CHAPTER 5.0

CUMULATIVE IMPACTS

INTRODUCTION

There are a number of projects proposed for development in the vicinity of the Tosco Wilmington Plant. These include extensive improvements to the Ports of Long Beach and Los Angeles, and the Alameda Corridor Transportation Authority projects as well as the reformulated fuels modifications planned by other petroleum refineries in the South Coast Air Basin. Figure 5-1 shows the locations of the Southern California refineries. The reformulated fuels modifications are to be completed in order to supply reformulated gasoline as required by Executive Order D-5-99 and the resulting California Reformulated Gasoline Phase 3 (CARB RFG Phase 3) requirements by December 31, 2002. The discussion below lists projects which are reasonably expected to proceed in the foreseeable future, i.e., project information has been submitted to a public agency. Cumulative construction impacts were evaluated if the major portion of construction occurred during the same construction period as Tosco's CARB RFG Phase 3 project, i.e., 2001 and 2002.

Public agencies were contacted to obtain information on projects within the Wilmington area. Figure 5-2 identifies by number the location of each of the projects discussed below. The number is used to identify the related projects throughout the discussion of cumulative impacts. Localized impacts were assumed to include projects which would occur within the same timeframe as the Tosco CARB RFG Phase 3 project and which are within the Wilmington/Port area. These projects generally include the CARB RFG Phase 3 project at the Ultramar refinery, the CARB RFG Phase 3 project at the Equilon refinery, the CARB RFG Phase 3 project at the ARCO refinery, portions of the Port 2020 Plan, and the Alameda Corridor projects. Regional impacts were assumed to include projects throughout the basin, e.g., all refineries.

Some of the resources affected by the proposed Tosco project would primarily occur during the construction phase, e.g., traffic. Other impacts would primarily occur during the operational phase, e.g., hazards and hazardous materials. Other impacts would occur during both phases, e.g., air quality and noise.

Local Refineries

Ultramar

The Ultramar refinery is located at 2042 East Anaheim Street in the Wilmington district of the City of Los Angeles. The Ultramar refinery is about two and one-half miles east of the Tosco Wilmington Plant. In order to produce the CARB RFG Phase 3 project gasoline Ultramar has proposed both new and modified refinery units. The units will be

Figure 5-1 goes here

Figure 5-2 goes here

entirely at the refinery (SCAQMD, 2000c). The CARB RFG Phase 3 project proposes the following new equipment:

- Akylation Unit – (column, vessels, condensers, accumulators, heaters, heat exchangers and pumps)
- Sulfur Recovery Unit Complex – (Amine Regeneration Unit, Tail Gas Treating Unit, thermal oxidizer, and sulfur loading facilities)
- Merox Treater
- Sour Water Stripper – (storage tank, stripper and vapor recovery system)
- Storage Tanks
- Boiler
- Flare
- Cooling Tower

Modifications to the following units are proposed:

- Fluid Catalytic Cracking Unit (FCCU) – (new Gas Concentration Unit Debutanizer, new primary absorber and stripper, new accumulators, pumps, reboiler, distillation columns, vessels and heat exchangers)
- FCCU LPG Merox Unit – (new liquefied petroleum gas (LPG) dryer and Selective Hydrogenation Unit, convert existing dryer column to depropanizer)
- Light Ends Recovery Unit – (new debutanizer and depentanizer, convert existing depropanizer to recover butane in Butamer Unit; new vessels, pumps and fin-fans)
- Naphtha Hydrotreater Unit – (modify compressor, new heat exchangers and pumps)
- Olefin Treater – (convert to hydrotreater; new reactor, new stripper, new compressor, changes to piping and new catalyst)
- Gas Oil Hydrotreater – (new pumps, new compressors and modify heater),
- Platformer – (new compressor and depropanizer)
- Butamer Unit – (new column, new heat exchangers, vessels and pumps),
- Storage Tanks
- Flare System

Associated modifications and additions to storage facilities, pipelines and support facilities are also expected (SCAQMD, 2000c).

Exxon-Mobil

The Exxon-Mobil refinery is located at 3700 W. 190th Street in Torrance, about five miles northwest from the Tosco Wilmington Plant. The refinery loading rack is located within refinery property boundaries. The CARB RFG Phase 3 project includes modifications and/or additions to the following equipment:

- Light FCCU – Unsaturated Gas Plant Debutanizer
- Light HDC – Stabilizer, Gasoline Component Isolation Piping
- Deisobutanizer Tower – Butane Handling
- Alky Feed – Hydrotreating
- Liquefied Petroleum Rail Facilities – Vessels, Loading and Additional Track
- Fuel Ethanol Storage – Tanks, Rail and Off-loading Facilities
- Gasoline Storage – Tanks
- FCC – Hydrotreater Reactors and Heater Modifications
- Alkylate – Additive Water Wash System and Merox System
- Sulfur Contamination Elimination – Overhead Compressor Modifications
- Light FCC Gasoline – Splitter Modifications
- Torrance Loading Rack (add fuel ethanol off-loading rack; modify vapor recovery unit, piping, and manifolds)
- Vernon Terminal (add rail car off-loading system, two truck off-loading areas, gasoline tank, lighting area and drainage system, modify rail spur, loading rack, vapor recovery unit, vapor destruction unit, and two storage tanks)
- Anaheim (Atwood) Terminal (add two truck off-loading areas, storage tank, lighting area and drainage system; modify truck rack)

Associated modifications and additions to storage facilities, pipelines and support facilities are also expected (SCAQMD, 2000d).

The Exxon-Mobil Southwestern marine terminal is located at 799 South Seaside Avenue on Terminal Island in the Port of Los Angeles. The Southwestern marine terminal consists of approximately 14 acres and has four berths (238, 239, 240B and 240C). CARB RFG Phase 3 projects proposed to take place at the Southwestern marine terminal include the addition of a truck loading rack, a vapor combustor, area lighting, and a drainage system; and the modification of two tanks (SCAQMD, 2000d). Exxon-Mobil's distribution terminals are located in Vernon, Anaheim (Atwood) and Terminal Island in the Port of Los Angeles. The Torrance refinery and loading rack, and the Vernon and Anaheim distribution terminals are located a sufficient distance to not create cumulative impacts with Tosco for localized impacts.

Equilon

The Equilon refinery (formerly Texaco) is located at 2101 East Pacific Coast Highway, Wilmington, about three mile northeast of the Tosco Wilmington Plant. Equilon's Wilmington Truck Terminal is located adjacent to the southwestern portion of their Refinery at 1926 East Pacific Coast Highway, and the marine terminal is located on Mormon Island at Berths 167-169 within the Port of Los Angeles. The proposed project will also require changes to Equilon's other Southern California area distribution terminals located in Signal Hill, Carson, Van Nuys, Colton and Rialto. The CARB RFG Phase 3 project proposes the following new equipment:

- Alkylation Unit (Contactor and Settler, refrigeration unit, exchangers/pumps, and effluent treating vessels)
- C4 Isomerization Unit (vessels, exchangers, pumps, piping, stabilizer, gas scrubber, and drier)
- Hydrotreater Unit No. 2 (Olefins Saturation Reactor, pretreatment reactor, charge pumps, heat exchangers, trays, stripper reboiler, and control valves)
- Hydrotreater Unit No. 4 (diesel side stripper, feed steam preheater, and heat exchangers)
- CDS Tech Unit (columns, reactors, stabilizer, absorbers, condensers, exhangers, coolers, pumps, compressors, drums, and heaters)
- Catalytic Reforming Unit No. 2 (sulfur guard reactor)
- Storage Tanks (at Carson, Signal Hill, Van Nuys, and Colton/Rialto Terminals)
- Pentane Sphere

Modifications to the following units are proposed:

- Alkylation Unit (cooling tower, effluent treating vessels)
- C4 Isomerization Unit (vessels, reactors, exchangers, pumps, piping and zinc oxide treater)
- Fractionator Changes (HCU Main Fractionator, FCCU Debutanizer, Feed Prep Tower, Depentanizer, Alky Deisobutanizer, Alky Debutanizer and C4 Isomerization Deisbutanizer, and HCU Depropanizer)
- Hydrotreater Unit No. 2 (piping)
- Hydrotreater Unit No. 4 (main reactor and piping)
- Catalytic Reforming Unit No. 2 (debutanizer tower)
- Flare
- Vapor Recovery Systems
- Refinery Storage Tanks
- Carson Terminal (piping, valves, flanges and loading racks)
- Signal Hill Terminal (piping, valves, flanges and loading racks)
- Colton/Rialto Terminal (piping, valves, flanges and loading racks)
- Van Nuys Terminal (piping, valves, flanges and loading racks)
- Marine Terminal
- Wilmington Terminal

Associated modifications and additions to storage facilities, pipelines and support facilities also are expected (SCAQMD, 2000e). The Equilon Signal Hill, Van Nuys, and Colton/Rialto terminals are located a sufficient distance to not create cumulative impacts with Tosco for localized impacts.

Chevron

The Chevron refinery is located at 324 West El Segundo Boulevard in El Segundo, California, about 11 miles north of the Tosco Wilmington Plant. The Chevron refinery has proposed to make changes to the reconfiguration of the Refinery by modifying existing process operating units, constructing and installing new equipment, and providing additional ancillary facilities in order to produce the CARB RFG Phase 3 reformulated gasoline (SCAQMD, 2000f). The proposed new refinery units include:

- Isomax Complex (distillation column, steam reboilers and overhead condensers)
- TAME Plant (steam reboilers and overhead condensers)
- Pentane Storage Sphere
- Pentane Sales rail loading facilities and railcar storage area
- TAME Unit (distillation column, reflux pumps, steam reboilers and overhead condensers)
- No. 1 Naphtha hydrotreater (under Option A: one furnace, compressors, exchangers, and pumps. Under Option B: compressors, exchangers, and pumps)
- FCCU Depropanizer
- FCCU Debutanizer
- FCCU Deethanizer (vessels, pumps and exchangers)
- FCCU Propylene Caustic Treating Facilities
- FCCU Butene Caustic Treating Facilities
- FCCU Amine Absorber
- FCCU Relief System (headers)
- FCCU Wet Gas Compressor Insterstage System Upgrades (two exchangers and one vessel)
- Alkylation Plant (two contactors and an acid settler)
- Cooling Tower
- Trim coolers for existing Distillation Columns
- Iso-octene Plant (pressure vessels, exchangers and pumps)
- Two floating roof gasoline component storage tanks

Modifications to existing refinery units are proposed for the following:

- TAME Unit (Depentanizer column)
- No. 1 Naphtha hydrotreater (under Option A: modify one furnace; under Option B: modify two furnaces)
- Deethanizer (column)
- Relief Systems (vapor recovery facilities and flare)
- Main air blower rotor replacement
- Wet Gas Compressor Rotor and Gearbox Upgrade
- Recommission Existing Out-of-Service Deisobutanizer

- Retraying Distillation Columns
- MTBE storage tank

Due to the distance separating the Chevron refinery from the Tosco Wilmington Plant, no cumulative impacts are expected during the construction or operation of the proposed project.

ARCO

The ARCO refinery, located at 1801 E. Sepulveda Boulevard in Carson is approximately four miles northeast of the Tosco Wilmington Plant. The ARCO Carson terminal is located at 2149 E. Sepulveda Boulevard, the Marine Terminal 2 is located at 1300 Pier B Street within the Port of Long Beach. The proposed project will also require changes to ARCO's other Southern California area distribution terminals located in South Gate, Rialto, Long Beach and Signal. The refinery is located at a sufficient distance to avoid cumulative localized impacts with Tosco. The ARCO refinery has proposed to make changes to the reconfiguration of the Refinery by modifying existing process operating units, constructing and installing new equipment, and providing additional ancillary facilities in order to produce the CARB RFG Phase 3 reformulated gasolines (SCAQMD, 2000g). The proposed new refinery units include:

- FCCU Gasoline Fractionation (Option #1) – rerun bottoms splitter (splitter tower, heat exchangers, etc.)

Modifications to existing refinery units are proposed for the following:

- Light Hydro Unit (modify heat exchangers; new exchangers, piping pumps and control systems)
- Isomerization Sieve (convert unit to hydrotreater, modificatons to heat exchangers, piping and control systems, new reactor, exchangers, pumps and control systems)
- No. 3 Reformer Fractionator and Overhead Condenser (piping and control systems; new pumps)
- Gasoline Fractionation Area (retraying, piping and control systems)
- FCCU Gasoline Fractionation (Option #2) – convert gasoline fractionation area depentanizer to a FCCU bottoms splitter (retraying; new exchangers, flash drum, and product cooling)
- North hydrogen plant (new feed drum, pump and vaporizer)
- MTBE Unit (Option #1) – convert into ISO Octene Unit (modify heat exchangers, piping and control systems; new reactive, steam heater and heat exchaners)
- MTBE Unit (Option #2) – convert into Selective Hydrogenation Unit (modify stripper, reboiler, piping and control systems; new heat exchangers)

- Cat Poly Unit – modify to a Dimerization Unit Hydrotreater reactor system (modify piping and control systems; new pumps, heat exchangers, vessels, piping and control systems)
- Mid-Barrel Unit – modify to a Gasoline Hydrotreater (modify feed and product piping, hydrogen supply system and heat exchanger, controls systems)
- Tank Farm – piping modifications
- Pentane railcar loading facility – modify for pentane off-loading (new repressurizing vaporizer system and two railcar spots)
- Propylene railcar loading facility – modify for butane off-loading

Associated modifications and additions to storage facilities, pipelines and support facilities also are expected (SCAQMD, 2000g).

Other Related Projects

Other projects within the general Wilmington/Carson area are described below.

Tosco Refinery Ethanol Import and Distribution Project

In order to produce gasoline without MTBE as required by the Governor's Executive Order and to remain compliant with state and federal reformulated fuel standards, Tosco will replace MTBE with ethanol. Ethanol is currently the only oxygenate approved by CARB as a replacement for MTBE. Tosco has been issued permits for an Ethanol Import and Distribution Project which would necessitate modifications to its existing Los Angeles Refinery Wilmington Plant, Torrance Tank Farm, Marine Terminal, and interconnecting pipelines to allow the importation, storage and distribution of ethanol. Tosco will also make modifications to its Los Angeles and Colton Terminals in support of the MTBE conversion.

This project is comprised of modifying existing facilities to permit ethanol to be received into the Marine Terminal for transshipment through the Wilmington Plant for ultimate blending into gasoline at existing, offsite marketing terminals. Modifications to the Tosco Wilmington Plant would consist of storage tank and transfer system conversions, piping modifications, pump changes, and loading rack changes. Other associated modifications to storage facilities, pipelines and support changes also are expected. A Negative Declaration was completed (SCAQMD, 2000b) and approved for this project. Because this project was found not to have any significant effect on the environment and construction would take place prior to the CARB RFG Phase 3 project, no cumulative construction related impacts are expected.

Metro 2000

Metro 2000, a proposed 1,500,000 square foot factory outlet mall, would be located in the City of Carson at Del Amo and the 405 Freeway, about five miles north of the

Wilmington Plant. It has been in abeyance for the last few years with no projected construction date (Belinda Hayes, City of Carson, Personal Communication, 2000). This project is located a sufficient distance from Tosco to avoid cumulative localized impacts with the proposed project.

Port of Los Angeles/Port of Long Beach 2020 Plan

Activity at the ports of Los Angeles and Long Beach is projected to double by the year 2020 (ACTA, 1992). The 2020 Plan is a long-range, joint-planning effort of the Port of Los Angeles, the Port of Long Beach, and the U.S. Army Corps of Engineers to meet expected trade needs of the region and the nation through the year 2020. It is a phased program of existing facility optimization, dredging, landfilling, and facilities construction, which in total will expand the Port complex by 2,400 acres of new land and 600 acres of development on existing land. (L.A. Harbor Dept., 1993). The Alameda Corridor Transportation Authority ("ACTA") improvements are considered mitigation measures for the adverse effects of the projected growth in port activity on regional rail and truck transportation systems. See below for further discussion of the ACTA projects.

The Port of Long Beach is planning a variety of improvements as supported by the Port of Long Beach Facilities Master Plan. The Facilities Master Plan describes growth strategies for the Port through the year 2020. The Port plans to rebuild existing facilities and add the equivalent of 1,100 acres of new container cargo space and 400 acres of other types of terminal space to meet future needs. The Port of Long Beach plans to expand several existing marine container terminals. The Port is currently in the process of developing a 150 acre container terminal at Pier S, and has approval to begin Berth T121 Facility modifications. The Port of Long Beach is in the process of preparing an EIR for the expansion of the existing marine container terminal at Piers D, E and F, and has completed the Draft EIR for the Piers G and J Terminal Development project. The U.S. Navy is also currently involved in developing a container terminal, liquid bulk facility and satellite launch facility at the Long Beach Naval Complex (Dames and Moore, 2000).

The Port of Los Angeles is continuing to plan and work on a variety of improvements which were begun as part of the 2020 Plan. These projects include dredging and filling to provide access to a proposed dry bulk terminal and a proposed container terminal at Pier 300, and dredging and filling to provide access to proposed liquid bulk terminals and a proposed container terminal at Pier 400. The terminals at Pier 300 would be built on existing land, while the terminals at Pier 400 would be constructed on new landfilled area created from dredge material generated during dredging activities (USACE, 1992).

The Port of Los Angeles is also planning a channel deepening project. In 1992, the United States Army Corps of Engineers (USACE) and the Los Angeles Harbor Department (LAHD) approved the Deep Draft Navigation Improvements Project EIS/EIR to optimize navigation channels in the Outer Los Angeles Harbor and use dredge material to create approximately 600 acres of new land (Pier 400). That project is presently under construction. Included in that planning effort was an assumption that in

order to accommodate the anticipated cargo through San Pedro Bay, not only new land would be required, but navigation channels and other existing facilities would need to be optimized. In accordance with this, the LAHD has been upgrading facilities at the Port, including the 212-215 Container Terminal Project, Evergreen Container Terminal Expansion, the Terminal Island Container Terminal Transfer Facility, the Pier 300 Container Terminal Project and Intermodal Facility, the West Basin Transportation Improvements Project, the Badger Avenue Bridge Replacement Project, and the Alameda Corridor Project. In January 1998, the Port approved the Channel Deepening Project EIR that addressed deepening the main channel, associated channels and turning basins. Dredging and disposal for the Channel Deepening Project are expected to begin after July of 2001 and to be completed after December of 2002. Dredging will occur 24 hours per day. Wharf upgrades are expected to be ongoing, during and after the dredging project (USACE, 2000a).

In general, many of the 2020 improvements will take place within the harbor area and will include dredging to deepen the channels within the ports and infilling to create additional land. These types of projects would be a sufficient distance from the Tosco Wilmington Plant to minimize cumulative impacts. However, the regional, transportation-related projects (which are discussed in detail below), are included as mitigation measures for the 2020 Plan and would occur in the vicinity of the Tosco Wilmington Plant.

Alameda Corridor Transportation Authority (ACTA)

The Alameda Corridor Transportation Authority is an inter-agency, inter-governmental commission which is the lead agency for a number of projects designed to improve highway and railroad access to the Ports of Los Angeles and Long Beach by making a substantial number of improvements along Alameda Street between the harbor area and downtown Los Angeles to consolidate truck and railroad traffic. ACTA has prepared an environmental impact report that was finalized in December of 1992, and certified in January of 1993.

In general, Corridor projects include consolidation of the routes currently used by three different common rail carriers, widening Alameda Street to six lanes with left turn pockets and new signalization, grade separation of cross traffic at numerous street intersections, grade separation of train from vehicular traffic, and construction of sound barriers. Traffic conflicts at approximately 200 street-level railroad crossings will be eliminated as a direct result of this program, allowing trains to travel more quickly and easing traffic congestion. The corridor generally parallels Alameda Street along most of the route (www.ACTA.org, July 2000).

Work on a new triple rail bridge over the Los Angeles river began April 1997, and it was dedicated as the project's first completed structure in November 1998. Engineering and additional construction work continues along the route. Work commenced on the Mid-Corridor segment in January 1999, with large-scale construction on the trench beginning

in mid-1999. The mid-corridor trench project is scheduled for completion in early 2002 (www.ACTA.org, July 2000).

South of the 91 Freeway, roadway improvements to the Corridor, which follows Alameda Street and Henry Ford Avenue, are part of the Ports Access Demonstration Project ("PADP"), while railroad work, grade separations and overcrossings are ACTA projects. Upon completion of the improvements, portions of Alameda Street (from Henry Ford Avenue to the Artesia Freeway) and Henry Ford Avenue (from Alameda Street to the Terminal Island Freeway) will become state highways (Personal Communication, Doug Failing, Caltrans, October 2000). Depending on the governmental agency involved and the funding available, different segments of Alameda Street will be under construction at different times; work will not necessarily progress linearly along Alameda.

The southern section of the Alameda Corridor project stretches about seven miles from the end of the ports' rail lines north to State Route 91 in Compton. Several segments of the ACTA/PADP improvements will be located in the vicinity of the Carson/Wilmington areas and possibly under construction at the same time as the CARB RFG Phase 3 projects. These are described below:

Compton Creek Project

A three-track bridge will be built over the Compton Creek just south of State Route 91, providing an alignment that will allow trains to travel at a greater speed over the existing two-track bridge. Construction on the bridge began in April 1999 and is expected to be completed in October of 2000 (www.ACTA.org, and Harley Martin, ACTA, Personal Communication, July 2000).

Dominguez Channel Project

Three railroad bridges will be constructed over the Dominguez Channel. A bridge north of Sepulveda Boulevard will replace storage tracks impacted by the Corridor project. Adjustment to this structure will be a second four-track bridge that will allow trains on the expressline to travel at great speeds and service local industries. A three-track bridge over the channel, south of Pacific Coast Highway, will replace an existing single-track bridge at the location and allow trains to travel at greater speeds (www.ACTA.org, July 2000).

Construction on the Dominguez Channel Project began in July of 1999. The West Basin Branch of the railroad track has been completed, crossing Henry Ford Avenue just south of the Dominguez Channel Bridge. The track alignment was moved slightly north to allow for completion of construction in the Dominguez Channel. Construction on the Dominguez Channel Project is expected to be completed in February of 2001 (www.ACTA.org, and Harley Martin, ACTA, Personal Communication, July 2000).

Henry Ford Avenue Grade Separation

This project includes construction of a mile-long, two-track railroad ridge over Dominguez Channel and Terminal Island freeway ramps; replacement of a highway bridge over the channel to six lanes from four lanes; widening of the Henry Ford Avenue on-ramps and off-ramps at State Route 47 to three lanes from two (www.ACTA.org, July 2000).

Construction on the Henry Ford Avenue Grade Separation started in October of 1999. Henry Ford Avenue is closed south of Pier A Way to Anchorage Road to accommodate continuing construction activity on Henry Ford Avenue. A new Henry Ford Avenue Detour Road is open to provide access to Anchorage Road, Shore Road and nearby Wilmington marinas. Residents and business owners may use this temporary traffic configuration until construction is complete, in approximately September 2002 (www.ACTA.org, and Harley Martin, ACTA, Personal Communication, July 2000).

Alameda Street Widening

Work continues on the widening of Alameda Street from four lanes to six lanes, from Del Amo Boulevard north to the State Route 91 in Compton. The improvement and realignment work on Alameda Street is scheduled to continue through September 2001 together with other Los Angeles County Port Access Demonstration Projects (www.ACTA.org, July 2000).

Henry Ford Avenue Widening

ACTA is responsible for the widening of Henry Ford Avenue south of Anaheim Street, which is currently under construction. The widening of Henry Ford from Anaheim Street north to Alameda Street is a PADP (Henry Ford Units 3 and 5). This project is under the jurisdiction of the City of Los Angeles, Bureau of Engineering, which is currently in the process of bidding the project. The project would widen Henry Ford to about 105 feet with two lanes of traffic in each direction and turn lanes. The construction will be staged so that Henry Ford will be open during construction (i.e., one side of the street will be under construction while the other side is being used for traffic). The project is estimated to commence in April 2001 with completion in about April 2002 (John Korous, ACTA, Personal Communication, November 2000).

Pacific Coast Highway Grade Separation

Another PADP project is the construction of a grade separation of Pacific Coast Highway (PCH) at Alameda Street and the railroad tracks. The project would construct an elevated bridge along PCH so that traffic would be routed over the railroad tracks at Alameda. The PCH would be elevated from west of Alameda to

about the Dominguez Channel (John Korous, ACTA, Personal Communication, November 2000). This project is under the jurisdiction of Caltrans.

Street Improvements by Other Agencies

Bridges will be built at four locations where trains and vehicles now cross at the same level, causing delays to both. The locations are Laurel Park Road, Del Amo Boulevard, Sepulveda Boulevard and Pacific Coast Highway. In addition, Alameda Street is being widened to six lanes from four lanes. These projects are the responsibility of the County of Los Angeles, the City of Los Angeles, and the City of Carson (www.ACTA.org, July 2000).

Sepulveda Boulevard Improvement

The City of Carson has plans to construct a Sepulveda Boulevard overpass (over Alameda). The project has been approved and went out to bid in July 2000. The project is expected to take about two years for construction (Carson Anderson and Patricia Elkins, City of Carson, Personal Communication, July 2000).

223rd Street Re-Development Projects

The City of Carson has a vision to turn the portion of 223rd Street, between Lucerne and Alameda into mostly a large section of auto dealerships (Carson Anderson, City of Carson, Personal Communication, July 2000). Two major facility expansions are currently planned.

Westrux International Expansion

Westrux International, at 1505 E. 223rd Street, has City funding allowing them to acquire land for future expansion of their truck sales and service facility. They propose to start work on the expansion in 2001. It is expected that the expansion would take approximately 24 months to complete (Carson Anderson, City of Carson, Personal Communication, July 2000).

Carson Toyota Car Sales Facility Expansion

The Carson Toyota Car Sales facility (1355-1463 E. 223rd Street) is currently in negotiations to buy land for the expansion of their facility. The scope for this project is approximately two to two and one-half years (Carson Anderson, City of Carson, Personal Communication, July 2000).

City of Long Beach

The City of Long Beach has several projects planned for the near future. An EIR is being prepared to study the impacts of constructing a Carnival Cruise Terminal at the port.

Upon approval, this project would take approximately two years to complete. In support of the Carnival Cruise Terminal, the RMS Queen Mary Seaport project as been approved. This project will consist of a variety of retail and entertainment uses and parking structures (Angela Reynolds, City of Long Beach, Personal Communications, November 2000).

There are also two projects planned for downtown Long Beach. The Downtown Mall Redevelopment project consists of developing commercial and residential space. Ground breaking on the projects is expected to occur by the end of 2000, and construction is expected to take approximately one year. Development of the residential units and office building or hotel known as the Camden Project in the downtown area is also expected to break ground by years end, with construction expected to last one and one-half years (Angela Reynolds, City of Long Beach, Personal Communications, November 2000).

AIR QUALITY

Project Impacts

Construction Impacts

The cumulative air quality impacts are summarized in Table 5-1. Air quality impacts due to construction at the refineries for their CARB RFG Phase 3 projects are expected to be temporarily significant since the SCAQMD thresholds will be exceeded. There will be construction emissions associated with other projects in the area including the Alameda Corridor projects, but these emissions were not estimated and sufficient information does not exist to estimate these emissions. The air quality impacts due to construction will be significant and exceed the SCAQMD thresholds of significance; however, they will be temporary. It should be noted that the construction emissions will be spread throughout the basin and not emitted in one localized area, although a number of the projects (Tosco, ARCO, Ultramar, and Equilon) are located within or near the Wilmington area.

Emissions from construction of the CARB RFG Phase 3 projects will be from two main sources, vehicles used by commuting workers, and use of heavy equipment. All refineries are expected to be undergoing construction during the same time period. The construction phase of the Tosco proposed project will exceed the significance thresholds for CO, VOC, NOx and PM10 (see Chapter 4, Table 4-3). Therefore, the air quality impacts associated with construction activities are considered significant. A large portion of the total emissions is associated with on-site construction equipment and mobile sources (trucks and worker vehicles). It is expected that the other refineries would have similar CARB RFG Phase 3 construction emission impacts. Mitigation measures to reduce air emissions associated with construction activities are necessary primarily to control emissions from heavy construction equipment and worker travel.

Construction emissions associated with the Port of Los Angeles Channel Deepening Project would vary depending on the depth the channel is deepened. The project has a –

50 foot alternative, a –53 foot alternative and a –55 foot alternative. For each alternative, emissions would increase with depth, i.e., require more dredging. Emissions also very within each alternative, depending on which disposal site is chosen. Since the dredge and disposal volumes for the –55' alternative would be greater than those associated with the –50' and –53' alternatives, total construction emissions would generally be greater than those associated with the shallower alternatives (USACE, 2000a).

TABLE 5-1

AVAILABLE CUMULATIVE PROJECT PEAK DAY CONSTRUCTION EMISSIONS (lbs/day)

ACTIVITY	CO	VOC	NOx	SOx	PM10
Tosco CARB RFG Phase 3 Project	893	165	688	72	121
ARCO CARB Phase 3/MTBE Phase Out Project (mitigated)	756	146	716	51	241
Port of LA Channel Deepening Project (mitigated peak daily emissions)	1,218	307	7,089	213	186
Port of Long Beach Pier G & J Project (mitigated peak daily emissions)					
Phase I	1,097	368	665	56	2,369
Phase II	1,758	214	884	88	2,312
Phase III	1,265	414	901	75	3,365
Phase IV	1,743	360	778	65	2,657
SCAQMD Threshold Level	**550**	**75**	**100**	**150**	**150**
SIGNIFICANT?	**YES**	**YES**	**YES**	**YES**	**YES**

The Port of Long Beach Piers G and J terminal development project would be constructed in four phases over an 11-year period. A number of construction activities would overlap. Construction emissions for all four phases would exceed the SCAQMD daily significance thresholds for all pollutants except for SOx. The Port of Long Beach Piers G and J terminal development project has proposed several mitigation measures to reduce air quality impacts during the construction period. After implementation of the proposed mitigation measures, however, construction air quality impacts would remain significant (Dames and Moore, 2000).

Table 5-1 summarizes the available construction emissions of the related projects. On a cumulative basis, construction emissions would exceed the thresholds established by the SCAQMD assuming they occur at the same time. Therefore, the cumulative air quality construction impacts are considered significant.

Operational Impacts - Criteria Pollutants

During operation, the transportation improvement projects and the various refinery CARB RFG Phase 3 projects are all expected to reduce overall air emissions. However, there are localized increases in certain air pollutants.

Direct stationary emission sources are generally subject to regulation. The emissions associated with the proposed project modifications are shown in Chapter 4, Table 4-4. Stationary emission sources include combustion sources and fugitive emissions. The operation of the Tosco CARB RFG Phase 3 project will exceed the significance thresholds for the VOC and NOx. Therefore, the air quality impacts associated with operation emissions from the proposed project are significant. The VOC emissions are primarily associated with modifications to the storage tanks. NOx emissions are primarily from railcar emissions. Mitigation measures to reduce air emissions associated with the operational phase of the proposed project are necessary to control VOC emissions from storage tanks and NOx emissions from railcars.

Operational emissions associated with the Tosco Ethanol Import and Distribution Project will not exceed the SCAQMD significance thresholds and are considered less than significant. Based on the analysis, no mitigation measures were required for operational emissions.

Implementation of the Los Angeles and Long Beach Harbors 2020 improvements will allow for doubling of cargo handling through the port, resulting in a significant increase in truck and rail traffic in the vicinity of the port. Construction of the Alameda Corridor improvements is intended to mitigate the impact of the increase in port-related traffic. The improved efficiency of the consolidated railway along the Alameda Corridor is expected to reduce emissions of locomotive exhaust over the No Project alternative. Elimination of railway/roadway intersections through consolidation of rail traffic and construction of grade separations will reduce motor vehicle idling emissions and improve the efficiency of truck transport.

Data show that by completion of the Port of Los Angeles Channel Deepening Project, operation of each of the proposed scenarios would produce less emissions for a given throughput of cargo, versus future baseline conditions (USACE, 2000a).

The Port of Long Beach Piers G and J terminal development project would increase overall on-site operational activities. However, annual vessel calls would decrease by approximately five vessels after all phases of the project are built. The amount of emission reductions due to this decrease is proportionally very small, and was not

included in the emissions inventory. The number of trucks used to transport cargo containers is also expected to decrease, thus reducing the associated emissions. This would provide partial offsets for increased on-site operational activities. The Port of Long Beach Piers G and J terminal development project has proposed several mitigation measures to reduce air quality impacts during project operations. After implementation of the proposed mitigation measures, however, operational air quality impacts for NOx would remain significant (Dames and Moore, 2000).

The CARB RFG Phase 3 projects at all of the local refineries will increase the criteria pollutants emitted from the refineries. The emissions data from other refinery projects are not yet available. It is expected that, due to the large number of changes at the refineries that are concentrated in the Wilmington/Carson areas, the localized operational impacts will be significant.

TABLE 5-2

CUMULATIVE PROJECT
STATIONARY AND INDIRECT SOURCE
OPERATIONAL EMISSIONS
(lbs/day)

SOURCE	CO	VOC	NOx	SOx	PM10
Total Tosco CARB RFG Phase 3	134	116	503	402	43
Tosco Ethanol Import & Dist. Proj.	9	-54[(1)]	10	--	1
ARCO CARB Phase 3/MTBE Phase Out Project	42	86	49	10	57
Port of Long Beach Pier G & J (after mitigation)	11	5	132	13	-2040[(2)]
SCAQMD Thresholds	**550**	**55**	**55**	**150**	**150**
Significant?	**NO**	**NO**	**YES**	**YES**	**NO**

(1) Negative numbers represent emission reductions
(2) Emissions are due to the decreased number of trucks associated with the proposed project.

On a regional basis, the CARB RFG Phase 3 project fuels produced by the refineries are expected to result in a reduction in emissions from mobile sources that utilize the reformulated fuels. Table 5-3 summarizes the expected emission decreases from the mobile sources which use the reformulated fuels.

TABLE 5-3

CARB PHASE 3 EXPECTED EMISSION CHANGES
(Tons per Day)

POLLUTANT	1998 Average In-Use Fuel		Future Representative In-Use Fuel Based on Flat Limits		Difference
	2005	2012	2005	2010	2005
NOx	2.1	1.7	-16.6	-13.6	-18.7
Exhaust Hydrocarbons	-16.0	-9.3	-16.5	-9.6	-0.5
Evaporative Hydrocarbons	-14.4	-11.3	-14.4	-11.3	0
Total Hydrocarbons	-30.4	-20.6	-30.9	-20.9	-0.5

Negative numbers indicate emission reductions
Source: CARB, 1999

Air quality impacts associated with operation of the six CARB RFG Phase 3 projects are considered significant for CO, VOCs, NOx, SOx, and PM10 since SCAQMD mass emissions thresholds are expected to be exceeded. Although operations will exceed significance thresholds, there will be large regional benefits from the use of the reformulated fuels by mobile sources. Emissions of mobile sources will be reduced for NOx and VOCs counteracting the emissions being produced by the refineries and providing a large environmental benefit. The emission reductions are expected to be far greater than the direct cumulative emissions. In addition, the CARB RFG Phase 3 compliant fuels are expected to result in a 7.2 percent reduction in potency-weighted emissions of toxic air contaminants from mobile sources using the fuel providing additional emissions benefits. Therefore, the overall impact of the CARB RFG Phase 3 projects within the basin will have a cumulative beneficial effect on air quality.

Operational Impacts - Toxic Air Contaminants

In order to determine the cumulative impacts of toxic air contaminants, the emissions from the implementation of the proposed project along with modifications made since the baseline scenario were analyzed. This is referred to as the post-project scenario and includes all the existing emission sources at the Tosco Wilmington Plant plus the proposed modified emission sources associated with the revised reformulated fuels program. In addition, the potential cumulative impacts associated with the overlap of emissions from other refineries were addressed in the analysis provided below.

Post-Project Scenario

A comprehensive air dispersion modeling analysis and a Health Risk Assessment (HRA) was performed for the projected refinery emissions following completion of the proposed project. This section discusses the results of the air dispersion modeling and health risk

assessment. The procedures used to complete the projected HRA are the same as those used to complete the project HRA (see Chapter 4, Air Quality). The HRA is contained in Volume II which should be consulted for further details.

Hazard Identification

The list of TACs evaluated in the post-project scenario are the same as those identified in the baseline assessment (see Table 3-6).

Emission Estimations and Sources

The estimated mass emissions of toxic air contaminants were based on a combination of the most recent AB2588 Air Toxics Inventory Report, modifications made to the Tosco Wilmington Plant since the baseline assessment and engineering estimates that reflect operation of the proposed project. For further details on the emission estimates see Chapter 4, Air Quality and Volume II.

HRA Methodology

The source parameters for the post-project scenario were used as input to the ISCST3 model to determine unitized ground-level concentrations. The output from the ISCST3 model was combined with estimated emissions for each TAC in the ACE2588 model. The ACE2588 model calculated the health risks associated post-project scenario. The ISCST3 model used the same assumptions as the baseline model for receptor grids, meteorological data, and so forth. The ACE2588 model used the same assumptions for the post-project scenario as the baseline model for multi-pathway analysis, pathways to exposures, and default exposure assumptions. The model was used to identify the MEIR and MEIW for the post-project scenario. The ACE2588 model calculated both carcinogenic and non-carcinogenic health impacts.

Post-Project HRA Results - Carcinogenic Health Impacts

Maximum Exposed Individual Risk

The predicted maximum cancer risk at the MEIR area due to exposure to projected post-project emissions was calculated to be 8.69×10^{-6} or 9 per million. The location of the MEIR is the same as the baseline assessment and is shown in Figure 3-2. Table 5-4 shows major source contributions to the MEIR. Emissions from Source No. 24, the Unit 152 FCC and Electrostatic Precipitator account for 22 percent of the MEIR cancer risk. Emissions of 1,3-butadiene are responsible for about 40 percent of the MEIR risk, followed by hexavalent chromium (24 percent) (see Table 5-5).

TABLE 5-4

EMISSION SOURCE CONTRIBUTION TO CANCER RISK FOR POST-PROJECT SCENARIO MEIR

Source No.	Source Name	Percent Contribution
24	Unit 152, FCC-ESP	22.04%
39	Unit 118, Heater H401	11.57%
14	Unit 120, Heater B101	8.29%
139	Fugitive Emissions from Transport and Receiving, WET and Blocks 3 - 6	4.56%
44	Potable Internal Combustion Engines (8)	3.55%
125	Fugitive Emissions from Units 58-60, Catalyst Handling and Tank F-136	3.49%
10	Unit 100, Heater H-100/104	3.27%
41	Unit 141 Heater - Acid Plant Stack	3.10%
129	Fugitive Emissions from Unit 110, Blocks 44, 45	3.02%
127	Fugitive Emissions from Loading Rack, Jet A, ROSU, ROBU, Blocks 13, 14, 23, and 24	2.97%
133	Fugitive Emissions from Boiler Plant and Block 46	2.34%
126	Fugitive Emissions from Unit 80, Drains, and Block 33	2.00%
128	Fugitive Emissions from Units 89, 90, and 100 and Block 34	1.89%
130	Fugitive Emissions from Unit 120	1.67%
13	Unit 110, Heater B-211	1.47%
22	Unit 152, Heater B-602	1.43%
15	Unit 120, Heater B-201	1.25%
48	Unit 35 Compressors GB31B and GB151	1.23%
148	Flare - North HRRS	1.18%
131	Fugitive Emissions from Unit 152 and Blocks 27 and 37	1.17%
17	Unit 120, Heater B-203	1.11%
11	Unit 100, Heater H-105	1.10%
43	Fixed Emergency Fire Water Pumps (6)	1.08%

TABLE 5-5

TAC CONTRIBUTION TO CANCER RISK FOR POST-PROJECT SCENARIO MEIR

Toxic Air Contaminant	Cancer Risk	Percent Contribution
Acetaldehyde	3.15E-08	0.36
Arsenic	3.78E-07	4.35
Benzene	1.29E-06	14.85
Beryllium	1.88E-08	0.22
1,3-Butadiene	3.46E-06	39.81
Cadmium	1.47E-07	1.70
Chromium (Hex.)	2.08E-06	23.98
Formaldehyde	7.06E-08	0.81
Lead	3.58E-09	0.04
Nickel	2.72E-07	3.13
Perchloroethylene	1.44E-07	1.66
PAHs	7.77E-07	8.94
Selenium	1.22E-08	0.14
Styrene	4.07E-10	<0.01
Total	8.69E-06	100

The one per million cancer risk isopleth for the post-project Wilmington Plant scenario is shown in Figure 5-3. This isopleth was calculated based on the same assumptions used to calculate the residential cancer risk including a 70-year exposure and multi-pathway assumptions.

Maximum Exposed Individual Worker

The predicted maximum cancer risk at the MEIW area due to exposure to projected post-project emissions was calculated to be 1.58×10^{-6} or 2 per million. The location of the MEIW is the same at that for the baseline scenario and is shown in Figure 3-2. Table 5-6 shows major source contributions to the MEIW. Emissions from Source No. 139, which includes the truck loading, wastewater treatment and fugitive emissions in Blocks 3, 4, 5, and 6 account for about 18 percent of the MEIW cancer risk. Emissions of 1,3-butadiene are responsible for about 35 percent of the MEIW risk, followed by hexavalent chromium (22 percent) (see Table 5-7).

Figure 5-3 goes here

TABLE 5-6

EMISSION SOURCE CONTRIBUTION TO CANCER RISK FOR POST-PROJECT SCENARIO MEIW

Source No.	Source Name	Percent Contribution
139	Fugitive Emissions from Transport and Receiving, WET and Blocks 3 through 6	18.31%
39	Unit 118, Heater H401	9.98%
14	Unit 120, Heater B101	8.40%
127	Fugitive Emissions from Unit 85, Loading Rack – Jet A, ROSU, ROBU, and Blocks 13, 14, 23, and 24	6.31%
24	Unit 152, FCC-ESP	5.15%
125	Fugitive Emissions from Units 58-60, Catalyst Handling and Tank F-136	4.69%
129	Fugitive Emissions from Unit 110, Blocks 44, 45	3.79%
10	Unit 100, Heater H-100/104	3.46%
128	Fugitive Emissions from Units 89, 90, and 100 and Block 34	2.96%
126	Fugitive Emissions from Unit 80, Drains, and Block 33	2.93%
44	Portable Internal Combustion Engines (8)	2.66%
133	Fugitive Emissions from Boiler Plant and Block 46	2.34%
130	Fugitive Emissions from Unit 120	2.32%
140	Fugtivie Emissions from Unit 118 and Blocks 15 and 25	2.28%
15	Unit 120, Heater B-201	1.49%
13	Unit 110, Heater B-211	1.42%
11	Unit 100, Heater H-105	1.37%
48	Unit 35 Compressors GB35B and GB151	1.37%
17	Unit 120, Heater B-203	1.35%
4	Unit 80, Heater B-201	1.05%
5	Unit 80, Heater B-202	1.04%
9	Unit 100, Heater H-2	1.03%

TABLE 5-7
TAC CONTRIBUTION TO CANCER RISK FOR
POST-PROJECT SCENARIO MEIW

Toxic Air Contaminant	Cancer Risk	Percent Contribution
Acetaldehyde	4.20E-09	0.27
Arsenic	6.28E-08	3.99
Benzene	3.25E-07	20.63
Beryllium	3.18E-09	0.20
1,3-Butadiene	5.56E-07	35.29
Cadmium	2.22E-08	1.41
Chromium (Hex.)	3.45E-07	21.90
Formaldehyde	1.22E-08	0.77
Lead	4.71E-10	0.03
Nickel	6.48E-08	4.11
Perchloroethylene	3.51E-08	2.23
PAHs	1.42E-07	9.04
Selenium	2.02E-09	0.13
Styrene	1.34E-10	0.01
Total	1.57E-06	100

Sensitive Receptors

The maximum cancer risk to a sensitive receptor was estimated to be 6.9×10^{-6} or approximately 7 per million at the Hawaiian Avenue Elementary School. This risk estimate is overly conservative as it is based on a 70-year continuous exposure period.

Cancer Burden

The cancer burden for the area surrounding the Wilmington Plant was calculated using the same assumptions as the baseline cancer burden calculations. The total excess cancer burden within the area of influence was predicted to be 0.26 and 0.023 for the residential and occupational populations, respectively. (See Volume II for further details.)

Post-Project HRA Results - Non-Carcinogenic Health Impacts

Acute Hazard Index

The highest total acute hazard index for any single toxicological endpoint was estimated to be 0.992, at an occupational receptor, for the respiratory system, primarily due to exposure to nickel (see Table 5-8).

TABLE 5-8

MAXIMUM ACUTE HAZARD INDEX BY POLLUTANT FOR THE POST-PROJECT SCENARIO

TAC	REL (ug/m^3)	Target Endpoint[1]					
		CV	CNS	IMM	REP	RESP	EYE
Acrolein	1.9E-01	--	--	--	--	1.44E-01	--
Ammonia	3.2E+03	--	--	--	--	3.50E-03	3.50E-03
Arsenic	1.9E-01	--	--	--	3.25E-03	--	--
Benzene	1.3E+03	8.57e-04	--	8.57E-04	8.57E-04	--	--
Copper	1.0E+02	--	--	--	--	2.94E-05	--
Formaldehyde	9.4E+01	--	--	2.51E-02	--	2.51E-02	2.51E-02
Hydrogen Chloride	2.1E+03	--	--	--	--	2.61E-05	2.61E-05
Hydrogen Sulfide	4.2E+01	--	--	--	--	5.18E-03	--
Mercury	1.8E+00	--	--	--	3.51E-04	--	--
Methanol	2.8E+04	--	1.67E-04	--	--	--	--
MEK	1.3E+04	--	--	--	--	5.64E-08	5.64E-08
Nickel	6.0E+00	--	--	6.74E-01	--	6.74E-01	--
Perchloroethylene	2.0E+04	--	2.36E-04	--	--	--	--
Phenol	5.8E+03	--	--	--	--	2.12E-07	2.12E-07
Selenium	2.0E+00	--	--	--	--	4.20E-04	4.20E-04
Sodium Hydroxide	2.0E+01	--	--	--	--	6.14E-06	--
Styrene	2.1E+04	--	--	--	--	5.18E-07	5.18E-07
Sulfuric Acid	1.2E+02					1.39E-01	1.39E-01
Toluene	3.7E+04	--	2.34E-04	--	2.34E-04	2.34E-04	2.34E-04
1,1,1-Trichloroethane	6.8E+04	--	6.20E-05	--	--	--	--
Vanadium	3.0E+01	--	--	--	--	1.97E-05	--
Xylenes	2.2E+04	--	--	--	--	8.28E-04	8.28E-04
Total Acute Hazard Index		**8.57E-04**	**6.99E-04**	**7.00E-01**	**4.70E-03**	**9.92E-01**	**3.01E-02**

Kidney and liver target endpoints had hazard indices of zero and are omitted from the table. CV - Cardiovascular; CNS – Central nervous system; IMM – Immune system; REP – Reproductive system; RESP – Resipriatory system; EYE – Eyes

Chronic Hazard Index

The highest chronic hazard index for any single toxicological endpoint was estimated to be 0.076, at an occupational receptor, for the respiratory system, primarily due to exposure to nickel (see Table 5-9).

The cumulative impacts associated with the post-project scenario would be below the significance criteria for cancer risk of 10×10^{-6} and below the significance criteria for hazard indices of 3. Therefore, significant cumulative impacts are not expected from the Wilmington Plant.

Overlap of Impact Areas with Other CARB RFG Phase 3 Projects

The one per million cancer risk isopleth for Tosco is expected to overlap with the one per million isopleth for other refineries in the Wilmington/Carson areas. Detailed data on the toxic air contaminant emissions from other refinery CARB RFG Phase 3 projects is not currently available so a quantitative analysis cannot be made. The CARB RFG Phase 3 compliant fuels are expected to result in a 7.2 percent reduction in potency-weighted emissions of toxic air contaminants providing emissions benefits for toxic air contaminants. Therefore, the overall impact of the CARB RFG Phase 3 projects within the basin are expected to have a cumulative beneficial effect on air quality.

Mitigation Measures

The mitigation measures to minimize air emissions associated with operation of the related projects include the use of BACT for all new emission sources and modifications to existing sources. The use of BACT would control localized emissions. A BACT review will be completed during the SCAQMD permit approval process for all new/modified sources. In addition, the related refinery projects would provide regional emission benefits by reducing emissions from mobile sources that use the reformulated fuels.

Level of Significance After Mitigation

Although the cumulative air quality impacts due to construction and operation of the CARB RFG Phase 3 projects exceed the SCAQMD significance thresholds, the positive benefits attributed to the use of reformulated fuels by mobile sources are expected to outweigh the adverse impacts of the proposed projects.

TABLE 5-9

MAXIMUM CHRONIC HAZARD INDEX BY POLLUTANT FOR THE POST-PROJECT SCENARIO

CHEMICAL	REL (ug/m^3)	Target Endpoint							
		CV	CNS	IMMUN	KIDN	LIVER	REPRO	RESP	SKIN
Acetaldehyde	9.00+00	--	--	--	--	--	--	1.15E-03	--
Acrolein	2.0E-02	--	--	--	--	--	--	6.99E-03	--
Ammonia	2.0E02	--	--	--	--	--	--	2.66E-03	--
Arsenic	5.0E-01	2.69E-04	2.69E-04	--	--	--	--	1.00E-04	2.69E-04
Benzene	6.0E+01	--	1.25E-03	--	--	--	--	--	--
Beryllium	4.8E-03	--	--	--	--	--	--	1.84E-03	--
Cadmium	3.5E+00	--	--	--	1.71E-04	--	--	1.01E-05	--
Chlorobenzene	7.0E+01	--	--	--	2.55E-08	2.55E-08	2.55E-08	--	2.55E-08
Chromium (Hexavalent)	2.0E-03	--	--	--	7.59E-03	1.057.59 E-03	--	1.057.58 E-03	--
Copper	2.4E+00	--	--	--	--	--	--	1.19E-04	--
Cresols	1.8E+02	--	1.31E-06	--	--	--	--	--	--
Ethylbenzene	2.0E+03	--	--	1.14E-04	1.14E-04	1.14E-04	--	--	--
Formaldehyde	3.0E+00	--	--	--	--	--	--	4.52E-03	4.52E-03
Hexane	7.0E+03	--	1.10E-04	--	--	--	--	--	--
Hydrogen Chloride	9.0E+00	--	--	--	--	--	--	4.85E-05	--
Hydrogen Sulfide	1.0E+01	--	--	--	--	--	--	2.14E-03	--
Lead	1.5E+00	6.58E-4	6.58E-4	6.58E-4	6.58E-4	--	6.58E-4	--	--
Manganese	2.0E-01	--	2.17E-03	--	--	--	--	--	--
Mercury	9.0E-02	--	3.69E-04	--	--	--	--	--	--
Methanol	4.0E+03	--	--	--	--	--	1.37E-04	--	--
MTBE	8.0E+03	--	--	--	--	--	--	--	--
Naphthalene	9.0E+00	3.07E-02	--	--	--	--	--	1.02E-02	--
Nickel	5.0E-02	3.32E-02	--	--	--	--	--	3.32E-02	--
Perchloroethylene	3.0E+01	--	--	--	1.20E-03	1.20E-03	--	--	--
Phenol	2.0E+02	5.23E-07	5.235E-07	--	--	5.23E-07	--	--	--
Phosphorus	7.0E-02	--	--	--	--	--	3.72E-03	--	--
Propylene	3.0E+03	--	--	--	--	--	--	1.18E-04	--
Selenium	5.0E-01	--	--	--	--	--	--	1.93E-04	--
Sodium Hydroxide	4.8E+00	--	--	--	--	--	--	4.11E-08	4.11E-08
Styrene	9.0E+02	--	--	--	--	1.75E-06	--	--	--
Toluene	3.0E+02	--	1.88E-03	--	--	--	1.88E-03	1.88E-03	--
1,1,1-Trichloroethane	1.0E+03	--	1.09E-04	--	--	--	--	--	--
Xylenes	7.0E+02	--	3.26E-03	--	--	--	--	3.26E-03	--
Zinc	3.5E+01	2.88E-05	--	--	--	--	--	2.88E-05	--
Total Chronic Hazard Index		**6.49E-02**	**1.01E-02**	**7.72E-04**	**9.73E-03**	**8.91E-03**	**6.40E-03**	**7.61E-02**	**4.79E-03**

GEOLOGY/SOIL

Pursuant to CEQA Guidelines §15130(a)(1-4), there is no need to discuss cumulative impacts on geology/soil resources because any cumulative impact would not result in part from the proposed project and would be considered de minimus. CEQA Guidelines §15130(a) indicates that an EIR shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Where a lead agency is examining a project with an incremental effect that is not cumulatively considerable, a lead agency need not consider the effect significant, but must briefly describe the basis for concluding that the incremental effect is not cumulatively considerable. For the proposed project, the project's contribution to cumulative geology/soil impacts is de minimum and thus not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130(a)(4)). Nonetheless, information is provided regarding cumulative projects in the interest of the fullest disclosure.

Project Impacts

Seismicity

The proposed project and related projects are subject to groundshaking, as are most areas of California. The related projects would increase the number of facilities and structures subject to earthquake damage, and thus increase the potential impacts during an earthquake. Assuming adherence to the applicable building codes, Seismic Safety Plans, and Uniform Building Codes, the cumulative impacts from a major earthquake would be reduced, but not eliminated. All projects would require geotechnical evaluation by the local agency (usually the city) responsible for issuing building permits and a civil or structural engineer to assure the project design complies with appropriate building and safety regulations. The cumulative seismic impacts are considered to be insignificant because structures are expected to adhere to appropriate building codes.

The Port of Los Angeles Channel Deepening Project Draft EIR indicates that geologic hazards such as earthquake-induced fault rupture, liquefaction, settlement, seiches or tsunamis would have no impact on dredging in the port. The potential risks from ground shaking or fault rupture to structures and people also are not considered significant, because (1) appropriate engineering practices would be used for construction, which would limit the amount of damage that would occur; (2) relatively few people would be present on the site at any given time since it is primarily a storage area; and (3) damage, should it occur, would be limited to structures such as cranes, wharves, and pavement, which can be readily repaired or replaced, if needed (USACE, 2000a).

Any one of the Port of Long Beach Phase III slip fill options would alter the existing geologic environment at that location by filling existing submerged areas. However this alteration to existing topography would not significantly effect the geologic environment or geologic processes such as landslides or erosion. Due to the distance to the nearest

fault, the potential for ground rupture at piers G and J is insignificant. The Port of Long Beach as a whole has a high potential for soil liquefaction. Mitigation measures have been proposed to reduce the effects of filling settlement and liquefaction resulting from seismic activity. Although mitigation measures have been identified to lessen significant impacts, the seismic hazards related to future earthquake activity in the region represent a potential for unavoidable significant adverse impacts to future development of the piers G and J area (Dames and Moore, 2000).

Contaminated Soils

All of the related projects, and in particular, portions of the roadway and railway improvements that will require excavation, have the potential to unearth contaminated soils. The Alameda Corridor project, since it involves lands with a variety of ownerships, presents a number of unknowns.

The Tosco CARB RFG Phase 3 project projects involve the addition of new equipment to an existing facility so major grading/trenching is not expected to be required and is expected to be limited to minor foundation work and minor trenching for piping modifications. Previous construction activities have been conducted at the facility and contaminated soils have been uncovered. Given the heavily industrialized nature of the site and that refining activities have been conducted at the site since the 1920s, contaminated soils may be uncovered during construction activities. It is not uncommon for a refinery and other types of industrial properties to contain contaminated soils and ground water. No significant impacts are expected as a result of the potential for contaminated soils to be excavated during construction of the proposed project since there are numerous local, state (Title 22 of the California Code of Regulations) and federal rules which regulate the handling, transportation, and ultimate disposition of these soils.

The Corridor's EIR states: "Sites along the corridor that would be disturbed by corridor construction and that are known to contain contaminated soil or ground water would be cleaned prior to or during construction of the project. Clean-up activities would be conducted in accordance with all applicable regulations and guidelines governing the removal and disposal of hazardous materials. In most cases these clean-up efforts would remediate the problem and no further work would be required. However, in some cases continued monitoring of particular sites may be required to ensure that no migration of existing contamination has occurred subsequent to the primary clean-up operations. Responsibility for clean up (including Phase I assessments) and monitoring of individual sites has not been established" (ACTA, 1992).

Further clarification is offered in the Alameda Corridor EIR: "It was assumed for concept estimating purposes that the properties to be acquired for the project had already been cleared of any contaminants. The record of known contaminated sites on file with the State were [sic] used as a basis for locating existing contaminant sources along the corridor. In later stages of design, additional geotechnical work would be carried out to

better identify sources and locations of contaminants along the corridor. The issue of contamination removal would then be identified in more detail. Responsibilities for cleanups would be established in the purchase and sale agreement" [for acquisition of right of way] (ACTA, 1992).

The overall impact of the related projects on soil contamination would be considered beneficial since remediation would remove or reduce soil contamination in the area. Soil remediation is regulated by numerous regulatory agencies including the Department of Toxic Substances Control division of the California EPA, the State Regional Water Quality Control Board, local health departments, and the SCAQMD. Compliance with all applicable rules and regulations would mitigate impacts to a level of insignificance.

Mitigation Measures

No significant cumulative impacts to seismicity are expected due to implementation of the related projects with compliance with the Uniform Building Code Zone 4 requirements to minimize the potential impacts of an earthquake on the proposed projects.

A number of existing rules regulate the disposal and treatment of contaminated soils including Title 22 of the California Code of Regulations. Compliance with existing regulations should provide adequate mitigation for handling and disposal of contaminated soils.

Level of Significance After Mitigation

Implementation of the mitigation measures are expected to reduce impacts to less than significant for earth resources.

HAZARDS AND HAZARDOUS MATERIALS

Project Impacts

Pursuant to CEQA Guidelines §15130(a)(1-4), there is no need to discuss cumulative impacts on hazards and hazardous materials because any cumulative impact would not result in part from the proposed project and would be considered de minimus. For the proposed project, the project's contribution to cumulative hazards and hazardous materials impacts is de minimum and thus not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130(a)(4)). Nonetheless, information is provided regarding cumulative projects in the interest of the fullest disclosure.

Although other refineries exist in the general vicinity of Tosco, the cumulative impacts from and between the onsite operation of the refineries' CARB RFG Phase 3 projects are not expected to be significant because it is extremely unlikely that upset conditions would

occur at more than one refinery at a time. It also is extremely unlikely that an upset condition at one refinery would create an upset at another nearby refinery because of the distance between refineries.

The Tosco Refinery Ethanol Import and Distribution Project consists of phasing out the use MTBE two years earlier than required by new regulations, and replacing it with ethanol. The overall hazards associated with the handling and transport of ethanol are expected to be less than those associated with MTBE. Ethanol has a lower vapor pressure than MTBE. Therefore, a release of ethanol would travel a smaller distance than a release of MTBE given the same conditions. In addition, toxicity of ethanol is less than the toxicity of MTBE, therefore the health impacts in the event of a release of ethanol also are expected to be less than the health impacts associated with an MTBE release.

Port of Los Angeles Channel Deepening Project is primarily a dredging project. The process of dredging does not involve the handling of hazardous materials. Therefore, this action would not create hazard footprints. Impacts from dredging would be less than significant. Hazardous materials may be shipped by containers, which may become involved in an accident or otherwise be released thereby posing a hazard to the public. It is estimated that 5 to 10 percent of containers hold hazardous materials. The storage, separation, and handling of hazardous materials in containers is governed by 49 CFR part 176. Hazardous materials can be shipped, transported, handled and stored as long as they are in full compliance with all local, state and federal regulations (USACE, 2000a).

Containers with hazardous materials can become involved in accidents including fires, explosions, and releases of flammable and/or toxic gases. Some minor accidents have occurred at the Port of Los Angeles during transportation, handling and storage, but none have been considered serious or affected members of the public. Because of governing regulations, a fire or explosion would only be expected to cause local impacts and not impact members of the public. A release of a toxic material could impact a slightly large area depending on the material released, however, packaging constraints would still limit the potential adverse impacts to a relatively small area (USACE, 2000a).

Based on Port of Los Angeles accident history of containers containing hazardous materials, the probability of an accident occurring is classified as “periodical”. The potential consequence of such accidents is classified as “slight”, which falls within the “acceptable” risk category established by the Los Angeles County Fire Department, and significant impacts to public health and safety are not expected (USACE, 2000a).

Construction of the Port of Long Beach Piers G and J Terminal Development Project would be contained within the confines of piers G and J. The construction would occur in phases over a temporary period of approximately 11 years. Construction activity would occur at least one-half mile away from population centers and visitor-serving uses. Accordingly, no significant construction hazards are expected. The marine terminal facilities would involve the storage and transport of containers by ship, train, and truck, some of which may carry hazardous materials. Facilities personnel would be trained in

emergency response and evacuation procedures by the employer. The piers G and J project would not result in significant impacts on public health and safety (Dames and Moore, 2000).

Mitigation Measures

The proposed project impacts on hazards were less than significant. A number of existing rules and regulations apply to the Tosco Wilmington Plant and other refineries. Compliance with these rules and regulations minimizes refinery-related hazards. Compliance with these rules and regulations should also minimize the hazards at other refineries. Site-specific mitigation measures may be required for other projects. Since no cumulative hazard impacts were identified for the Tosco proposed project, no mitigation measures are required.

Level of Significance After Mitigation

The cumulative impacts from hazards are considered to be less than significant.

NOISE

Pursuant to CEQA Guidelines §15130(a)(1-4), there is no need to discuss cumulative impacts on noise because any cumulative impact would not result in part from the proposed project and would be considered de minimus. For the proposed project, the project's contribution to cumulative noise impacts is de minimum and thus not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130(a)(4)). Nonetheless, information is provided regarding cumulative projects in the interest of the fullest disclosure.

Pursuant to CEQA Guidelines §15130(a)(1), there is no need to discuss cumulative impacts on noise because any cumulative impact would not result in part from the proposed project. Nonetheless, information is provided regarding cumulative projects in the interest of the fullest disclosure.

Construction Impacts

Construction phases of each of the related projects are expected to generate localized, short-term noise impacts, some of which may be mitigated during construction by the use of muffling devices, restriction of work hours, etc. Construction activities associated with pile driving for the 2020 Plan are expected to be significant.

Construction of the Alameda Corridor is expected to generate noise levels as high as 90 dBA at a distance of 50 feet during excavation phases.

The cumulative construction impacts associated with the related refinery projects are not expected to be significant or exceed noise ordinances. However, the cumulative noise impacts due to certain Alameda Corridor projects and 2020 Plan construction are considered significant. Construction activities are expected to be limited to daytime hours which would reduce the potential for impacts on residential areas.

Dredging associated with the Port of Los Angeles Channel Deepening Project is only expected to result in a 1 dBA increase, which would not be perceptible. This is considered to be a short-term, insignificant impact. The only significant noise impact related to the project is in relation to the Southwest Slip Fill Site. Construction activities at this site would exceed the construction thresholds. The increased noise would be a temporary but significant impact to 10-12 Knoll Hill residences. Although two feasible mitigation measures were identified, the impact remains temporarily significant to the Knoll Hill residents (USACE, 2000a).

There are no sensitive noise receptors inside the noise exposure area associated with the Port of Long Beach Piers G and J Terminal Development Project. The proposed project would generate less than significant noise impacts (Dames and Moore, 2000).

Operational Impacts

The operational impacts of the related refinery projects are not expected to be significant. Most of the Wilmington area is industrialized and the cumulative increase in noise is not expected to impact residential areas since they are located a sufficient distance away. Also, sufficient distance exists between the refineries to prevent overlap of noise impacts.

Existing noise levels from traffic in the vicinity are already considered unacceptable for certain residential areas. The build out of the 2020 Plan and Alameda Corridor projects are expected to result in noise impacts to the Long Beach Naval Station housing and to residential areas adjoining Alameda Street (USACE, 1990).

Operation of the Alameda Corridor will concentrate train and motor vehicle noise along the corridor while reducing overall noise on other highways and railways. The day-night average noise levels along the Alameda Corridor are expected to result in an increase of about eight to nine dBA at residential receptors along the Alameda Corridor between the Ports and the Intermodal Container Transfer Facility (USACE, 1990). Therefore, the cumulative noise impacts are considered significant.

Overall, operational noise at the port following the Port of Los Angeles Channel Deepening Project is expected to improve slightly since channel deepening would result in a slight decrease in the number of vessel calls. The only exception is in relation to the Southwest Slip Fill Site. Operations at this site would at times significantly impact about five residents. The Los Angeles Harbor Department has long-range plans to acquire these residences; once this has occurred, impacts would cease. Until then, no feasible

mitigation measures were identified, and the impact remains significant (USACE, 2000a).

Mitigation Measures

The mitigation measures to reduce noise impacts are outlined in the Alameda Corridor Draft EIR (ACTA, 1992) and include noise barriers and construction of portions of the Corridor below grade.

Level of Significance After Mitigation

The noise impacts on construction and operation remain significant for the construction of the Port 2020 Plan and Alameda Corridor modifications. The noise impacts associated with the related refinery projects are not expected to be significant.

TRANSPORTATION/TRAFFIC

Pursuant to CEQA Guidelines §15130(a)(1-4), there is no need to discuss cumulative impacts on transportation/traffic because any cumulative impact would not result in part from the proposed project and would be considered de minimus. For the proposed project, the project's contribution to cumulative transportation/traffic impacts is de minimum and thus not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130(a)(4)). Nonetheless, information is provided regarding cumulative projects in the interest of the fullest disclosure.

Construction Impacts

Construction of the CARB RFG Phase 3 fuels projects at the various refineries are expected to occur at the same time. Several Alameda Corridor projects in various stages of development may affect or be affected by the Corridor improvements, including the PADP projects. Construction of the ACTA projects would require complete reconstruction of the combined highway facilities in Alameda Street and the SPTC San Pedro Branch railroad. Extensive disruption to the local traffic circulatory system would occur, creating detours and affecting accessibility to businesses and residences. Most construction locations would be subject to traffic disruption for between two and three years over the course of the 10- to 12-year construction period expected for the ACTA projects (ACTA, 1992). The construction effects would be temporary, but in some instances they could be severe.

Once the Alameda Corridor improvements have been completed, there would be a region wide reduction in emissions from train and vehicular travel, due to improved traffic circulation and less idling time. Despite the roadway improvements proposed, there would be residual adverse effects at some intersections, due to background growth in

regional traffic and the fact that the improved highway would attract traffic. It would fall to local jurisdictions to make improvements to the local streets affected.
The Port of Los Angeles Channel Deepening Project Draft EIR determined that there would be no significant traffic impacts associated with construction of the project and no mitigation measures were required (USACE, 2000a).

Construction of the Port of Long Beach Piers G and J Terminal Development Project would result in temporary adverse impacts on the roadways in the immediate project vicinity. These impacts would be due to traffic generated by construction workers' vehicles and trucks transporting soil, fill material, and equipment to and from the project site. It is estimated that over a two-year period during construction, there would be approximately 43 round-trip truck trips per day (5 per hour during an 8 hour work day) hauling fill material; approximately 260 daily trips transporting construction equipment and materials during the most active construction periods; and 300 construction worker trips during the peak construction period. These impacts are considered to be adverse short-term impacts, and mitigation measures would be implemented to minimize them (Dames and Moore, 2000).

The traffic analysis conducted for the Tosco CARB RFG Phase 3 project indicates that only one intersection shows any change in Level of Service (LOS) due to the construction phase of the proposed project. The traffic change at this intersection (Figueroa St. and "I" St./110 on-ramp) is not considered to be significant since free-flowing traffic would continue. The LOS at other intersections near the Wilmington Plant is not expected to change. Therefore, the proposed project impacts on traffic during the construction phase would be considered less than significant. Cumulative construction traffic impacts are also expected to be less than significant due to the distance between the Wilmington Plant and the other project locations.

Operational Impacts

Table 5-10 shows the projected LOS analysis and volume to capacity ratios due to general growth in the area. These ratios were calculated assuming an ambient traffic growth of one percent per year annual traffic growth rate from year 2000 to year 2020 and no changes in existing intersection geometrics. Cumulative impacts are not expected to result in a change in LOS at the following intersections:

- Figueroa Street & "G" Street/I-110 off ramp,
- Figueroa Place & "G" Street/I-110 off ramp,
- 76 Products Lane and Anaheim Street,
- Figueroa Place & "I" Street/I-110 off ramp (a.m. peak hour),
- Frigate Ave. and "C" Street/I-110 off ramp (a.m. peak hour), and
- John Gibson truck entry/I-110 (p.m. peak hour).

TABLE 5-10

CUMULATIVE OPERATIONAL TRAFFIC IMPACTS
LEVEL OF SERVICE ANALYSIS AND VOLUME-TO-CAPACITY RATIOS

INTERSECTION	BASELINE[(1)]				YEAR 2020 PROJECTION			
	A.M. LOS	Peak Hour V/C	P.M. LOS	Peak Hour V/C	A.M. LOS	Peak Hour V/C	P.M. LOS	Peak Hour V/C
Figueroa St./Anaheim St.	D	0.855	B	0.654	F	1.017	C	0.776
Figueroa Pl./Anaheim St.	C	0.789	D	0.812	E	0.938	E	0.965
Figueroa St. and "I" St./110 on-ramp	D/E	0.875	A	0.560	F	1.041	B	0.662
Figueroa St. and "G" St./110 off-ramp	A	0.320	A	0.328	A	0.374	A	0.384
Figueroa Pl. and "I" St./ 110 off-ramp	A	0.466	D	0.841	A	0.550	E	0.999
Figueroa Pl. and 110 on-ramp/"G" Street	A	0.288	A	0.303	A	0.336	A	0.353
Frigate Ave and "C" Street/110 off-ramp	A	0.416	A	0.573	A	0.489	B	0.678
John Gibson truck entry/110 ramps	A	0.583	A	0.442	B	0.690	A	0.521
John Gibson and Channel St.	C	0.776	B	0.612	E	0.921	C	0.725
76 Products Lane and Anaheim St.	A	0.505	A	0.439	A	0.597	A	0.518
Gaffey St. and Channel St.	C	0.778	C	0.788	E	0.923	E	0.935
Gaffey/Palos Verde Dr. No./Normandie/Vermont/ Anaheim St.	C	0.720	B/C	0.700	D	0.840	D	0.840

Notes: (1) = based on year 2000 traffic data
V/C = Volume to capacity ratio (capacity utilization ratio)
LOS = Level of Service

Nine intersections show a change due to long term growth in the area. The change at the following intersections are considered less than significant impacts since free-flowing traffic would continue:

The a.m. peak hour at:

- John Gibson truck entry/I-110 (from LOS A to LOS B), and
- Gaffey and Palos Verdes Drive No./Normandie/Vermont/Anaheim Street (from LOS C to LOS D).

The p.m. peak hour at:

- Figueroa Street and Anaheim Street (from LOS B to LOS C),
- Figueroa Street and "I" Street/I-110 off ramp (from LOS A to LOS B),
- Frigate Ave. and "C" Street/I-110 off ramp (from LOS A to LOS B), and
- Gaffey and Palos Verdes Drive No./Normandie/Vermont/Anaheim Street (from LOS B/C to LOS D).

The changes at the following intersections are considered significant impacts since traffic flow would be adversely impacted:

The a.m. peak hour at:

- Figueroa Street and Anaheim Street (from LOS D to LOS F),
- Figueroa Place and Anaheim Street (from LOS C to LOS E),
- Figueroa Street and "I" Street/I-110 off ramp (from LOS D/E to LOS F),
- John Gibson and Channel Street (from LOS C to LOS E)
- Gaffey Street and Channel Street (from LOS C to LOS E),
- Gaffey and Palos Verdes Drive No./Normandie/Vermont/Anaheim Street (from LOS C to LOS D).

The p.m. peak hour at:

- Figueroa Place and Anaheim Street (from LOS D to LOS E),
- Figueroa Place and "I" Street/110 on-ramp (from LOS D to LOS E), and
- Gaffey Street and Channel Street (from LOS C to LOS E).
- Gaffey and Palos Verdes Drive No./Normandie/Vermont/Anaheim Street (from LOS B/C to LOS D).

The proposed Tosco CARB RFG Phase 3 project is expected to decrease the number of tanker calls to the Port by about 11 ships per year. Therefore, no significant impact to the Long Beach/Los Angeles Harbor system is expected. The Equilon, ARCO, Ultramar and Mobil refineries all expect to have a change in the number of tanker calls into the ports of Los Angeles and Long Beach, but the amount of increase/decrease has yet to be determined, and will be addressed in their respective EIRs.

Mitigation Measures

Mitigation measures have been developed for the proposed project as well as the other projects to reduce the traffic impacts to the Wilmington area. Traffic Control Plans will be required for construction of the various pipeline routes in order to minimize traffic impacts. The Traffic Control Plan would specify the permitted hours of construction (generally off-peak hours), method of safeguarding traffic flow, method of re-routing or detouring traffic if necessary, the placement of traffic control devices (including signs,

flashing arrows, traffic cones and delineators, barricades, etc.) and flaggers (if needed), temporary modifications to existing signals and signal timing (if necessary), and others. The Traffic Control Plan will need to be approved by the local cities to ensure that public safety will not be endangered, and traffic impacts will be reduced to a minimum.

Level of Significance After Mitigation

The cumulative impacts on construction traffic are expected to be mitigated to a level of insignificance due to implementation of the above mitigation measures. The cumulative impacts on traffic following construction are expected to be significant at five intersections.

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