- - -
Emissions from AMPed off-site electricity generation	0.01	920	0.004	923
Average Annual Operational Emissions	**0.34 ~~0.39~~**	**58,654 ~~63,035~~**	**7.23 ~~7.78~~**	**58,915 ~~63,320~~**
CEQA Baseline	**0**	**0**	**0**	**0**
Project minus CEQA Baseline	**0.34 ~~0.39~~**	**58,654 ~~63,035~~**	**7.23 ~~7.78~~**	**58,915 ~~63,320~~**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.

CEQA Impact Determination

The data in Table 3.2-43 show that in each project year, annual CO_2e emissions would increase from CEQA Baseline levels. Therefore, the No Federal Action/No Project Alternative would produce significant levels of GHG emissions under CEQA.

Mitigation Measures

The No Federal Action/No Project Alternative assumes no action by the Port. However, it has been assumed for purposes of this analysis that CAAP Control Measures would be implemented at the crude oil terminals in the course of the applicable leases renewals. In essence, the CAAP Control Measures are types of mitigation measures which would reduce air quality impacts from those terminals over time including, to a certain extent, GHGs. Any benefits from those measures are included in the emissions data in Table 3.2-43.

Residual Impacts

Impacts would remain significant under CEQA.

NEPA Impact Determination

Because the No Federal Action/No Project Alternative is identical to the NEPA Baseline in this project, under NEPA the No Federal Action/No Project Alternative would have no impact.

Mitigation Measures

No mitigation is required.

Residual Impacts

No impact.

3.2.4.6.3 Reduced Project Alternative

Impact AQ-2: The Reduced Project Alternative construction would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-6.

Dispersion modeling of the Reduced Project construction emissions was performed to assess the impacts of the Reduced Project on local ambient concentrations. A summary of the dispersion analysis is presented here and the dispersion modeling report is included in Appendix H.

Table 3.2-48 presents the maximum unmitigated project-related impacts from Phase I construction activities under the Reduced Project Alternative. The significance of Construction Phase I activities is considered under **Impact AQ-2**. Because Construction Phase II activities will be coincident with the initial operation of the

Reduced Project Alternative, significance determinations for Construction Phase II are addressed in the impact discussion for the Operations phase of the Reduced Project Alternative (i.e., **Impact AQ-4**.)

Table 3.2-48. Maximum Offsite Ambient Concentrations – Reduced Project Alternative Construction without Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Impact ($\mu g/m^3$)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
Phase I						
NO_2	1-hour	20,064.8	263.2	20,328.0	338	Y
	Annual	212.1	54.5	266.6	56	Y
CO	1-hour	8,891.5	6,670	15,561.5	23,000	N
	8-hour	1,711.6	5,405	7,116.6	10,000	N
PM_{10}	24-hour	118.4	74	- - -	10.4	Y
	Annual	13.7	35.9	- - -	20	N
$PM_{2.5}$	24-hour	103.4	115.2	- - -	10.4	Y

Notes:
1. The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from construction activities is added to the background concentration for the Project vicinity and compared to the threshold.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from construction activities (without adding the background concentration) is compared to the threshold.

CEQA Impact Determination

The Phase I maximum offsite 1-hour and annual NO_2 concentrations, the 24-hour PM_{10} concentrations and the 24-hour $PM_{2.5}$ concentrations would exceed the applicable SCAQMD significance thresholds. Therefore, significant impacts under CEQA would occur. As noted above, the impact determination for Construction Phase II is addressed under **Impact AQ-4**.

Mitigation Measures

To reduce the level of impact, the proposed Project **MM AQ-1** through **AQ-12** and **MM 4G-5** would apply to the Reduced Project Alternative.

Residual Impacts

Table 3.2-49 presents the maximum mitigated project-related impacts from Phase I construction activities. The Phase I maximum offsite 1-hour and annual NO_2 concentrations, the 24-hour PM_{10} concentrations, and the 24-hour $PM_{2.5}$ concentrations would exceed the applicable SCAQMD significance thresholds. Significant impacts would occur despite the application of all reasonably applicable mitigation measure under CEQA.

Table 3.2-49. Maximum Offsite Ambient Concentrations – Reduced Project Construction with Mitigation [1,2]

Pollutant	*Averaging Period*	*Maximum Impact ($\mu g/m^3$)*	*Background Concentration ($\mu g/m^3$)*	*Total Impact ($\mu g/m^3$)*	*SCAQMD Thresholds of Significance*	*Exceeds Threshold? (Y/N)*
Phase I						
NO_2	1-hour	14,735.0	263.2	14,998.2	338	Y
	Annual	156.2	54.5	210.7	56	Y
CO	1-hour	11,021.4	6,670	17,691.4	23,000	N
	8-hour	2,121.2	5,405	7,526.2	10,000	N
PM_{10}	24-hour	64.5	74	- - -	10.4	Y
	Annual	7.6	35.9	- - -	20	N
$PM_{2.5}$	24-hour	57	115.2	- - -	10.4	Y

Notes:

1. The NO_2 and CO thresholds are absolute thresholds; the maximum predicted impact from construction activities is added to the background concentration for the Project vicinity and compared to the threshold.
2. The PM_{10} and $PM_{2.5}$ threshold is an incremental threshold; the maximum predicted impact from construction activities (without adding the background concentration) is compared to the threshold.

NEPA Impact Determination

The maximum offsite ambient pollutant concentrations associated with the Reduced Project Alternative Phase I construction would be significant for 1-hour and annual NO_x, 24-hour PM_{10} and 24-hour $PM_{2.5}$. Therefore, significant impacts under NEPA would occur. As noted above, the impact determination for Construction Phase II is addressed under **Impact AQ-4**.

Mitigation Measures

To reduce the level of impact, the proposed Project **MM AQ-1** through **AQ-12** and **MM 4G-5** would apply to the Reduced Project Alternative.

Residual Impacts

Significant impacts would occur despite the application of all reasonably applicable mitigation measures under NEPA.

The revisions to the operational assumptions/mitigation measures proposed in the Draft SEIS/SEIR that are included in the Final SEIS/SEIR were not evaluated for their potential to change emissions from the Reduced Project Alternative. As mentioned in the discussion of Impacts AQ-3, AQ-4, and AQ-6 for the proposed Project, these revised assumptions/mitigation measures for the Reduced Project Alternative would slightly reduce (1) operational mitigated emissions, and (2) ambient pollutant and health impacts from these activities compared to the analyses presented in the following section. However, the revised mitigated impacts for the Reduced Project Alternative still would result in exceedances of significance threshold, as identified below.

Impact AQ-8: The Reduced Project Alternative would produce GHG emissions that would exceed CEQA and NEPA Baseline levels.

Table 3.2-62 presents the annual GHG emissions associated with the construction of the Reduced Project Alternative without mitigation. At this time, there are no established significance criteria for GHG emissions.

Table 3.2-62. Average Annual GHG Emissions for Reduced Project Alternative Construction without Mitigation

Construction Activity	*Annual Emissions (Tons)*			
	N_2O	CO_2	CH_4	CO_2e
Phase I				
Pier 400 Marine Terminal and Wharf Construction	0.1	7,658	1	7,710
Pipeline Construction	0.2	14,700	2	14,804
Tank Farm Site 1	0.1	10,170	1	10,222
Tank Farm Site 2	0.2	18,751	3	18,876
Phase II				
Tank Farm Site 2	0.04	3,368	1	3,401

Table 3.2-63 presents the annual GHG emissions associated with the construction of the Reduced Project Alternative with mitigation. At this time, there are no established significance criteria for GHG emissions. As seen in reviewing Table 3.2-62 and 3.2-63, the average annual CO_2 equivalent emissions associated with the proposed Project are expected to be the same without and with mitigation.

Table 3.2-63. Average Annual GHG Emissions for Reduced Project Alternative Construction with Mitigation

Construction Activity	*Annual Emissions (Tons)*			
	N_2O	CO_2	CH_4	CO_2e
Phase I				
Pier 400 Marine Terminal and Wharf Construction	0.1	7,658	1	7,710
Pipeline Construction	0.2	14,700	2	14,804
Tank Farm Site 1	0.1	10,170	1	10,222
Tank Farm Site 2	0.2	18,751	3	18,876
Phase II				
Tank Farm Site 2	0.04	3,368	1	3,401

Table 3.2-64 presents the annual GHG emissions associated with the operation of the Reduced Project Alternative without mitigation. At this time, there are no established significance criteria for GHG emissions.

Table 3.2-64. Average Annual GHG Emissions for Reduced Project Alternative without Mitigation

Emission Source	Annual Emissions (Tons)			
	N_2O	CO_2	CH_4	CO_2e
Project Year 2010				
Tanker Cruising and Maneuvering [1]	0.06 ~~0.05~~	6,683 ~~5,347~~	0.88 ~~0.71~~	6,720 ~~5,376~~
Tanker Hoteling [2]	0.04 ~~0.06~~	4,140 ~~6,523~~	0.55 ~~0.86~~	4,163 ~~6,559~~
Offloading Emissions [3]	0.11 ~~0.16~~	12,889 ~~16,093~~	1.64 ~~2.22~~	12,958 ~~16,188~~
Transiting Operations [4]	0.01 ~~0.03~~	1,008 ~~2,592~~	0.13 ~~0.36~~	1,014 ~~2,608~~
Tug Assistance	0.006 ~~0.004~~	566 ~~453~~	0.08 ~~0.06~~	569 ~~456~~
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	10,564	1.18	10,595
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	71	0.01	72
Average Annual Operational Emissions	**0.25 ~~0.31~~**	**35,921 ~~41,572~~**	**4.47 ~~5.39~~**	**36,019 ~~41,782~~**
Project Year 2015				
Tanker Cruising and Maneuvering [1]	0.07~~0.05~~	7,720~~6,176~~	1.02~~0.81~~	7,763~~6,210~~
Tanker Hoteling [2]	0.04~~0.06~~	4,645~~7,264~~	0.61~~0.96~~	4,670~~7,304~~
Offloading Emissions [3]	0.14~~0.20~~	16,110~~20,123~~	2.05~~2.77~~	16,195~~20,243~~
Transiting Operations [4]	0.01~~0.03~~	1,176~~3,023~~	0.15~~0.42~~	1,182~~3,041~~
Tug Assistance	0.01~~0.00~~	579~~463~~	0.08~~0.06~~	583~~466~~
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	95	0.01	96
Average Annual Operational Emissions	**0.29 ~~0.37~~**	**41,821 ~~48,546~~**	**5.21 ~~6.31~~**	**42,019 ~~48,794~~**
Project Year 2025				
Tanker Cruising and Maneuvering [1]	0.07~~0.05~~	7,720~~6,176~~	1.02~~0.81~~	7,763~~6,210~~
Tanker Hoteling [2]	0.04~~0.06~~	4,645~~7,264~~	0.61~~0.96~~	4,670~~7,304~~
Offloading Emissions [3]	0.14~~0.20~~	16,110~~20,123~~	2.05~~2.77~~	16,195~~20,243~~
Transiting Operations [4]	0.03	3,919~~3,023~~	0.50~~0.42~~	3,940~~3,041~~
Tug Assistance	0.01~~0.00~~	579~~463~~	0.08~~0.06~~	583~~466~~
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	95	0.01	96
BP (Existing Terminal)	0.07	13,815	1.67	13,871
Tesoro (Existing Terminal)	0.07	22,080	2.79	22,159
ExxonMobil (Existing Terminal)	0.10	17,558	2.18	17,634
Average Annual Operational Emissions	**0.55 ~~0.61~~**	**98,017 ~~101,998~~**	**12.20 ~~12.94~~**	**98,441 ~~102,458~~**
Project Year 2040				
Tanker Cruising and Maneuvering [1]	0.07~~0.05~~	7,720~~6,176~~	1.02~~0.81~~	7,763~~6,210~~
Tanker Hoteling [2]	0.04~~0.06~~	4,645~~7,264~~	0.61~~0.96~~	4,670~~7,304~~
Offloading Emissions [3]	0.14~~0.20~~	16,110~~20,123~~	2.05~~2.77~~	16,195~~20,243~~
Transiting Operations [4]	0.01~~0.03~~	1,176~~3,023~~	0.15~~0.42~~	1,182~~3,041~~
Tug Assistance	0.01~~0.00~~	579~~463~~	0.08~~0.06~~	583~~466~~
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	95	0.01	96
BP (Existing Terminal)	0.07	14,621	1.78	14,681
Tesoro (Existing Terminal)	0.16	24,096	3.06	24,209
ExxonMobil (Existing Terminal)	0.11	18,927	2.36	19,012
Average Annual Operational Emissions	**0.63 ~~0.72~~**	**99,465 ~~106,190~~**	**12.41 ~~13.51~~**	**99,921 ~~106,696~~**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. The additional row "Barge Fuel Deliveries for OGVs" was added to this table for the Final SEIS/SEIR because these emissions were inadvertently omitted from the Draft SEIS/SEIR. These additional emissions, however, do not change any of the significance determinations.

CEQA Impact Determination

The Reduced Project Alternative would result in a significant CEQA impact if CO_2e emissions exceed the CEQA Baseline, which is equivalent to zero. As the data in Table 3.2-62 and Table 3.2-64 show, annual CO_2e emissions would increase from the CEQA Baseline levels for both construction and operation. As such, the Reduced Project Alternative would result in a significant impact under CEQA.

Mitigation Measures

To reduce the level of impact, **MM AQ-13**, **AQ-15**, and **AQ-22** through **AQ-27** would apply to the Reduced Project Alternative.

Residual Impacts

Table 3.2-65 presents the annual mitigated GHG emissions associated with the Reduced Project Alternative operations. Table 3.2-63 presents the annual mitigated GHG emissions associated with construction of the Reduced Project Alternative. As shown therein, the impacts would remain significant under CEQA.

NEPA Impact Determination

The construction and operational CO_2e emissions summarized in ~~Table~~Tables 3.2-~~64~~63 and 3.2-65~~4~~, which are with mitigation, would increase relative to the NEPA Baseline for each project year (the combined mitigated construction and operational CO_2e emissions would be lower than the total unmitigated construction and operational CO_2e emissions shown in Tables 3.2-62 and 3.2-64). However, because no NEPA significance threshold has been established, no determination has been made of the significance of this impact.

1

Table 3.2-65. Average Annual GHG Emissions for Reduced Project Alternative with Mitigation

Emission Source	Annual Emissions (Tons)			
	N_2O	CO_2	CH_4	CO_2e
Project Year 2010				
Tanker Cruising and Maneuvering [1]	0.050.04	5,2654,411	0.730.58	5,2964,435
Tanker Hoteling [2]	0.040.06	3,9576,233	0.550.86	3,9806,270
Offloading Emissions [3]	0.120.16	12,38116,032	1.712.21	12,45416,127
Transiting Operations [4]	0.010.02	9202,454	0.130.34	9262,468
Tug Assistance	0.004	566453	0.06	569456
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	10,564	1.18	10,595
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	71	0.01	72
Emissions from AMPed off-site electricity generation	0	0	0	0
Average Annual Operational Emissions	**0.25 0.31**	**33,723 40,145**	**4.36 5.24**	**33,892 40,350**
Project Year 2015				
Tanker Cruising and Maneuvering [1]	0.060.05	6,0224,818	0.830.66	6,0584,846
Tanker Hoteling [2]	0.040.05	3,7736,175	0.520.81	3,7956,209
Offloading Emissions [3]	0.150.20	15,50420,044	2.142.76	15,59620,163
Transiting Operations [4]	0.01 0.003	999 289	0.14 0.04	1,005 291
Tug Assistance	0.00	463	0.06	466
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	95	0.01	96
Emissions from AMPed off-site electricity generation	0.03	3,440	0.02	3,450
Average Annual Operational Emissions	**0.310.36**	**41,79246,725**	**5.005.65**	**41,99546,954**
Project Year 2025				
Tanker Cruising and Maneuvering [1]	0.060.05	6,0224,818	0.830.66	6,0584,846
Tanker Hoteling [2]	0.030.04	2,6634,359	0.370.57	2,6794,383
Offloading Emissions [3]	0.150.20	15,50420,044	2.142.76	15,59620,163
Transiting Operations [4]	0.001 0.003	108 289	0.01 0.04	109 291
Tug Assistance	0.00	463	0.06	466
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	95	0.01	96
BP (Existing Terminal)	0.07	13,815	1.67	13,871
Tesoro (Existing Terminal)	0.07	22,080	2.79	22,159
ExxonMobil (Existing Terminal)	0.10	17,558	2.18	17,634
Emissions from AMPed off-site electricity generation	0.05	5,692	0.03	5,707
Average Annual Operational Emissions	**0.55 0.59**	**95,496 100,612**	**11.37 12.05**	**95,905 101,050**
Project Year 2040				
Tanker Cruising and Maneuvering [1]	0.060.05	6,0224,818	0.830.66	6,0584,846
Tanker Hoteling [2]	0.010.02	1,3322,179	0.180.29	1,3402,191
Offloading Emissions [3]	0.150.20	15,50420,044	2.142.76	15,59620,163
Transiting Operations [4]	0.001 0.003	108 289	0.01 0.04	109 291
Tug Assistance	0.00	463	0.06	466
Tanks	- -	- -	- -	- -
Vapor Destruction Units	0.02	11,496	1.29	11,530
Valves, Flanges, and Pumps	- -	- -	- -	- -
Barge Fuel Deliveries for OGVs	0.001	95	0.01	96
BP (Existing Terminal)	0.07	14,621	1.78	14,681
Tesoro (Existing Terminal)	0.16	24,096	3.06	24,209
ExxonMobil (Existing Terminal)	0.11	18,927	2.36	19,012
Emissions from AMPed off-site electricity generation	0.03	4,156	0.02	4,167
Average Annual Operational Emissions	**0.63 0.67**	**96,820 101,089**	**11.74 12.32**	**97,263 101,557**

Notes:

1. Tanker cruising and maneuvering includes emissions from the main engines and auxiliary generators. Emissions from the boilers are included in the Transiting Operations category.
2. Tanker hoteling includes emissions from the auxiliary generators during pre-offloading (arrival), offloading, and post-offloading (departure).
3. Offloading emissions include emissions from the boiler during offloading.
4. Transiting emissions include emissions from the boiler during warm up which occurs during the last part of transit to the berth prior to commencement of offloading operations.
5. The additional row "Barge Fuel Deliveries for OGVs" was added to this table for the Final SEIS/SEIR because these emissions were inadvertently omitted from the Draft SEIS/SEIR. These additional emissions, however, do not change any of the significance determinations.

3.2.4.7 Mitigation Monitoring

Impact AQ-1. The Project would result in construction-related emissions that exceed a SCAQMD threshold of significance.	
Mitigation Measure	**MM AQ-1: Ridesharing or Shuttle Service** - Ridesharing or shuttle service programs shall be provided for construction workers. **MM-AQ-2: Staging Areas and Parking Lots** - On-site construction equipment staging areas and construction worker parking lots shall be located on either paved surfaces, or unpaved surfaces covered by gravel or subjected to soil stabilization treatments. The staging areas and worker parking lots shall be located as close as possible to public access routes. Access to public roadways from the staging areas and parking lots shall be controlled in order to minimize idling of Project construction equipment. **MM-AQ-3: Construction Equipment Standards** – **Prior to and including December 31, 2011:** All on-site mobile diesel-powered construction equipment greater than 50 hp, except derrick barges and marine vessels shall meet the Tier 2 emission standards as defined in the USEPA Non-Road Diesel Engine Rule (USEPA 1998). In addition, all construction equipment greater than 50 hp shall be retrofitted with a CARB-certified Level 3 diesel emissions control device. **From January 1, 2012 through December 31, 2014:** All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier-3 emission off-road emission standards, at a minimum and shall be retrofitted with a CARB certified Level 3 diesel emissions control device. **From January 1, 2015 on:** All off-road diesel-powered construction equipment greater than 50 hp shall meet Tier-4 emission off-road emission standards, at a minimum and shall be retrofitted with a CARB certified Level 3 diesel emissions control device. ~~All on-site mobile diesel-powered construction equipment greater than 50 hp, except derrick barges, marine vessels shall meet the Tier 2 emission standards as defined in the USEPA Non road Diesel Engine Rule (USEPA 1998). In addition, all construction equipment greater than 50 hp shall be retrofitted with a CARB-certified Level 3 diesel emissions control device.~~ **MM AQ-4: Electricity Use** - Electricity supplied by a public utility shall be used where available on the tank farm and pier construction sites in lieu of temporary diesel or gasoline-powered generators. **MM AQ-5: Best Management Practices** - The following types of measures are required on construction equipment (including on-road trucks): 1. Use of diesel oxidation catalysts and catalyzed diesel particulate traps 2. Maintain equipment according to manufacturers' specifications 3. Restrict idling of construction equipment and on-road heavy-duty trucks to a maximum of 5 minutes when not in use 4. Install high-pressure fuel injectors on construction equipment vehicles 5. Maintain a minimum buffer zone of 300 meters between truck traffic and sensitive receptors 6. Improve traffic flow by signal synchronization 7. Enforce truck parking restrictions 8. Provide on-site services to minimize truck traffic in or near residential areas, including, but not limited to, the following services: meal or cafeteria services, automated teller machines, etc. 9. Re-route construction trucks away from congested streets or sensitive receptor areas 10. Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site. LAHD shall implement a process by which to select additional BMPs to further reduce air emissions during construction. The LAHD shall determine the BMPs once the contractor identifies and secures a final equipment list. ~~The LAHD shall implement a process to add BMPs to reduce air emissions from all LAHD-sponsored construction projects. The LAHD shall determine the BMPs once the contractor identifies and secures a final equipment list and project scope. The LAHD shall then meet with the contractor to identify potential BMPs and work with~~

~~the contractor to include such measures in the contract. BMPs shall be based on Best Available Control Technology (BACT) guidelines and may also include changes to construction practices and design to reduce or eliminate environmental impacts.~~

MM AQ-6: Additional Fugitive Dust Controls - The construction contractor shall reduce fugitive dust emissions by 90 percent from uncontrolled levels[4]. The Project construction contractor shall specify dust-control methods that will achieve this control level in a SCAQMD Rule 403 dust control plan. Their duties shall include holiday and weekend periods when work may not be in progress.

- Measures to reduce fugitive dust include, but are not limited to, the following:
- Active grading sites shall be watered one additional time per day beyond that required by Rule 403.
- Contractors shall apply approved non-toxic chemical soil stabilizers according to manufacturer's specifications to all inactive construction areas or replace groundcover in disturbed areas (previously graded areas) inactive for ten days or more.
- Construction contractors shall provide temporary wind fencing around sites being graded or cleared.
- Trucks hauling dirt, sand, or gravel shall be covered ~~or shall maintain at least 2 feet of freeboard~~ in accordance with Section 23114 of the California Vehicle Code.
- Construction contractors shall install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off tires of vehicles and any equipment leaving the construction site.
- Pave road and road shoulders.
- Require the use of clean-fueled sweepers pursuant to SCAQMD Rule 1186 and Rule 1186.1 certified street sweepers. Sweep streets at the end of each day if visible soil is carried onto paved roads on-site or roads adjacent to the site to reduce fugitive dust emissions.
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM_{10} generation.
- Traffic speeds on all unpaved roads shall be reduced to 15 mph or less.
- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.
- Schedule construction activities that affect traffic flow on the arterial system to off-peak hours to the extent practicable.
- Require the use of electrified truck spaces for all truck parking or queuing areas if feasible. Alternatively, trucks could be required to turn off if parked or stopped in idle for more than 15 minutes.

The grading contractor shall suspend all soil disturbance activity when winds exceed 25 mph or when visible dust plumes emanate from a site; disturbed areas shall be stabilized if construction is delayed.

MM AQ-7: Expanded VSR Program - All ships and barges used primarily to deliver construction-related materials to a LAHD-contractor construction site shall comply with the expanded Vessel Speed Reduction (VSR) Program of 12 knots from 40 nautical miles (nm) from Point Fermin to the Precautionary Area.

MM AQ-8: Low Sulfur Fuel for Construction Delivery Vessels - All ships and barges used primarily to deliver construction-related materials to a LAHD-contractor construction site shall use low-sulfur fuel (maximum sulfur content of 0.2 percent) in main engines, auxiliary engines, and boilers within 40 nm of Point Fermin.

MM AQ-9: Engine Standards for Harbor Craft Used in Construction – Prior to December 31, 2010, all harbor craft with C1 or C2 marine engines must achieve a minimum emission reduction equivalent to a U.S. Environmental Protection Agency (USEPA) Tier-2 2004 level off-road marine engine. From January 1, 2011 on, all harbor craft with C1 or C2 marine engines must utilize a USEPA Tier-3 engine, or cleaner.

[4] Fugitive dust emissions will be reduced 75 percent from uncontrolled emissions and then an additional 60 percent from unmitigated emissions.

	MM AQ-10: Fleet Modernization for On-Road Trucks ~~–~~ – **Prior to and including December 31, 2011:** All on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used on-site or to transport materials to and from the site shall comply with USEPA 2004 on road emission standards for PM_{10} and NO_x (0.10 g/bhp-hr PM_{10} and 2.0 g/bhp-hr NO_x). **From January 1, 2012 on:** All on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used at the Port of Los Angeles shall comply with EPA 2007 on-road emission standards for PM_{10} and NO_x (0.01 g/bhp-hr and 0.20 g/bhp-hr). **All years**: All on-road heavy-duty diesel trucks with a gross vehicle weight rating (GVWR) of 19,500 pounds or greater used on-site or to transport materials to and from the site shall comply with USEPA 2004 on road emission standards for PM_{10} and NO_x (0.10 g/bhp-hr PM_{10} and 2.0 g/bhp-hr NO_x) Trucks hauling materials such as debris or fill shall be fully covered while in operation off Port property. ~~The construction contractor shall be exempt from the above harbor craft requirements and on-road truck requirements if he provides proof that any of following circumstances exist:~~ ~~• A piece of specialized equipment is unavailable in a controlled form within the state of California, including through a leasing agreement.~~ ~~• A contractor has applied for necessary incentive funds to put controls on a piece of uncontrolled equipment planned for use on the project, but the application process is not yet approved, or the application has been approved, but funds are not yet available.~~ ~~• A contractor has ordered a control device for a piece of equipment planned for use on the project, or the contractor has ordered a new piece of controlled equipment to replace the uncontrolled equipment, but that order has not been completed by the manufacturer or dealer. In addition, for this exemption to apply, the contractor must attempt to lease controlled equipment to avoid using uncontrolled equipment, but no dealer within 200 miles of the project has the controlled equipment available for lease.~~ ~~The effectiveness of this measure was determined by assuming that the mitigated construction truck fleet was 50 percent 2007 SCAB average fleet and 50 percent compliant with the year 2007 standards. Use of the EMFAC2007 emission factor model determined that the emission reductions associated with this mitigation measure would range from 9 to 15 percent, depending upon the pollutant. Because SO_x emissions are proportional to the fuel sulfur content, no appreciable change would occur in SO_x emissions.~~ **MM AQ-11: Special Precautions near Sensitive Sites** - For construction activities that occur within 1,000 feet of sensitive receptors (defined as schools, playgrounds, daycares, and hospitals), the Port shall notify each of these sites in writing at least 30 days before construction activities begin. **MM AQ-12** General Mitigation Measure - For any of the above mitigation measures **(MM AQ-1 through AQ-11**), if a CARB-certified technology becomes available and is shown to be as good as or better in terms of emissions performance than the existing measure, the technology could replace the existing measure pending approval by the Port. **Deep Draft FEIS/FEIR MM 4G-5:** Discontinue construction activities during a Stage II Smog Alert.
Timing	During entire construction phase.
Methodology	The LAHD shall include **MM AQ-1** through **MM AQ-12** and **MM 4G-5** in the contract specifications for construction. LAHD shall monitor implementation of mitigation measures during construction.
Responsible Parties	LAHD.
Residual Impacts	Significant after mitigation for VOC, NO_x, SO_x, PM_{10} and $PM_{2.5}$.
Impact AQ-2. Project construction would result in offsite ambient air pollutant concentrations that exceed any of the SCAQMD thresholds of significance in Table 3.2-8.	
Mitigation Measure	Specific mitigation measures identified under **Impact AQ-1** (**MM AQ-1** through **MM AQ-12** and **MM 4G-5**) would be incorporated into the Project.
Timing	During entire construction phase.

<table>
<tr><td>Methodology</td><td>The LAHD shall include MM AQ-1 through MM AQ-12 and MM 4G-5 in the contract specifications for construction. LAHD shall monitor implementation of mitigation measures during construction.</td></tr>
<tr><td>Responsible Parties</td><td>LAHD.</td></tr>
<tr><td>Residual Impacts</td><td>Significant after mitigation for VOC, NO_x, SO_x, PM_{10} and $PM_{2.5}$.</td></tr>
<tr><td colspan="2">Impact AQ-3. The Project would result in operational emissions that exceed 10 tons per year of VOCs or a SCAQMD threshold of significance.</td></tr>
<tr><td>Mitigation Measure</td><td>
MM AQ-13: Expanded Vessel Speed Reduction (VSR) Program - All ships calling (100%) at Berth 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.

MM AQ-14: Low Sulfur Fuel Use in Main Engines, Auxiliary Engines, and Boilers –

All ships (100%) calling at Berth 408 shall use 0.2% low sulfur fuel within 40 nm of Point Fermin on their outbound leg and while hotelling at the Project, beginning on day one of operation. Vessels calling at Berth 408 shall also use 0.2% low sulfur fuel within 40 nm of Point Fermin on their inbound leg, except where circumstances (such as ships with a mono-tank system or ships originating from a Port where low sulfur fuel is not available) make such use infeasible on the inbound leg. Regardless, the applicant shall adhere to the following annual phase-in schedule which identifies the minimum allowable annual percentage of vessels in the fleet calling at Berth 408 which shall use 0.2% low sulfur fuel within 40 nm of Point Fermin on their inbound leg:

~~Ships calling at Berth 408 shall use low sulfur fuel in main engines, auxiliary engines, and boilers within 40 nm of Point Fermin (including hoteling for non-AMP ships) in the annual percentages in fuel requirements as specified below:~~
<table>
<tr><td></td><td colspan="6">Main Engines/Auxiliary Engines/Boilers</td></tr>
<tr><td></td><td colspan="3">Inbound</td><td colspan="3">Hoteling and Outbound</td></tr>
<tr><td>Year</td><td>HFO</td><td>0.50%</td><td>0.20%</td><td>HFO</td><td>0.50%</td><td>0.20%</td></tr>
<tr><td>1</td><td>0</td><td>100</td><td>0</td><td>0</td><td>0</td><td>100</td></tr>
<tr><td>2</td><td>0</td><td>100</td><td>0</td><td>0</td><td>0</td><td>100</td></tr>
<tr><td>3</td><td>0</td><td>100</td><td>0</td><td>0</td><td>0</td><td>100</td></tr>
<tr><td>4</td><td>0</td><td>80</td><td>20</td><td>0</td><td>0</td><td>100</td></tr>
<tr><td>5</td><td>0</td><td>50</td><td>50</td><td>0</td><td>0</td><td>100</td></tr>
<tr><td>6</td><td>0</td><td>50</td><td>50</td><td>0</td><td>0</td><td>100</td></tr>
<tr><td>7-30</td><td>0</td><td>10</td><td>90</td><td>0</td><td>0</td><td>100</td></tr>
</table>
~~• By end of year 1 - 50 percent of total ship calls~~
~~• By end of year 3 - 50 percent of total ship calls~~
~~• By end of year 5 - 75 percent of total ship calls~~
~~• Years 7-30 - 90 percent of total ship calls~~
In addition, all callers carrying 0.2% low sulfur shall use 0.2% low sulfur within 40 nm of Point Fermin both on the inbound and outbound leg.

MM AQ-15: AMP – By the end of year 2 of operation, all ships capable of utilizing AMP and all frequent callers (2 or more a year) shall use AMP at the facility. At a minimum, ~~S~~ships calling at the Berth 408 facility shall use AMP while hoteling at the Port in the following ~~at~~ minimum percentages:

By end of year 2 of operation – 6 (4%) vessel calls
By end of year 3 of operation – 10% of annual vessel calls
By end of year 5 of operation – 15% of annual vessel calls
By end of year 10 of operation – ~~40%~~ 50% of annual vessel calls
By end of year 16 of operation – ~~70%~~ 80% of annual vessel calls

~~Use of AMP would enable ships to turn off their auxiliary engines during hoteling, leaving the boiler as the only source of direct emissions. An increase in regional power plant emissions associated with AMP electricity generation is also assumed. Including the emission from ship boilers, a ship hoteling with AMP reduces its criteria pollutant emissions 88 to 98 percent, depending on the pollutant, when compared to a ship hoteling without AMP and burning residual fuel in the boilers.~~
</td></tr>
</table>

~~AMP on container vessels and cruise ships is directed at reducing emissions from the relatively large hoteling loads present on these vessels. Tankers have smaller hoteling loads but also must support cargo offloading operations by producing steam power. The steam production capability cannot be replaced without complete vessel reconstruction. However, as mentioned earlier, the Project design includes a feature to minimize steam generation requirements via the use of shore-side electric pumps.~~

The Port will design and incorporate into Berth 408 all the necessary components to make full AMP available for those vessels capable of utilizing such facilities. This measure incorporates the requirements of **MM 4G-7** and **MM 4G-8** from the 1992 Deep Draft FEIS/FEIR.

MM AQ-16: Slide Valves - Ships calling at Berth 408 shall be equipped with slide valves or a slide valve equivalent (an engine retrofit device designed to reduce the sac volume in fuel valves of main engines in Category 3 marine engines) on main engines to the maximum extent possible:

MM AQ-17: Parking Configuration - Configure parking during operation to minimize traffic interference. Because the effectiveness of this measure cannot be predicted, it is not quantified in this study. This measure incorporates the requirements of **MM 4G-14** from the 1992 Deep Draft FEIS/FEIR

MM AQ-18: New Vessel Builds - The purchaser shall confer with the ship designer and engine manufacture to determine the feasibility of incorporating all emission reduction technology and/or design options and when ordering new ships bound for the Port of Los Angeles. Such technology shall be designed to reduce criteria pollutant emissions (NO_x, SO_x, and PM) and GHG emission (CO, CH_4, O_3, and CFCs). Design considerations and technology shall include, but is not limited to:

1. Selective Catalytic Reduction Technology
2. Exhaust Gas Recirculation
3. In-line fuel emulsification technology
4. Diesel Particulate Filters (DPFs) or exhaust scrubbers
5. Common Rail
6. Low NO_x Burners for Boilers
7. Implement fuel economy standards by vessel class and engine
8. Diesel-electric pod propulsion systems

New/Alternative Technology

The following measures are lease measures that will be included in the lease for Berth 400 due to projected future emissions levels. The measures do not meet all of the criteria for CEQA and NEPA mitigation measures, but are considered important lease measures to reduce future emissions. This lease obligation is distinct from the requirement of further CEQA or NEPA mitigation measures to address impacts of potential subsequent discretionary Project approvals.

MM AQ-19: Equivalent Measures – General Mitigation Measure. For any of the above mitigation measures (MM AQ-13 through AQ-18), if any kind of technology becomes available and is shown to be as good or as better in terms of emissions reduction performance than the existing measure, the technology could replace the existing measure pending approval by the Port of Los Angeles. The technology's emissions reductions must be verifiable through USEPA, CARB, or other reputable certification and/or demonstration studies to the Port's satisfaction. This measure is intended to provide PLAMT the flexibility to achieve required emissions mitigation using alternative methods that may not be apparent at present.

The applicant may use an AMP alternative emission reduction technology so long as the alternative technology will achieve emission reductions equivalent to the emission reductions that would have been achieved through the use of AMP.

MM AQ-20: Periodic Review of New Technology and Regulations - The Port shall require the tenant to review, in terms of feasibility, any Port-identified or other new emissions-reduction technology, and report to the Port. Such technology feasibility reviews shall take place at the time of the Port's consideration of any lease amendment or facility modification. If the technology is determined by the Port to be feasible in terms of cost, technical and operational feasibility, the tenant shall work with the Port to implement such technology at sole cost to the tenant.

Potential technologies that may further reduce emission and/or result in cost-savings benefits for the tenant may be identified through future work on the CAAP. Over the course of the lease, the tenant and the Port shall work together to identify potential new technology. Such technology

	shall be studied for feasibility, in terms of cost, technical and operational feasibility. The effectiveness of this measure depends on the advancement of new technologies and the outcome of future feasibility or pilot studies. If the tenant requests future Project changes that would require environmental clearance and a lease amendment, future CAAP mitigation measures would be incorporated into the new lease at that time. As partial consideration for the Port's agreement to issue the permit to the tenant, tenant shall implement not less frequently than once every 7 years following the effective date of the permit, new air quality technological advancements, subject to the parties mutual agreement on operational feasibility and cost sharing which shall not be unreasonably withheld. **MM AQ-21: Throughput Tracking** - If the project exceeds project throughput assumptions / projections anticipated through the years 2010, 2015, 2025, or 2040, staff shall evaluate the effects of this on the emission sources (ship calls and crude oil throughput) relative to the SEIS/SEIR. If it is determined that these emission sources exceed SEIS/SEIR assumptions, staff would evaluate actual air emissions for comparison with the SEIS/SEIR and if the criteria pollutant emissions exceed those in the SEIS/SEIR, then new or additional mitigations would be applied through MM AQ-20.
Responsible Parties	LAHD and PLAMT
Residual Impacts	Mitigated Project emissions would still result in significant unavoidable impacts.
Impact AQ-4. Proposed Project operations would result in offsite ambient air pollutant concentrations that exceed a SCAQMD threshold of significance in Table 3.2-10.	
Mitigation Measure	The mitigation measures described for **Impact AQ-3** would be applied to the proposed Project.
Timing	During operation.
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD and PLAMT
Residual Impacts	Mitigated Project emissions would still result in significant unavoidable impacts for these criteria pollutants.
Impact AQ-5. The proposed Project would not create an objectionable odor at the nearest sensitive receptor.	
Mitigation Measure	Impacts would be less than significant; therefore, mitigation is not required.
Timing	Not applicable.
Methodology	Not applicable.
Responsible Parties	Not applicable.
Residual Impacts	Not applicable.
Impact AQ-6. The proposed Project would expose receptors to significant levels of toxic air contaminants.	
Mitigation Measure	The mitigation measures described for **Impact AQ-1** and **Impact AQ-3** would also serve the benefit of reducing TAC emissions from the proposed Project.
Timing	During operation
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD and PLAMT
Residual Impacts	Mitigated Project TAC emissions would remain significant.
Impact AQ-7. The proposed Project would not conflict with or obstruct implementation of an applicable AQMP.	
Mitigation Measure	Impacts would be less than significant; therefore, mitigation is not required.
Timing	Not applicable.
Methodology	Not applicable.
Responsible Parties	Not applicable.
Residual Impacts	Not applicable.
Impact AQ-8. The proposed Project would produce GHG emissions that would exceed CEQA Baseline levels.	
Mitigation Measure	The mitigation measures described for **Impact AQ-1** and **Impact AQ-3** would also serve the benefit of reducing GHG emissions from the proposed Project.
Timing	During operation
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD and PLAMT
Residual Impacts	Mitigated Project impacts would remain significant.

Mitigation	**MM AQ-22:** Leadership in Energy and Environmental Design (LEED) The administration building shall obtain the Leadership in Energy and Environmental Design (LEED) gold certification level. **MM AQ-23:** Compact Fluorescent Light Bulbs All interior terminal building lighting shall use compact fluorescent light bulbs and the tenant shall maintain and replace all compact fluorescent bulbs. **MM AQ-24:** Energy Audits The tenant shall conduct a third party energy audit every 5 years and install innovative power saving technology where feasible, such as power factor correction systems and lighting power regulators. Such systems help to maximize usable electric current and eliminate wasted electricity, thereby lowering overall electricity use. **MM AQ-25:** Solar Panels The applicant shall install solar panels on the administration building. **MM AQ-26:** Recycling The tenant shall ensure a minimum of 40 percent of all waste generated in all terminal buildings is recycled by 2012 and 60 percent of all waste generated in all terminal buildings is recycled by 2015. Recycled materials shall include: (a) white and colored paper; (b) post-it notes; (c) magazines; (d) newspaper; (e) file folders; (f) all envelopes including those with plastic windows; (g) all cardboard boxes and cartons; (h) all metal and aluminum cans; (i) glass bottles and jars; and (j) all plastic bottles. **MM AQ-27:** Tree Planting The applicant shall plant shade trees around the administration building. All shade trees shall be maintained over the life of the project.
Timing	During operation
Methodology	The LAHD shall include the mitigation measures in the lease agreements with the tenant.
Responsible Parties	LAHD and PLAMT
Residual Impacts	Mitigated Project impacts would remain significant.