CHAPTER 5
CUMULATIVE IMPACTS

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CHAPTER 5.0

CUMULATIVE IMPACTS

A. INTRODUCTION

CEQA Guidelines §15130(a) requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in §15065(c). There are a number of projects proposed for development in the vicinity of the Refinery, which may contribute cumulative impacts to those generated by the Proposed Alkylation Improvement Project. 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. Most of the construction associated with the reformulated fuels modifications were completed in order to supply reformulated gasoline as required by Executive Order D-5-99 and the resulting CARB RFG Phase 3 requirements by December 31, 2003. 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 herein if the major portion of construction is expected to occur during the same construction period as the Alkylation Improvement Project project, i.e., 2004 and 2005.

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 numbers are used to identify the related projects throughout the discussion of cumulative impacts. Local impacts were assumed to include projects which would occur within the same timeframe as the Alkylation Improvement Project and which is within a one-mile radius of the Refinery. These projects generally include other Refinery projects, port-related projects, Alameda Corridor projects, and projects in near-by cities. Regional impacts were assumed to include projects throughout the basin, e.g., all refineries.

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

B. LOCAL REFINERIES

1) Conoco-Phillips

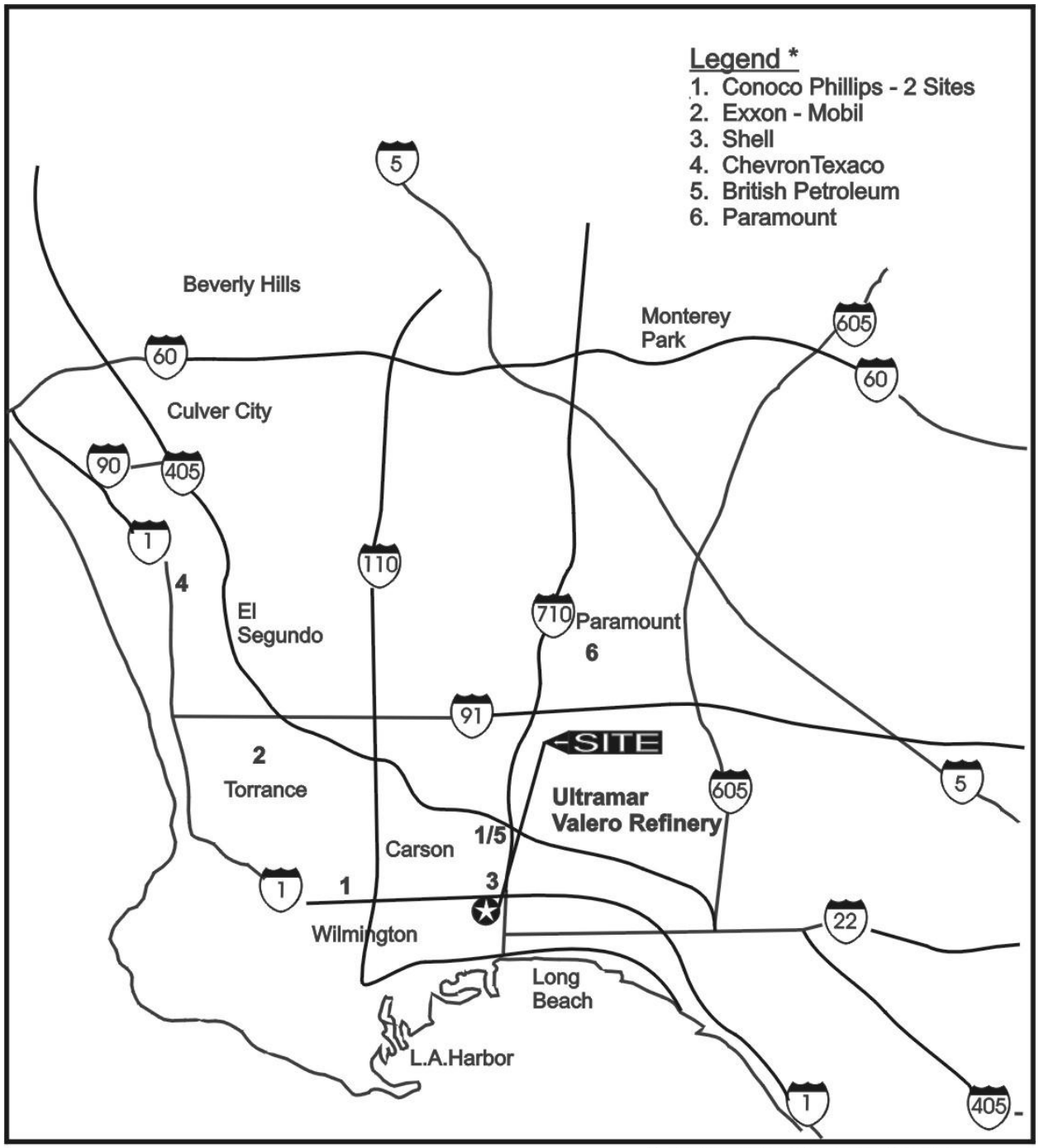
The Conoco-Phillips Refinery (formerly Tosco and Unocal) is approximately three miles west of the Refinery. It consists of facilities at two locations (Wilmington and Carson) approximately three miles apart. The two integrated sites transfer raw, intermediate, and finished materials primarily by pipelines. Finished products are transferred from the Wilmington location via the Torrance Tank Farm pipeline to distribution terminals in the

southern California area or to interstate pipelines. Conoco-Phillips proposed to modify existing process units at the Wilmington Plant in order to produce gasoline in compliance with CARB's Phase 3 requirements (SCAQMD, 2001). Modifications to the following units were proposed:

- Alkylation Unit (fractionation equipment, refrigeration compressor system, pumps, heaters and exchangers)
- Acid Plant (vapor recovery system)
- Butamer Unit (pumps)
- Catalytic Light Ends Fractionation Unit (fractionation equipment, pumps and piping)
- Rail Car Offloading Facilities
- Butane Storage Tank System
- Storage Tank System
- Utilities (the nitrogen, steam, water, condensate, electrical, hydrocarbon relief, and fresh/spent acid systems).

Associated modifications and additions to storage facilities, pipelines and support facilities were also proposed (SCAQMD, 2001). An Addendum to the Final EIR was prepared to include modifications to the Los Angeles Terminal including expansion of rail service at the terminal to include the unloading of ethanol.

In addition to the CARB Phase 3 project, Conoco-Phillips has been issued permits for an Ethanol Import and Distribution Project. In order to produce gasoline without MTBE earlier than required by the Governor's Executive Order and to remain compliant with state and federal reformulated fuel standards, Conoco-Phillips replaced MTBE with ethanol. This project was 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. A Negative Declaration has been completed (SCAQMD, 2000b) and approved for this project. Because this project was found not to have any significant effect on the environment, no cumulative impacts are expected.



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* Project numbers correspond to the project numbers discussed in the text of Chapter 5.

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REGIONAL MAP SHOWING REFINERIES

Figure 5-1

Project No. 2185

N:\2185\Regional

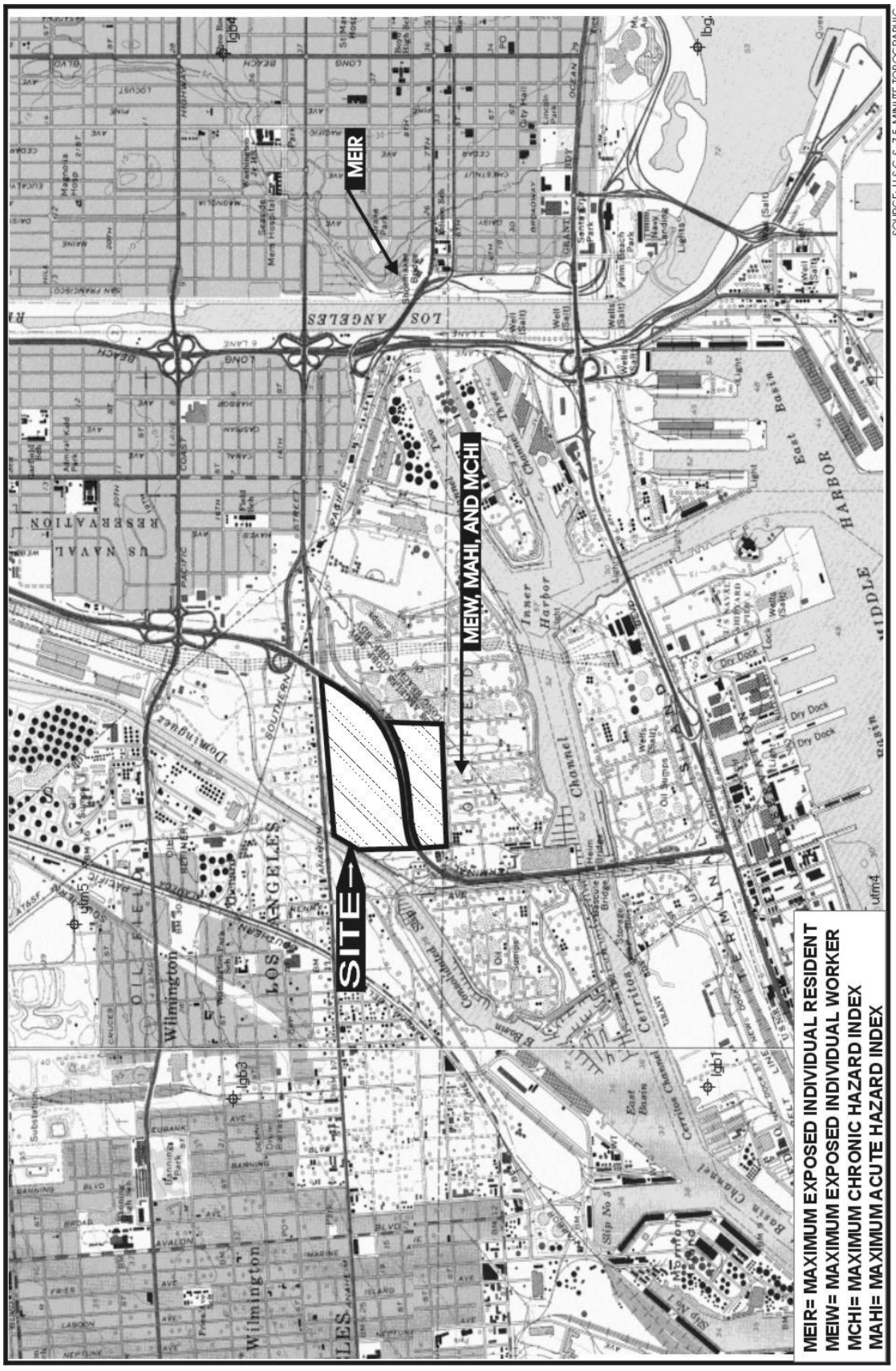

MEIR
MEIW, MAHI, AND MCHI
SITE
MEIR= MAXIMUM EXPOSED INDIVIDUAL RESIDENT
MEIW= MAXIMUM EXPOSED INDIVIDUAL WORKER
MCHI= MAXIMUM CHRONIC HAZARD INDEX
MAHI= MAXIMUM ACUTE HAZARD INDEX
SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, LONG BEACH AND TORRANCE, CA
SITE LOCATION & MAXIMUM IMPACT MAP
ULTRAMAR INC. -
VALERO WILMINGTON REFINERY
ENVIRONMENTAL AUDIT, INC.
Project No. 2185
N:\2185\Site Loc. & Max. Impact Map (Fig 5-3)

Figure 5-3

2) Exxon-Mobil

The Exxon-Mobil refinery is located at 3700 W. 190th Street in Torrance, about twelve miles northwest of the Refinery. The 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, KOH Tower
- 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)
- One new pentane sphere

Associated modifications and additions to storage facilities, pipelines and support facilities were also proposed (SCAQMD, 2001a and SCAQMD 2003c). The Torrance refinery and loading rack, and the Vernon and Anaheim distribution terminals are located at least 15 to 25 miles from the Refinery so cumulative impacts are not expected to occur.

3) Shell

The Shell refinery (formerly Equilon and Texaco) is located at 2101 East Pacific Coast Highway, Wilmington. Shell's Wilmington Terminal is located adjacent to the southwestern portion of its 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 Shell project also required changes to Shell's other southern California area distribution terminals located in Signal Hill, Carson, Van Nuys, and Colton/Rialto. The RFG Phase 3 project included the following proposed modifications:

- 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)
- Hydrotreater Unit No. 1
- Catalytic Reforming Unit No. 2 (sulfur guard reactor)
- Fractionator Changes (HCU Main Fractionator, FCCU Debutanizer, Feed Prep Tower, Depentanizer, Alky Deisobutanizer, Alky Debutanizer and C4 Isomerization Deisobutanizer, and HCU Depropanizer)
- Refinery Storage Tank modifications
- Storage Tanks (at Wilmington, Carson, Signal Hill, Van Nuys, and Colton/Rialto Terminals)
- Pentane Sphere
- No. 2 (debutanizer tower)
- Flare
- Vapor Recovery Systems
- Carson Terminal (included storage tanks modifications and a new truck loading rack)
- Lomita Terminal (included an ethanol railcar unloading facility)
- Signal Hill Terminal (included storage tank and truck loading rack modifications)
- Colton/Rialto Terminal (included storage tank and truck loading rack modifications)
- Van Nuys Terminal (included storage tank and truck loading rack modifications)
- Marine Terminal (included storage tank modifications)
- Wilmington Terminal (included storage tank and truck loading rack modifications)

Associated modifications and additions to storage facilities, pipelines and support facilities were also proposed (SCAQMD, 2001b and SCAQMD 2002). The Shell Refinery is located about one mile north of the Refinery. The Shell terminal in Signal Hill, is located at least eight miles from the Refinery and the Van Nuys and Colton/Rialto Terminals are located over 50 miles from the Refinery**.** The Van Nuys and Colton/Rialto Terminals are located far enough away that cumulative impacts are not expected to occur.

4) ChevronTexaco

The ChevronTexaco refinery (formerly Chevron) is located at 324 West El Segundo Boulevard in El Segundo, California, about twenty miles northwest of the Refinery, which is a sufficient distance to avoid cumulative localized impacts with the Refinery. The ChevronTexaco refinery proposed to modify existing process operating units, construct and install new equipment, and provide additional ancillary facilities in order to

produce the RFG Phase 3 reformulated gasolines (SCAQMD, 2001c). 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 (change of service)

The proposed project also included modifications to the ChevronTexaco Montebello Terminal (storage tank and loading rack modifications and a new ethanol railcar unloading facility), the Van Nuys Terminal (storage tank and loading rack

modifications), and the Huntington Beach Terminal (storage tank and loading rack modifications) (SCAQMD, 2001c).

Due to the distance separating the ChevronTexaco refinery and terminals from the refinery, no cumulative impacts are expected during the construction or operation of the proposed project.

5) British Petroleum

The British Petroleum (BP) Refinery (formerly ARCO), located at 1801 E. Sepulveda Boulevard in Carson, is approximately three miles north of the Refinery. Because of the location of this Refinery adjacent to the Wilmington area, this project will be included in the cumulative analysis. The BP 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 RFG Phase 3 project also required changes to BP's other southern California area distribution terminals located in South Gate, Rialto, Long Beach, and Signal Hill (SCAQMD, 2001d). The proposed new refinery units include:

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

Modifications to existing refinery units included the following:

- Light Hydro Unit (modify heat exchangers; new exchangers, piping pumps and control systems)
- Isomerization Sieve (convert unit to hydrotreater; modifications 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 exchangers)
- 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 distribution storage facilities, pipelines and support facilities also are expected (SCAQMD, 2001d).

6) Paramount Refinery

The Paramount refinery is located in the City of Paramount at 14700 Downey Avenue and is approximately twelve miles northeast of the Refinery, which is a sufficient distance to avoid cumulative impacts with the Refinery. The Paramount refinery is proposing modifications that will allow it to produce gasoline and diesel fuels for California markets (SCAQMD, 2003). The refinery is proposing to install the following equipment.

- Naphtha Splitter,
- Benzene Saturation and Isomerization Unit,
- Light Naphtha rundown chiller,
- Ethanol Unloading and Blending facilities, and
- Pressure Swing Adsorption Unit.

Additionally, the Refinery proposes to: convert its existing Light Naphtha Stabilizer from a fired reboiler to a steam reboiler; modify an HDS unit to improve the quality of Reformer feed; modify its existing butane loading and unloading rack to accommodate pentane loading; change the service of two existing internal floating roof storage tanks; and modify its existing gasoline blender to handle the additional blendstocks needed to produce RFG. Construction of this project is expected to begin in 2004.

C. OTHER RELATED PROJECTS

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

Port of Los Angeles/Port of Long Beach 2020 Plan

Development at the Port of Los Angeles and the Port of Long Beach is projected to double by the year 2020. 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. (USACE, 1990). 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.

7) Port of Long Beach

The Port of Long Beach is planning a variety of improvements as supported by the Port of Long Beach Facilities Master Plan (FMP). The FMP 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. Some of these objectives are detailed in the Mega-Terminal Plan (Port of Long Beach, 2003a) which calls for the consolidation and redevelopment of seven of the eight existing container terminals into five large terminals. Several near-term projects at the Port of Long Beach are listed below.

Construction of a new 389-acre Pier T marine terminal: Pier T was formerly the Long Beach Naval Station. Phase I of this project, included a 3,500 foot wharf and channel deepening of the West Basin. Called the port's first "mega-terminal", it was completed in August of 2002. Phase II will include the completion of an additional 1,300-foot concrete wharf in the fourth quarter of 2004 (Port of Long Beach, 2003b).

Construction of a new liquid bulk terminal on Pier T: In May of 2003, the Long Beach Board of Harbor Commissioners approved a Letter of Intent for a subsidiary of Mitsubishi Corporation to develop the liquefied natural gas (LNG) terminal to service larger vessels, on twenty-seven acres of land at Pier T. Most of the natural gas will be distributed in southern California. The Federal Energy Regulation Commission will conduct a two-year study of the impact on the environment (Port of Long Beach, 2003c). The impacts related to this project are still being evaluated.

Construction of a new 198-acre Pier S marine terminal: The U.S. Army Corps of Engineers has issued a Notice of Intent to Prepare a Draft Environmental Impact Statement (EIS) for the Pier S Terminal Project. The development of Pier S would result in a 160-acre marine container terminal and include dredging wharf construction and container cranes, container yard, terminal buildings and truck gates, and an intermodal rail yard. The Draft EIS is expected to be available in Spring 2004. (U.S. ACE, 2003).

Consolidation of existing Piers G and J into one of the five mega-terminals: This project includes redeveloping a 54-acre landfill at the consolidated Pier, dredging, and expanding the secondary gate. Phase 1 of the four-phase improvement project included completion in March of 2003 of the $10 million Secondary Gate. Phase II is underway and includes construction of a $42 million

wharf scheduled for completion in early 2004 (Parsons Brinckerhoff, 2003). The project is expected to create a 300-acre marine terminal when finished.

Consolidation of existing Piers D and E: Consolidation and redevelopment of the existing Piers D and E marine terminals would create 45 acres of new land and relocate adjacent tenants. This will include dredging, wharf construction, and construction of an intermodal rail yard (Port of Long Beach, 2003).

Consolidation of existing Pier A: Redevelop oil field property and relocate adjacent tenants.

Consolidation of existing Pier J: The Port of Long Beach is proposing to develop 115 acres of landfill on Pier J to develop a marine terminal of up to 385 acres by consolidating and expanding the existing Pacific Container and Maersk Container terminals. Approximately 270 acres is existing land and the project would develop an additional 115 acres. To address concerns raised about air quality and cumulative impacts, the Port of Long Beach and Army Corps of Engineers circulated an updated Draft EIS/EIR on the Pier J Terminal for public review and comments (U.S. Army Corps of Engineers, 2003b).

The Refinery is located adjacent to the Port of Long Beach so that all the port-related projects will be included in the cumulative analysis, to the extent that data are available.

8) Port of Los Angeles

The Port of Los Angeles is located in San Pedro Bay approximately five miles southwest of the Port of Long Beach. The Port of Los Angeles also anticipates increased growth in cargo volumes and the supporting infrastructure of ships and terminals of approximately ten percent annually in the next ten years. The Port of Los Angeles initiated the Port Master Plan to meet the demand, in addition to various beautification projects designed to make the area more attractive to visitors, residents and businesses. The following projects will allow the port to meet its goals.

Channel Deepening

The Port of Los Angeles is 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. 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 also navigation channels and other existing facilities would need to be optimized (USACE, 2000a).

In January 1998, the port approved the Channel Deepening Project EIR that addressed deepening the main channel, associated channels and turning basins,

and disposal of the dredged channel sediments. Phase I of the project was completed in 2002 and mainly included the construction activities at Pier 400 outlined in the paragraph below. Phase II's focus is on dredging activities, this started in January of 2003 and is scheduled to be completed in August of 2004. (Marine Exchange of Southern California, 2002).

Pier 400

Pier 400 makes up a part of the southern terminus of the Alameda Corridor which is described in detail below. Phase I included construction of a submerged material storage site and a fill area and was completed in August 2002. Phase II, due to be completed in May 2004, is currently underway. Phase II general plan calls for development of backlands, wharves and terminal buildings, widening of the channel, a four lane highway, and storage facilities (Port of Los Angeles, 2003a).

China Shipping Line Berths 97-109

Berths 97-109 are located in the northwestern portion of the Port of Los Angeles. The proposal calls for construction of a new container complex to be operated by the China Shipping Holding Company. Phase I will reassess the completion of several elements of the project plan, including a new wharf at Berth 100, a rock dike construction and channel deepening. The uncompleted elements of Phase I will cover construction of container terminals, a bridge and terminal buildings and structures. Phase II, scheduled for 2005 will construct and operate a new wharf at Berth 102 and a new 376 linear foot extension at the southern end of the wharf at Berth 100. A new container terminal will be developed on backlands. A rock dike, concrete piles, and a second bridge to facilitate cargo movement between the terminals will also be constructed. Phase III is scheduled for 2010 completion and will include the expansion of the backland container storage capacity by an additional twenty acres by redeveloping the Catalina Terminal area and the former Todd Shipyard (U.S. Army Corp of Engineers, 2003).

Beautification Projects

The Port of Los Angeles has several on-going programs to make the port area more attractive to local residents, tourists and businesses.

- **The Urban Forest** program focuses on the shoreline adjacent to Pier 400. It includes extensive landscaping and tree planting.

- **Wilmington Window on the Water**. In August 2003, the Los Angeles Board of Harbor Commission, voted to establish a "Wilmington Window on the Water" master plan in order to improve access to the waterfront. Designated as "Planning Area 4", it is bounded on the north and east by an

existing rail line and on the west by Fries Avenue and on the south by Slip 5. This plan calls for removal of shipping containers and steel tanks in the area, or recommendations from the nearby community for alternative uses of the tanks and containers. General beautification activities are also planned which includes landscaping and streetscaping. The tentative kick off date for planning and design is scheduled for mid-2004. (Personal Communication, Tony Gioiello, Port of Los Angeles).

- **San Pedro Waterfront Promenade.** In an effort to help the community recapture the "blighted" waterfront area of San Pedro, a California State plan has been established to develop the area covering all property east of Harbor Boulevard to the edge of the Main Channel and south of Fire Station No. 112 to the south side of the Vincent Thomas Bridge. The goals are to improve public access to the waterfront, provide connections to the existing Cruise Center, Ports o'Call Village, residential areas, and the old downtown area of San Pedro. These goals will be accomplished by demolishing old buildings and removing vestiges of the heavy industrial zoning that has dominated the area. Phase I of the project begins at the Vincent Thomas Bridge and is scheduled to start in Spring of 2004. The project will span four to five years. (Port of Los Angeles, 2003b, and Personal Communication, Tony Gioiello, Port of Los Angeles).

- **Cabrillo Marina Phase II**. Plans are underway to deepen and expand the Cabrillo Marina in San Pedro. This project is currently in its design phase and includes minor dredging of the Marina, shoreline reconfiguration, landfilling, site improvements and construction of new boat slips. The project is anticipated to take two years to complete. (Personal Communication, Tony Gioiello, Port of Los Angeles).

In general, many of the 2020 improvements will take place within the harbor area and will include dredge and fill activities, excavation of the existing shoreline, disposal of excavated material, and deepening of the Cerritos Channel. Even though these activities are within a short distance of the Refinery, the existing timeline for construction related to some of the projects will not coincide with the Refinery's proposed project, so that cumulative localized impacts are not expected. The Refinery is located adjacent to the Port of Los Angeles so that all the port-related projects will be included in the cumulative analysis, to the extent that data are available.

9) Alameda Corridor Transportation Authority (ACTA)

Two additional master planning documents have been developed to address traffic and rail transportation issues related to the projects of the Facilities Master Plan. Explicit in these plans are issues related to truck and vehicular traffic anticipated in future port development. Currently, the regional, transportation-traffic 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 Refinery.

The Alameda Corridor Transportation Authority is an inter-agency, inter-governmental commission that is the lead agency for a number of projects. These projects are 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 EIR that was finalized in 1992 (ACTA, 1992).

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 have been or 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 (ACTA, 1992). Construction of the Alameda Corridor is largely complete. However, several projects are still under construction, or proposed for construction, and because of their location in relation to the Refinery, are included in the cumulative analysis to the extent that data are available.

- **Pacific Coast Highway Grade Separation:**

  A grade separation is currently under construction at Pacific Coast Highway (PCH) and Alameda Street. The project includes constructing an elevated bridge along PCH so that traffic would be routed over the railroad tracks at Alameda. 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. The lead contractor was selected and the project is currently underway with a completion date set for Summer 2004. Construction will require the closure of PCH between the Terminal Island Freeway and Coil Avenue starting in May 2003 and lasting until Spring 2004. Mitigation measures to minimize the inconveniences to the public include enforcement of rules that prohibit commercial trucks from using residential streets during construction, adding and sychronizing traffic signals and turn lanes and re-striping roads on the detour routes (ACTA, 2003b).

- **Street Improvements by Other Agencies:**

  ACTA and Caltrans are studying the feasibility of a dedicated expressway for truck traffic in and out of the port area, from the Commodore Heim Bridge to Alameda Street near PCH. This project is currently in its conceptual stage and has not been approved for construction (ACTA, 2003c).

10) City of Long Beach

The City of Long Beach has several projects planned for the near future.

- **Pike at Rainbow Harbor**

  This project is located on the Rainbow Harbor waterfront between the Long Beach Convention Center and the Long Beach Aquarium of the Pacific. Construction is nearly completed. The development features 370,000 square feet of waterfront restaurants and entertainment facilities. Distinguishing features will include a pedestrian bridge over Shoreline Drive and a turn-of-the-century carosel. This project is located four miles southeast of the Refinery (City of Long Beach, 2003).

- **CityPlace**

  CityPlace, an urban retail development in the heart of downtown Long Beach, covers eight city blocks and is bound by Third Street to the south, Sixth Street to the north, Pine Avenue to the west and Elm Avenue to the east. It covers 450,000 square feet with Phase I completed at the end of 2002. It consists of major department stores like Walmart and Ross Dress for Less, Albertsons, and Sav-On. Phase II includes 120 residential condominiums and 221 apartment rental units scheduled for completion in 2003. This project is located five miles east of the Refinery (City of Long Beach, 2003).

- **PacificCenter**

  This project is a mixed-use development of PacifiCenter by Boeing Realty on Lakewood Boulevard and the California State Long Beach Technology Park on the City's Westside. PacifiCenter at Long Beach will transform unused Boeing aircraft manufacturing buildings into a dynamic mixed-use community of offices, commercial development, neighborhood retail, a hotel and residential neighborhoods.

  The 260-acres of PacifiCenter, mixed-use development will offer a location with easy accessibility to Orange County and Los Angeles, and California State University at Long Beach's 32-acre parcel on former Navy-housing property is designed as a smart technology / light industrial park. An EIR has been prepared for this project. Anticipated occupancy date for the complex is 2005. This project is twelve miles north of the Refinery, so that no cumulative impacts are anticipated because of the distance from the Refinery (PacificCenter, 2003).

- **Second Street Bridge Seismic Retrofitting**

  The Los Angeles Department of Public Works is overseeing the seismic retrofitting of Second Street over Alamitos Bay. This project is eight miles east of the Refinery; it was started in February of 2003 and major construction activities have been completed. (LADPW, 2004) (Personal Communication, Neil Munaweera, Los Angeles County Department of Public Works).

- **The Long Beach Airport Runway**, which includes the rehabilitation of several critical taxiways, the grading and stabilizing of certain areas to comply with FAA standards, the construction of blast pads, and installation of lighting control systems (City of Long Beach, 2004). This project is located twelve miles northeast of the Refinery.

- **Renovations to the Public Safety Building and Fire Station No.1**. This project is located in Belmont Shore District of Long Beach, four miles east of the Refinery and includes interior demolition of several floors, asbestos abatement, and extensive reconstruction (City of Long Beach, 2004).

Other projects within five to ten miles east of the Refinery include street improvements at Ocean Boulevard between Bay Shore Aveneue and 72nd Place, Long Beach Boulevard between Ellis Street and Artesia Boulevard, Long Beach Boulevard between 1st Street and 10th Street, Walnut Street between 3rd Street and Pacific Coast Highway. Construction of a Police Substation Development is planned in North Long Beach. Improvements are also planned for the Belmont Pier. The projects currently being developed by the City of Long Beach are located a sufficient distance from the Refinery (at least four miles), so that no cumulative impacts are anticipated.

11) City of Carson

- **Los Angeles MetroMall Site**

  This site is located approximately twelve miles north of the Refinery in the City of Carson at Del Amo and the 405 Freeway. It is considered to be premium real estate because of its size (157 acres) and proximity to the I-405 and I-110 Freeways. In 1987 and 1978 the City of Carson marketed the site as a possible stadium for a couple of football teams based in the Los Angeles area. In 1999 the National Football League (NFL) made a bid for the property but did not follow through with the transaction. In 2002 GMS Realty of Carlsbad made an offer to purchase the property with the goal of constructing a 1.3 million square-foot retail center. GMS Realty is currently in negotiations with Los Angeles MetroMall, the pension-owned firm who holds title to the property, to acquire the property for resale to the NFL. The site was previously a heavily contaminated landfill on the U.S.EPA's Superfund List. Remediation activities are currently ongoing. This project is located a

sufficient distance from the Refinery to avoid cumulative localized impacts with the proposed project (Los Angeles Times, 2003 and Personal Communication, Sheri Repp Loadsman, City of Carson).

- **Other Development Projects**

The City of Carson has many other on-going development projects, all within seven to twelve miles north of the Refinery. The following are examples of the larger construction projects (City of Carson, 2003). These projects are located a sufficient distance from the Refinery to avoid cumulative localized impacts with the proposed project.

- At the auto-row located on 223rd Street, several auto dealers, Superior Nissan, Mazda and Honda are constructing new car dealership facilities.

- At the corner of Figueroa and Torrance Boulevard, Carson Town Center, a 56 acre retail, restaurant, and industrial use project is under construction.

- Dominguez Technology Center located east of Cal State Dominguez Hills, covers 288 acres and is in its final phase of development with fifteen buildings in various stages of construction.

The projects currently being developed by the City of Carson are located a sufficient distance from the Refinery (at least four miles), so that no cumulative impacts are anticipated.

D. AIR QUALITY

CONSTRUCTION IMPACTS

Air quality impacts due to construction at the refineries for their RFG Phase 3 projects are expected to be temporarily significant since the SCAQMD thresholds will be exceeded. Construction for most of the RFG projects have been completed since the CARB Phase 3 gasoline is required to be sold by January 1, 2004. The construction phase of the proposed project will exceed the significance thresholds for CO, VOC and NOx (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). Mitigation measures to reduce air emissions associated with construction activities are necessary primarily to control emissions from heavy construction equipment and worker travel.

A number of port projects are in various stages of construction. In order to provide an estimate of cumulative construction emissions, emission estimates provided in the Port 2020 plan EIR were used (USACE, 1990). The Port 2020 Plan provided estimates of

construction activities at the Ports of Los Angeles and Long Beach through the year 2020. Current construction activities within the ports are related to implementation of the 2020 Plan, thus, providing an estimate of the current construction impacts. The worst-case construction emissions assumed that there is simultaneous dredging and grading in for two major projects, one in the Port of Los Angeles and one in the Port of Long Beach (USACE, 1990). Construction air quality impacts would be significant (USACE, 1990).

There will be construction emissions associated with other projects in the area including the Alameda Corridor projects (e.g., the construction of the Pacific Coast Highway overpass), but these emissions were not estimated and sufficient information does not exist to estimate these emissions. Therefore, additional adverse air quality impacts may occur due to construction activities.

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.

TABLE 5-1

AVAILABLE CUMULATIVE PROJECT
PEAK DAY CONSTRUCTION EMISSIONS
(lbs/day)[1]

ACTIVITY	CO	VOC	NOx	SOx	PM10
Ultramar Inc. – Valero Wilmington Refinery	*997*	*141*	*558*	*45*	*183*
Alkylation Improvement Project[2]	~~995~~	~~140~~	~~467~~	~~42~~	~~158~~
Paramount Clean Fuels Project[3]	308	32	76	6	118
Port Projects[4]	4,367	--	19,905	331	1,349
Cumulative Emissions	*5,672*	*173*	*20,539*	*382*	*1,650*
	~~5,670~~	~~172~~	~~20,448~~	~~379~~	~~1,620~~
SCAQMD Threshold Level	**550**	**75**	**100**	**150**	**150**
Significant?	**YES**	**YES**	**YES**	**NO**	**YES**

(1) Includes only those projects where public information is available.
(2) See Table 4-9
(3) SCAQMD, 2003
(4) USACE, 1990 (Scenario 4, assumes 8 hours of construction activities per day).

OPERATIONAL IMPACTS - CRITERIA POLLUTANTS

During operation, the transportation improvement projects and the various refinery CARB Phase 3 projects are all expected to reduce overall air emissions. However, there are localized increases for certain air pollutants (see Table 5-2). Direct stationary emission sources are generally subject to regulation. The emissions associated with the proposed project modifications, are shown in Chapter 4, Table 4-5.

The operation of the Alkylation Improvement Project will exceed SCAQMD thresholds for VOC and PM10, so air quality impacts are significant. The significance thresholds for the CO, NOx, and SOx for the Proposed Alkylation Improvement Project will not be exceeded.

TABLE 5-2

CUMULATIVE PROJECT
STATIONARY AND INDIRECT SOURCES
OPERATIONAL EMISSIONS
(lbs/day)(1)

SOURCE	CO	VOC	NOx	SOx	PM10
Ultramar Inc. – Valero Wilmington Refinery Alkylation Improvement Project(2)	483	275	202	190	268
ConocoPhillips Ethanol Import & Dist. Project	9	-54(1)	10	--	1
ConocoPhillips CARB RFG Phase 3	136	22	514	402	43
BP ARCO CARB Phase 3 Project	42	86	49	0	57
Shell CARB Phase 3 Project	2,213	482	2,030	71	57
ExxonMobil CARB Phase 3 Project	29	288	138	12	103
ChevronTexaco CARB Phase 3 Project	393	347	3,103	2,498	843
Paramount Clean Fuels Project	104	66	52	1	69
Port Projects(3)	12,425	NR	60,379	23,299	5,129
Cumulative Emissions	**15,834**	**1,512**	**66,477**	**26,473**	**6,570**
SCAQMD Thresholds	550	55	55	150	150
Significant (?)	YES	YES	YES	YES	YES

(1) Negative numbers represent emission reductions.
(2) See Table 4-5, includes both stationary and indirect sources.
(3) USACE, 1990 NR = Not Reported.

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.

The CARB Phase 3 projects at all of the local refineries will increase the criteria pollutants emitted from the refineries. It is expected that, due to the large number of changes at the refineries that are concentrated in the Wilmington/Carson areas, the local operational impacts will be significant.

On a regional basis, the CARB 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 statewide emission decreases from the mobile sources which use the reformulated fuels.

TABLE 5-3

CARB PHASE 3 EXPECTED STATEWIDE 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 cumulative projects are considered significant for CO, VOCs, NO_x, SO_x and PM10, since SCAQMD mass emissions thresholds are expected to be exceeded. Although operations will exceed the VOC significance threshold, 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 from the refineries. In addition, the CARB 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.

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 Refinery plus the proposed modified emission sources associated with the Alkylation Improvement Project. In addition, the potential cumulative impacts associated with the overlap of emissions from other refineries were addressed in the analysis provided below.

Ultramar Inc. – Valero Wilmington Post-Project Scenario

A comprehensive air dispersion modeling analysis and an HRA were 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 specific 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 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 with the 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 MEIW and MEIR 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 Worker

The predicted maximum cancer risk at the MEIW area due to exposure to projected post-project emissions was calculated to be 1.18×10^{-6} or about one per million. The location of the MEIW is the same at that for the baseline scenario and is shown in Figure 3-3. Table 5-4 shows major source contributions to the MEIW. About 19 percent of the cancer risk at the MEIW are attributed to emissions from Source No. 79, which includes the fugitive emissions from the southern portion of Unit 94 – Tank Farm. Other sources that contribute to the cancer risk include about 12 percent from Source No. 14 (the Hydrotreater heater stack) and 11 percent from Source No. 82 (fugitive emissions from the northern and eastern portions of Unit 94 – Tank Farm). Emissions of hexavalent chromium are responsible for about 47 percent of the MEIW risk, followed by PAHs (34 percent) and benzene (10 percent) (see Table 5-5).

TABLE 5-4

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

Source No.	Source Name	Percent Contribution
79	FUG 94-2 South	18.96
14	Hydrotreater Heater Stack	12.32
82	FUG 94-3 North East Area	11.03
17	Boiler	5.76
3	Vacuum Heater	5.48
16	Boiler	4.79
2	Crude Heater	4.60
1	Crude Heater	3.91
77	FUG 94-1 West Area	3.48
6	Coke Heater	2.59
12	Unibon Heater	2.38
68	FUG 10,20,30	2.25
4	Vacuum Heater	2.22
13	Alkylation Heater	1.97
11	Unibon Heater	1.64
73	FUG 81	1.40
83	FUG 50,61,63,64,65,66,69	1.36

TABLE 5-5

TAC CONTRIBUTION TO CANCER RISK FOR POST-PROJECT SCENARIO MEIW

Toxic Air Contaminant	Cancer Risk	Percent Contribution
Acetaldehyde	2.10E-08	1.78
Aniline	8.49E-10	0.07
Arsenic	2.49E-08	2.11
Benzene	1.22E-07	10.38
Beryllium	3.67E-10	0.03
1,3-Butadiene	1.47E-08	1.25
Cadmium	5.78E-09	0.49
Chromium (Hex.)	5.53E-07	46.90
Dibenzochloropropane	1.61E-11	<0.01
Formaldehyde	2.14E-08	1.81
Lead	3.36E-10	0.03
Nickel	1.27E-08	1.08
Perchloroethylene	1.22E-09	0.10
PAHs	4.00E-07	33.96
Styrene	6.35E-11	0.01
1,1,2,2-Tetrachloroethane	8.99E-14	<0.01
Total	**1.18E-06**	**100**

Maximum Exposed Individual Resident

The predicted maximum cancer risk at the MEIR area due to exposure to projected post-project emissions was calculated to be 3.97×10^{-6} or about four per million. The location of the MEIR is the same as the baseline assessment and is shown in Figure 3-3. Table 5-6 shows major source contributions to the MEIR. About 38 percent of the cancer risk at the MEIR is attributed to emissions from Source No. 14, (Hydrotreater Heaters Stack). Fugitive emissions from the southern portion of Unit 94 contributed seven percent, and Crude Heater No. 2 contributed about six percent. Emissions of hexavalent chromium are responsible for about 71 percent of the MEIR risk, followed by PAHs (13 percent), and benzene (six percent). Exposure via the inhalation pathway (85 percent) accounted for most of the cancer risk, followed by ingestion of homegrown produce (ten percent), and soil ingestion (four percent) (see Table 5-7).

TABLE 5-6

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

Source No.	Source Name	Percent Contribution
14	Hydrotreater Heaters Stack	38.19
79	FUG 94-2 South	6.94
2	Crude Heater	5.68
1	Crude Heater	5.09
19	FCC Reaction/Separation Heater & Exhaust	4.45
9	Platformer Heater	4.00
12	Unibon Heater	3.39
82	FUG 94-3 North East Area	3.18
6	Coke Heater	3.01
3	Vacuum Heater	2.70
13	Alkylation Heater	2.29
11	Unibon Heater	2.01
17	Boiler	1.70
77	FUG 94-1 West Area	1.66
16	Boiler	1.62
92	New Truck Loading Rack in Area 22	1.48
68	FUG 10,20,30	1.23
10	Platformer Heater	1.02

The one per million cancer risk isopleth for the post-project scenario is shown in Figure 5-4. 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.

Cancer Burden

The cancer burden for the area surrounding the Refinery 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 0.35 and 0.018 for the residential and occupational populations, respectively. (See Volume II for further details.) The combined excess cancer risk was predicted to be approximately 0.368.

TABLE 5-7

TAC CONTRIBUTION TO CANCER RISK FOR POST-PROJECT SCENARIO MEIR

Toxic Air Contaminant	Cancer Risk	Percent Contribution
Acetaldehyde	6.96E-08	1.75
Aniline	1.58E-09	0.04
Arsenic	1.47E-07	3.70
Benzene	2.44E-07	6.14
Beryllium	1.24E-09	0.03
1,3-Butadiene	2.60E-08	0.66
Cadmium	2.36E-08	0.59
Chromium (Hex.)	2.83E-06	71.28
1,2-Dibromo-3-chloropropane	7.73E-12	0.00
Formaldehyde	5.71E-08	1.44
Lead	1.42E-09	0.04
Nickel	3.43E-08	0.86
Perchloroethylene	1.94E-09	0.05
PAHs	5.32E-07	13.40
Styrene	1.48E-10	0.00
1,1,2,2-Tetrachloroethane	5.23E-04	0.00
Total	**3.97E-06**	**100**

Sensitive Receptors

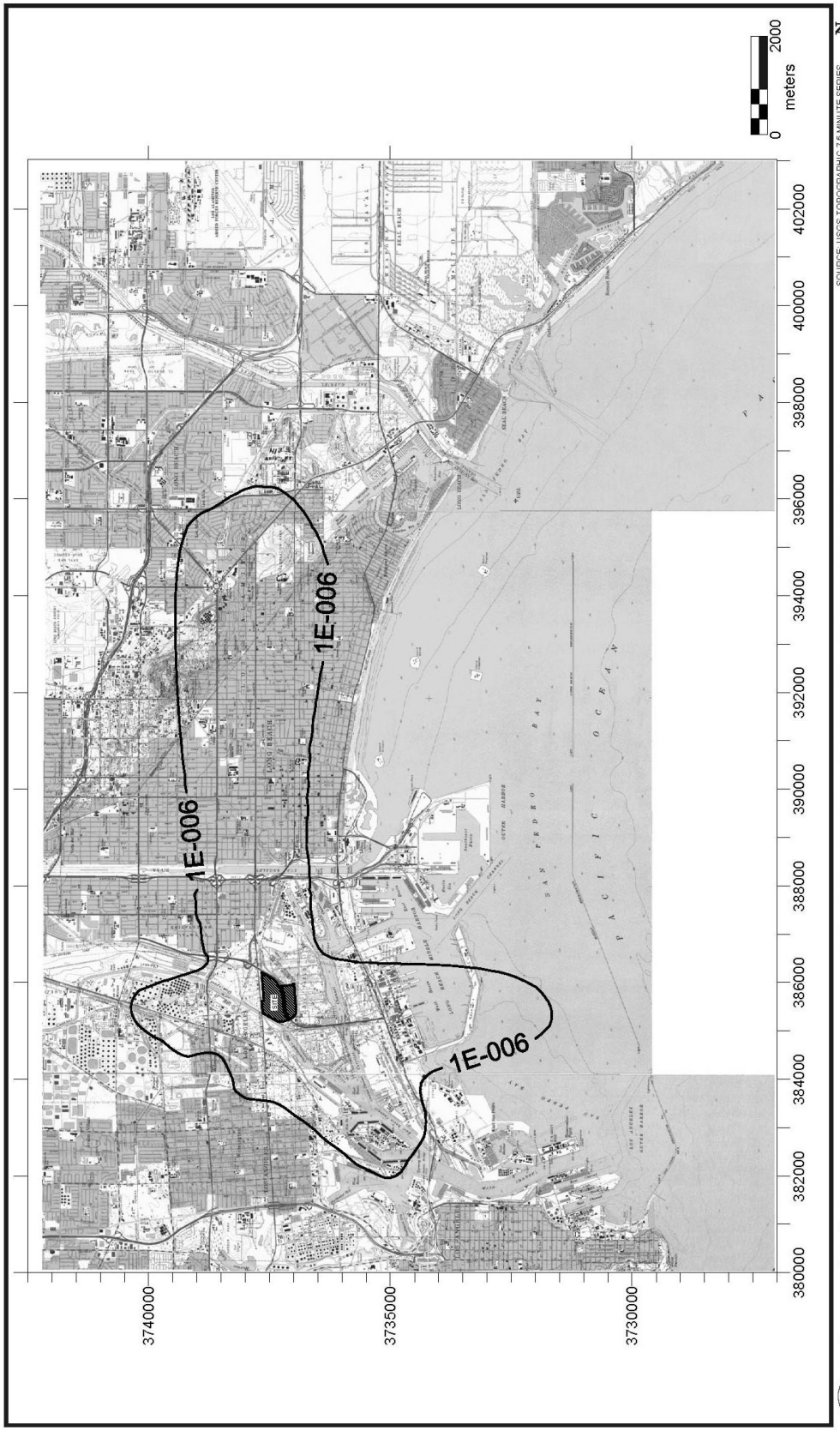
The maximum cancer risk to a sensitive receptor was estimated to be 3.55×10^{-6} or approximately four per million at the Edison School. This risk estimate is overly conservative as it is based on a 70-year continuous exposure period.

Post-Project HRA Results - Non-Carcinogenic Health Impacts

Acute Hazard Index

The highest acute hazard index for any single toxicological endpoint was estimated to be 0.796, at an occupational receptor, for the respiratory system, primarily due to exposure to acrolein (67 percent), (see Table 5-8).

Figure 5-3 goes here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POST PROJECT ONE PER MILLION CANCER RISK ISOPLETH
ULTRAMAR INC.
VALERO WILMINGTON REFINERY
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Chronic Hazard Index

The highest total acute hazard index for any single toxicological endpoint was estimated to be 0.074, at an occupational receptor, for the respiratory system, primarily due to exposure to hydrogen sulfide (35 percent), (see Table 5-9).

The cumulative impacts associated with the post-project scenario would be below the significance criteria for cancer risk of 10 x 10^{-6} and below the significance criteria for hazard indices of 3.0. Therefore, significant adverse cumulative impacts are not expected from the Refinery.

TABLE 5-8

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

CHEMICAL	REL (ug/m^3)	TARGET ENDPOINTS							
		CV	CNS	IMMUN	KIDN	LIVER	REPRO	RESP	EYE
Acrolein	1.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.68E-01	5.68E-01
Ammonia	3.20E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.77E-03	2.77E-03
Arsenic	1.90E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.82E-02	0.00E+00	0.00E+00
Benzene	1.30E+03	1.53E-03	0.00E+00	1.53E-03	1.53E-03	0.00E+00	1.53E-03	0.00E+00	0.00E+00
Carbon disulfide	6.20E+03	0.00E+00	1.96E-04	0.00E+00	0.00E+00	0.00E+00	1.96E-04	0.00E+00	0.00E+00
Copper	1.00E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-04	0.00E+00
Formaldehyde	9.40E+01	0.00E+00	0.00E+00	5.99E-02	0.00E+00	0.00E+00	0.00E+00	5.99E-02	5.99E-02
Hydrochloric acid	2.10E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.83E-04	2.83E-04
Hydrogen cyanide	3.40E+02	0.00E+00	3.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen fluoride	2.40E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-03	1.98E-03
Hydrogen sulfide	4.20E+01	0.00E+00	1.60E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-01	0.00E+00
Mercury	1.80E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.68E-03	0.00E+00	0.00E+00
Methyl chloroform	6.80E+04	0.00E+00	2.56E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl ethyl ketone	1.30E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-06	1.12E-06
Nickel	6.00E+00	0.00E+00	0.00E+00	2.48E-03	0.00E+00	0.00E+00	0.00E+00	2.48E-03	0.00E+00
Perchloroethylene	2.00E+04	0.00E+00	6.45E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.45E-06	6.45E-06
Phenol	5.80E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-05	1.94E-05
Styrene	2.10E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.16E-06	5.16E-06	5.16E-06
Toluene	3.70E+04	0.00E+00	1.75E-04	0.00E+00	0.00E+00	0.00E+00	1.75E-04	1.75E-04	1.75E-04
Xylene	2.20E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.94E-04	3.94E-04
TOTAL		**1.53E-03**	**1.60E-01**	**6.39E-02**	**1.53E-03**	**0.00E+00**	**3.38E-02**	**7.96E-01**	**6.34E-01**

Liver target endpoint had hazard indices of zero and is omitted from the table. CV - Cardiovascular; CNS – Central nervous system; IMM – Immune system; REP – Reproductive system; RESP – Respiratory system; EYE – Eyes, KIDN – Kidney.

TABLE 5-9

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

CHEMICAL	REL (ug/m^3)	TARGET ENDPOINTS							
		CV	CNS	IMMUN	KIDN	LIVER	REPRO	RESP	SKIN
Acetaldehyde	9.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.16E-03	7.16E-03	0.00E+00
Acrolein	6.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.10E-04	4.10E-04	4.10E-04
Ammonia	2.00E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.14E-03	6.14E-03	0.00E+00
Aniline	1.00E+00	0.00E+00	0.00E+00	0.00E+00	6.11E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	3.00E-02	1.25E-03	1.25E-03	0.00E+00	0.00E+00	0.00E+00	9.32E-04	9.32E-04	0.00E+00
Benzene	6.00E+01	0.00E+00	1.18E-03	0.00E+00	1.18E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Beryllium	7.00E-03	0.00E+00	0.00E+00	1.57E-04	0.00E+00	0.00E+00	1.55E-04	1.55E-04	0.00E+00
Butadiene-1,3	2.00E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cadmium	2.00E-02	0.00E+00	0.00E+00	0.00E+00	5.54E-04	0.00E+00	5.54E-04	5.54E-04	0.00E+00
Carbon disulfide	7.00E+02	0.00E+00	2.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chlorobenzene	1.00E+03	0.00E+00	0.00E+00	0.00E+00	3.64E-07	3.64E-07	0.00E+00	0.00E+00	0.00E+00
Chromium (hex.)	2.00E-01	0.00E+00	0.00E+00	0.00E+00	1.56E-04	1.56E-04	0.00E+00	0.00E+00	0.00E+00
Copper	2.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-05	2.85E-05	0.00E+00
Cresols	6.00E+02	0.00E+00	1.97E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Dibromo3chloropropane	2.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-07	1.81E-07	1.81E-07
Ethyl Benzene	2.00E+03	0.00E+00	0.00E+00	2.36E-05	2.36E-05	2.36E-05	0.00E+00	0.00E+00	0.00E+00
Formaldehyde	3.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.45E-03	8.45E-03	8.45E-03
Hexane	7.00E+03	0.00E+00	5.53E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrochloric acid	9.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-05	1.50E-05	0.00E+00
Hydrogen cyanide	9.00E+00	6.01E-04	6.01E-04	6.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Hydrogen fluoride	3.00E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.63E-04	6.63E-04	6.63E-04
Hydrogen sulfide	1.00E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.13E-02	4.13E-02	0.00E+00
Manganese	2.00E-01	0.00E+00	7.72E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mercury	9.00E-02	0.00E+00	5.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl chloroform	1.00E+03	0.00E+00	1.57E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl Ethyl Ketone	1.00E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Methyl methacrylate	9.80E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.16E-08	1.16E-08	0.00E+00
MTBE	8.00E+03	0.00E+00	0.00E+00	0.00E+00	1.36E-05	1.36E-05	0.00E+00	0.00E+00	1.36E-05
Naphthalene	9.00E+00	1.56E-03	0.00E+00	0.00E+00	1.56E-03	0.00E+00	1.56E-03	1.56E-03	0.00E+00
Nickel	5.00E-02	5.71E-03	0.00E+00	0.00E+00	5.71E-03	0.00E+00	5.71E-03	5.71E-03	0.00E+00
Perchloroethylene	3.50E+01	0.00E+00	0.00E+00	0.00E+00	1.50E-04	1.50E-04	0.00E+00	0.00E+00	0.00E+00
Phenol	2.00E+02	6.82E-05	6.82E-05	0.00E+00	6.82E-05	6.82E-05	0.00E+00	0.00E+00	0.00E+00
Propylene	3.00E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.37E-05	5.37E-05	0.00E+00
Selenium	2.00E+01	1.57E-06	1.57E-06	0.00E+00	0.00E+00	1.57E-06	0.00E+00	0.00E+00	0.00E+00
Styrene	9.00E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-06	0.00E+00	0.00E+00	0.00E+00
Toluene	3.00E+02	0.00E+00	8.30E-04	0.00E+00	0.00E+00	0.00E+00	8.30E-04	8.30E-04	0.00E+00
Xylene	7.00E+02	0.00E+00	4.12E-04	0.00E+00	0.00E+00	0.00E+00	4.12E-04	4.12E-04	0.00E+00
TOTAL		**9.18E-03**	**5.94E-03**	**7.82E-04**	**1.55E-02**	**4.15E-04**	**7.44E-02**	**7.44E-02**	**9.54E-03**

Liver target endpoint had hazard indices of zero and is omitted from the table. CV - Cardiovascular; CNS – Central nervous system; IMM – Immune system; REP – Reproductive system; RESP – Respiratory system; EYE – Eyes, KIDN – Kidney.

TAC Impacts from Other Proposed Projects

Table 5-10 provides a summary of the estimated TAC impacts associated with other projects to the extent that the data are available. Table 5-10 includes the operational impacts associated with the CARB Phase 3 projects; however, construction of these projects is essentially complete and these projects are operational since the CARB Phase 3 compliance date was January 1, 2004.

TABLE 5-10

SUMMARY OF HEALTH RISK FOR CUMULATIVE PROJECTS

FACILITIES	MEIR CANCER RISK	MEIW CANCER RISK	CHRONIC HAZARD INDEX	ACUTE HAZARD INDEX
Equilon Refinery & Wilmington Terminal[1]	5.20E-07	6.71E-07	0.4000	0.0740
Equilon Carson Terminal[1]	2.67E-07	6.00E-08	0.0005	0.0017
Equilon Mormon Isl. Terminal[1]	7.52E-07	--	0.0046	0.0010
Equilon Signal Hill Terminal[1]	3.97E-07	--	0.0023	0.0005
Equilon Van Nuys Terminal[1]	9.94E-08	--	0.0006	0.0003
Equilon Colton Terminal[1]	1.15E-06	--	0.0090	0.0016
Equilon Rialto Terminal[1]	3.65E-07	--	0.0022	0.0004
BP Refinery and Terminals[2]	2.10E-07	--	0.0166	0.0005
Chevron El Segundo Refinery[3]	5.00E-08	--	0.0300	0.0300
Chevron Huntington Bch Term[3]	1.10E-07	--	0.0001	3.50E-05
Chevron Montebello Terminal[3]	2.10E-07	--	0.0003	8.50E-05
Chevron Van Nuys Terminal[3]	1.90E-07	--	9.35E-06	0
Mobil Refinery[4]	1.40E-07	2.00E-08	0.0050	0.0010
Mobil Southwestern Terminal[4]	2.30E-08	--	1.82E-05	8.73E-06
Mobil Vernon Terminal[4]	5.30E-08	--	4.23E-05	2.20E-05
Mobil Atwood Terminal[4]	4.00E-08	--	3.17E-05	1.24E-05
Tosco Refinery[5]	2.93E-07	1.85E-08	0.0024	0.053
Tosco Marine Terminal[6]	--	1.20E-11	--	4.95E-09
Tosco Torrance Tank Farm[6]	1.66E-11	1.06E-13	--	9.74E-11
Tosco Los Angeles Terminal[6]	1.60E-11	2.56E-11	--	1.97E-11
Tosco Colton Terminal[6]	--	2.17E-11	--	7.55E-09
Paramount Refinery[7]	-5.11E-06	-6.76E-07	0.001	0.017
Port of Long Beach Pier J[8]	4.47E-06	--	0.0036	0.0026

(1) SCAQMD, 2001b. Only the maximum cancer risks were reported for the terminals.
(2) SCAQMD, 2001d. Only the maximum cancer risks were reported for all facilities.
(3) SCAQMD, 2001c.
(4) SCAQMD, 2001a.
(5) SCAQMD, 2001.
(6) SCAQMD, 2000b.
(7) SCAQMD, 2003.
(8) USACE, 2003b.

The location of some of the refineries and terminals in relation to the Ultramar Inc. Valero Wilmington Refinery is a sufficient distance such that cumulative TAC impacts are not expected. The projects which may overlap with the Alkylation Improvement Project include the Equilon Refinery and Wilmington Terminal, the BP Refinery and the Port of Long Beach Pier J project. The overlap in TAC impacts from these projects would be less than 10 per million and, therefore, less than significant.

An increase in toxic air contaminants associated with other projects (port related projects and projects in nearby cities) would also be expected mainly due to an increase in mobile source emissions. The proposed project and cumulative projects will lead to increased emissions of diesel exhaust particulate matter from diesel-fueled truck exhaust, diesel-fueled marine engines, diesel fueled railroad engines. In 1998, CARB listed particulate matter in the exhaust from diesel-fueled engines (diesel particulate) as a toxic air contaminant and concluded that it is probably carcinogenic to humans.

The SCAQMD MATES II study presents the regional cancer risk levels in the Basin (SCAQMD 2000c). Of the ten monitoring sites in the MATES II study, Wilmington is the closest site to the Refinery. The cancer risk at the Wilmington site, based on monitoring data, was about 380 per million from stationary and mobile sources. The cancer risk from mobile sources (alone) was about 240 per million. The MATES II study concluded that the total carcinogenic risk in the Basin currently exceeds thresholds of significance, even without the proposed project or related cumulative projects.

Therefore, since the project-specific toxic air contaminant impacts would not be significant, they are not considered to be cumulatively considerable. Existing emissions are being addressed through the Air Quality Management Plan, which provides measures to reduce emissions and help the Basin attain federal and state ambient air quality standards and the Air Toxics Control Plan. Some of these measures are aimed at reducing emissions of diesel-fueled engines, which will also reduce emissions of TACs.

MITIGATION MEASURES

For the construction period, the following mitigation measure will be imposed on the proposed project, since cumulative emissions are significant:

> During the project construction period, diesel powered construction equipment shall use low sulfur diesel as defined in SCAQMD Rule 431.2 to the maximum extent feasible.

The mitigation measures to minimize 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.

It should be noted that the ports are working on measures to minimize port-related emissions that could provide emission reductions or minimize future emissions. Examples of these measures include: (1) the use of electric container cranes; (2) the use of electric motors to drive conveyors and rail gantry cranes and loading/unloading equipment for trains, trucks, and ships; (3) the use of dock equipment powered by propane or natural gas; (4) most of the tugboats in the port plug into electrical power while they wait for their next calls instead of idling their engines; (5) new clean diesel technologies are also being tested and installed on some tugboats and heavy work boats; (6) the use of ultra-low emission diesel engines are being tested to reduce NOx emissions from tugboats by 80 percent; (7) the development of a Clean Engines and Fuels Program to incorporate alternative fuel vehicles into fleets; and (8) investigating the feasibility of using electricity to replace marine engines while at port (Port of Los Angeles, 2003c).

Further, the ACTA Corridor and related transportation improvement projects are expected to reduce port-related transportation emissions by improving transportation efficiency, reducing congestion, and the related air emissions.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

The cumulative air quality impacts due to construction and operation of the cumulative projects are expected to exceed the SCAQMD significance thresholds and are considered to be cumulatively significant. The project-specific toxic air pollutant health impacts would not be significant, and are not considered to be cumulatively considerable.

E. HAZARDS AND HAZARDOUS MATERIALS

CONSTRUCTION/OPERATIONAL IMPACTS

Although other refineries exist in the general vicinity of the Refinery, the cumulative impacts from and between the onsite operation of the other refinery 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 other refineries to the Ultramar Inc. – Valero Wilmington Refinery. The closest refinery to Ultramar Inc. – Valero Wilmington Refinery is the Shell Refinery located about one mile north of the Refinery. The new project-related explosion or fire hazard impacts associated with the proposed project are expected to travel less than 2,500 feet, which would not reach the other local refineries, so hazard impacts are not expected to be cumulatively considerable.

Hazardous materials may be shipped by containers through the ports, which may become involved in an accident or otherwise be released thereby posing a hazard to the public. It is estimated that five to 10 percent of containers transported into/out of the ports hold hazardous materials (USACE, 2003). 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, 2003).

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 adversely affect members of the public. A release of a toxic material could impact a slightly larger area depending on the material released, however, packaging constraints would still limit the potential adverse impacts to a relatively small area (USACE, 2003).

MITIGATION MEASURES

The proposed project impacts on hazards are considered to be significant. A number of existing rules and regulations apply to the Refinery and other refineries. Compliance with these rules and regulations is expected to minimize 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.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

The impacts of the various projects on hazards are not expected to be cumulatively considerable as hazards at or within one project area are not expected to impact or lead to hazards at other facilities.

F. HYDROLOGY AND WATER QUALITY

CONSTRUCTION/OPERATIONAL IMPACTS

For the proposed project, the project's contribution to water demand is less than significant because the established thresholds would not be exceeded.

The proposed project is not expected to result in a significant water demand increase at the Refinery because the established thresholds would not be exceeded. Therefore, the water demand for the proposed project is less than significant. Additionally, none of the other related projects in the vicinity are anticipated to have substantial water demands that cannot be met by local water suppliers. The refinery projects are not expected to generate a substantial increase in water demand and the other related projects (e.g, port-related projects) are not expected to generate a substantial increase in water use. Therefore, the proposed project and the cumulative projects are not expected to produce significant adverse cumulative impacts to water demand.

MITIGATION MEASURES

The proposed project impacts on hydrology/water quality were less than significant. Since no cumulative impacts were identified, no mitigation measures are required.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

The cumulative impacts on hydrology/water quality are considered to be less than significant.

G. NOISE

CONSTRUCTION IMPACTS

Construction phases of each of the related projects are expected to generate localized, short-term noise impacts, some of which may be significant during construction. Construction of the related refinery projects is largely complete so that no additional cumulative impacts are expected to occur with the proposed project. The use of muffling devices, restriction of work hours, etc. are expected to mitigate the increase in noise at most of the construction sites. Construction activities associated with pile driving for the 2020 Plan are expected to be significant.

The cumulative construction impacts associated with the related refinery projects are not expected to be significant or exceed noise ordinances.

Construction of some of the ACTA projects is expected to generate noise levels as high as 90 dBA at a distance of 50 feet during excavation phases and may result in significant noise impacts in residential areas (e.g., near Pacific Coast Highway and Alameda Street due to the construction of the overpass). Construction of the port-related projects is expected to raise the noise levels as a result of the increased intensity of site activities. Most of the port projects are located a substantial distance from sensitive noise receptors (over one mile) so that adverse noise impacts would be negligible (i.e., below the 70 dBA noise level threshold for construction noise). Further, construction activities are expected to be limited to daytime hours, which would further reduce the potential for impacts on residential areas.

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 about a one-half mile away from the Refinery. Also, about one mile separates the Ultramar Inc. – Valero Wilmington Refinery from other refineries, thus, it is unlikely that noise impacts will overlap.

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 residential areas adjoining Alameda Street (USACE, 1990). Operation of the Alameda Corridor concentrates train and truck noise along the corridor while reducing overall noise on other highways and railways. Therefore, the cumulative traffic noise impacts from these two projects are considered significant.

Operations of the new and expanded port facilities may raise noise levels as a result of the increased intensity of site activities such as crane loading, train traffic, truck traffic and miscellaneous vehicle movement. However, most of the port projects (especially the larger terminal projects) are located over a mile from sensitive noise receptors, which makes the potential adverse noise impacts negligible. Therefore, the noise impacts from the proposed project are not expected to be cumulatively considerable because other projects are located about a mile away from the Refinery providing sufficient distance so that noise impacts do not overlap and residential areas are located about one-half mile from the Refinery.

MITIGATION MEASURES

Since noise impacts from the Refinery proposed project are not considered to be cumulatively considerable, they do not contribute to significant adverse cumulative worse impacts. As a result, no mitigation measures are required. Mitigation measures to reduce noise impacts are outlined in the Alameda Corridor Final Draft EIR (ACTA, 1993) 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 ACTA project modifications. The noise impacts associated with the related refinery projects are not expected to be significant or contribute to significant adverse cumulative noise impacts during construction or operation.

H. TRANSPORTATION/TRAFFIC

CONSTRUCTION IMPACTS

Construction of the related refinery projects is largely complete so that no additional cumulative impacts are expected to occur at the same time. Construction of the ACTA projects would require complete reconstruction of the Alameda Street and PCH intersection. Extensive disruption to the local traffic circulatory system would occur, creating detours and affecting accessibility to businesses and residences. Most construction locations included as part of the ACTA projects would be subject to traffic disruption for between two and three years. Cumulative construction impacts on traffic from these projects are considered significant.

There will be improvement of traffic circulation once the ACTA projects have been completed. 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 ("latent demand"). It would fall to local jurisdictions to make improvements to the local streets affected.

Construction of the port-related projects 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 each project site. These impacts are considered to be significant adverse short-term impacts and mitigation measures would be required to minimize them.

The traffic analysis conducted for the proposed Alkylation Improvement Project indicates that two intersections show changes in the LOS due to the construction phase of the proposed project. The Alameda Street/Anaheim Street and 9th Street/"I" Street/Anaheim Street intersections will changes from LOS A to LOS B. The traffic changes at these two intersections are not considered to be significant impacts since free-flowing traffic would continue (i.e., LOS B) and no significance criteria are exceeded. The LOS at the other local intersections are expected to remain unchanged. Therefore, the proposed project's contribution to cumulative impacts on traffic during the construction phase would not be considered cumulatively considerable. Because of the distance between the proposed project and other related projects, it is unlikely that traffic from the proposed project will overlap to any extent with traffic from other related projects. Therefore, the proposed project's contribution to significant adverse cumulative construction traffic impacts are expected to be less than significant due to the distance between the Refinery and the other project locations.

OPERATIONAL IMPACTS

Table 5-11 shows the projected LOS analysis and volume to capacity ratios due to general growth in the area plus the proposed project (see Appendix D for details). These ratios were calculated assuming an ambient traffic growth of one percent per year annual traffic growth rate from year 2003 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:

- Alameda St./I-405
- Alameda St./223rd Ramp
- ICTF Entry/I-405 Ramps/Wardlow/223rd St. (a.m. peak hour)
- Alameda St./Sepulveda Blvd.
- Alameda St./PCH
- Alameda St./Anaheim St.
- Henry Ford Ave./Anaheim St (a.m. peak hour)
- Santa Fe Ave./Anaheim St.

TABLE 5-11

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

INTERSECTION	BASELINE (1)				IMPACTS(2)			
	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
Alameda St./I-405	A	0.426	A	0.436	A	0.481	A	0.492
Alameda St./223rd Ramp	A	0.305	A	0.341	A	0.343	A	0.383
ICTF entry/I-405 Ramps/ Wardlow Rd./223rd St.	A	0.519	A	0.574	A	0.588	B	0.651
Alameda St./Sepulveda Blvd.	A	0.416	A	0.365	A	0.470	A	0.412
Alameda St./PCH*	A	0.588	C	0.733	A	0.589	C	0.734
Alameda St./Anaheim St.	B	0.616	B	0.611	B	0.699	B	0.693
Wilmington Ave/223rd St.	C	0.718	D	0.826	D	0.817	E	0.940
Wilmington Ave/Sepulveda Blvd.	A	0.588	B	0.622	B	0.668	C	0.706
Santa Fe Ave./PCH	B	0.636	B	0.671	C	0.722	C	0.762
Henry Ford Ave./Anaheim St.	A	0.476	A	0.539	A	0.539	B	0.612
Santa Fe Ave./Anaheim St.	A	0.454	A	0.462	A	0.515	A	0.523
9th St/"I" St/Anaheim St.	A	0.597	A	0.539	B	0.678	B	0.612

(1) = based on 2003 traffic data, adjusted to 2005 when the proposed project will begin.
(2) = Impacts were calculated assuming an ambient traffic growth of one percent per year annual traffic growth rate from year 2003 to year 2020 (i.e., future growth) plus the proposed project and no changes in existing intersection geometrics.
V/C = Volume to capacity ratio (capacity utilization ratio)
LOS = Level of Service

Six 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:

- Wilmington Ave./Sepulveda Blvd.(from LOS A to LOS B)
- Santa Fe Ave./PCH (from LOS B to LOS C)
- 9th St./"I" St./ Anaheim St. (from LOS A to LOS B)

The p.m. peak hour at:

- ICTF Entry/I-405 Ramps/Wardlow Rd./223rd St. (from LOS A to LOS B)
- Wilmington Ave./Sepulveda Blvd. (from LOS B to LOS C)
- Santa Fe Ave./PCH (LOS B to LOS C)
- Henry Ford Ave./Anaheim St. (from LOS A to LOS B)
- 9th St./"I" St./ Anaheim St. (from LOS A to LOS B)

The change at the following intersection is considered significant impacts since traffic flow would be adversely impacted:

The a.m. peak hour at:

- Wilmington Ave./223rd St. (from LOS C to LOS D)

The p.m. peak hour at:

- Wilmington Ave./223rd St. (from LOS D to LOS E)

It should be noted that the proposed project impacts on traffic are considered to be less than significant since the proposed project traffic will not impact the Wilmington Avenue/223rd Street intersection (see Table 4-15 and Appendix D).

MITIGATION MEASURES

Mitigation measures are not required for the proposed project since the traffic impacts were less than significant (see Table 4-15). On a cumulative basis, general growth in the area may result in significant traffic impacts at the Wilmington Ave./223rd Street intersection. Traffic related to the Refinery does not impact this intersection (which is located about two miles away from the Refinery) and, therefore, does not contribute cumulative impacts to this intersection.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

The cumulative impacts on traffic following construction are expected to be significant at one intersection.

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