4.0 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This chapter provides an analysis of potential adverse environmental impacts associated with the Chevron El Segundo Refinery CARB Phase 3 Clean Fuels Project. Project construction and operation impacts to the affected environment of each resource discussed in Chapter 3 are analyzed in this section.

Pursuant to CEQA, this section focuses on those impacts that are considered potentially significant. An impact has been considered significant if it leads to a "substantial, or potentially substantial, adverse change in the environment." Impacts from the project fall within one of the following areas:

No impact - There would be no impact to the identified resource resulting from this project. For example, a project constructed at an existing facility, which has previously been surveyed and found to contain no cultural resources, would produce no impact to that resource.

Adverse but not significant - Some impacts may result from the project; however, they are judged not to be significant. Impacts are frequently considered insignificant when the changes are minor relative to the size of the available resource base or would not change an existing resource. For example, the addition of an industrial structure within an existing industrial facility complex would probably not produce a significant impact on visual resources.

Potentially significant but mitigatable to insignificance - Significant impacts may occur; however, with proper mitigation, the impacts can be reduced to insignificance. For example, a project affecting traffic flow during construction may have mitigation calling for temporary traffic controls that will keep the impacts within acceptable limits.

Potentially significant and not mitigatable to insignificance - Impacts may occur that would be significant even after mitigation measures have been applied to lessen their severity. For example, a project could require a considerable amount of water during construction. If the additional water required the commitment of all the reserves of a water district even after requiring the project to include all water conservation practices, the impact to this resource could be significant and not mitigatable to insignificance. Under CEQA, a significant impact would require the preparation of a Statement of Findings and a Statement of Overriding Considerations, i.e., the project benefits outweigh the significant damage to the environment, in order for the project to be approved.

Beneficial - Impacts would have a positive effect on the environment. For example, a project may produce a less polluting form of gasoline.

Mitigation measures for significant adverse impacts are also provided in this chapter. Mitigation measures are methods for minimizing or eliminating the effect of a project on the environment.

This chapter also provides suggested mitigation for effects that are temporary in duration and will not have a long-term adverse impact on the environment.

4.1 Air Quality

Project-related air quality impacts calculated in this environmental analysis will be considered significant if any of the significance thresholds in Table 4.1-1 are exceeded. Additionally, operational NO_x or SO_x emissions from stationary sources regulated by Regulation XX-Regional Clean Air Incentives Market (RECLAIM), will be considered significant if calculated project operational NO_x or SO_x emissions (RECLAIM criteria pollutants) plus the facility's Annual Allocation for the year the project becomes operational, including purchased RECLAIM trading credits for that year, are greater than the facility's Initial 1994 RECLAIM Allocation plus nontradeable credits, as listed in the RECLAIM Facility Permit, plus the maximum daily operation NO_x and SO_x emissions significance thresholds of 55 and 150 pounds per day, respectively, as listed in Table 4.1-1. Since the NO_x and SO_x emissions significance thresholds in the table are expressed in pounds per day, the facility's Initial 1994 RECLAIM Allocation plus nontradeable credits and the facility's Annual Allocation for the year the project becomes operational, including purchased RECLAIM trading credits, have been converted to pounds per day by dividing by 365 days per year. Operational NO_x and SO_x emissions from non-RECLAIM sources will be compared to the 55 and 150 pounds per day significance thresholds, respectively.

This section describes the air quality impacts that are anticipated to be associated with the proposed project. The section begins with a discussion of the activities that are anticipated to occur during the construction phase of the proposed project, the resulting estimated onsite and offsite air pollutant emissions, and the potential significance of those emissions. It then continues with a discussion of the potential sources of air pollutant emissions during the operational phase of the proposed project and the estimated net change in emissions from the Refinery and the terminals. The potential significance of changes in operational criteria pollutant emissions is then evaluated by comparison with emission thresholds, and the potential significance of changes in toxic air contaminant (TAC) emissions is evaluated through a human health risk assessment. The section concludes with a discussion of measures to mitigate potentially significant construction-related and operational air quality impacts.

Table 4.1-1
Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds			
Pollutant	**Construction**	**Operation**	
		Non-RECLAIM Pollutants	**RECLAIM Pollutants**
NO_x	100 lbs/day	55 lbs/day	15,533 lbs/day[a]
VOC	75 lbs/day	55 lbs/day	
PM_{10}	150 lbs/day	150 lbs/day	
SO_x	150 lbs/day	150 lbs/day	5,181 lbs/day[b]
CO	550 lbs/day	550 lbs/day	
Lead	3 lbs/day	3 lbs/day	

TAC, AHM, and Odor Thresholds	
Toxic Air Contaminants	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment) Hazard Index ≥ 3.0 (facility-wide)
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402
Ambient Air Quality for Criteria Pollutants	
NO_2 1-hour average annual average	 20 μg/m^3 (= 1.0 pphm) 1 μg/m^3 (= 0.05 pphm)
PM_{10} 24-hour annual geometric mean	 2.5 μg/m^3 1.0 μg/m^3
Sulfate 24-hour average	 1 μg/m^3
CO 1-hour average 8-hour average	 1.1 mg/m^3 (= 1.0 ppm) 0.50 mg/m^3 (= 0.45 ppm)

[a] Initial 1994 RECLAIM allocation (15,478 pounds per day) + Non-tradeable Credits (0 pounds per day) + 55 pounds per day.

b Initial 1994 RECLAIM allocation (5,031 pounds per day) + Non-tradeable Credits (0 pounds per day) + 150 pounds per day.

μg/m^3 = microgram per cubic meter; pphm = parts per hundred million; mg/m^3 = milligram per cubic meter; ppm = parts per million; TAC = toxic air contaminant; AHM = Acutely Hazardous Material

pphm = parts per million by weight

mg/m^3 = milligrams per cubic meter

4.1.1 Construction Emissions

Construction of the proposed project at the Refinery is scheduled to begin in January 2002 and be completed in September 2003. Construction is anticipated to take place Monday through Friday, from 6:30 a.m. to 5:00 p.m. Occasional night or weekend shifts may be required to maintain the construction schedule. For the most part, construction would occur during process turnarounds when the units would be undergoing scheduled maintenance.

The construction activities at the terminals would occur between January and October of 2002. The maximum duration for construction at an individual terminal would be six months. Construction activities would occur Monday through Friday, from 7:00 a.m. to 6:00 p.m. Occasional night or weekend shifts may be required to maintain the construction schedule.

Construction emissions can be distinguished as either onsite or offsite. Onsite emissions generated during construction principally consist of exhaust emissions (CO, VOC, NO_X, SO_X, and PM_{10}) from construction equipment, fugitive dust (PM_{10}) from grading and excavation, and VOC emissions from asphaltic paving and painting. Offsite emissions during construction typically consist of exhaust emissions from truck traffic and worker commute trips; road dust associated with traffic to and from the construction site; and fugitive dust (PM_{10}) from trucks hauling materials, construction debris, or excavated soils from the site.

Chapter 2 describes the modifications and new equipment that will require construction at the Refinery and at each of the terminals (see Tables 2.5-1 and 2.5-2). Emissions from the construction activities were estimated using anticipated construction equipment requirements along with the following emission estimating techniques:

- SCAQMD CEQA Air Quality Handbook, November 1993;
- U.S. EPA Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition;
- U.S. EPA Fugitive Dust Background Document and Technical Information Document for Best Available Control Measures, 1992;
- California Air Resources Board EMFAC 2000 on-road motor vehicle emission factor model;
- California Air Resources Board Emission Inventory Methodology 7.9, Entrained Paved Road Dust, 1997; and
- "Open Fugitive Dust PM10 Control Strategies Study," Midwest Research Institute, October 12, 1990.

Details of the emission calculation methodologies are provided in Appendix B.

Peak daily emissions associated with the construction activities, the anticipated construction schedule, the types of construction equipment, the number of construction equipment, and the peak daily operating time for each piece of equipment were estimated. Additionally, estimates were made of the number and length of daily onsite and offsite motor vehicle trips. Table 4.1-2 lists the anticipated schedule, peak daily construction equipment requirements, and peak daily motor vehicle trips for construction. Several pieces of construction equipment will be used for construction associated with several of the process units at the Refinery, and this equipment is listed under "Common Refinery Construction Activities" in the table. Equipment that is anticipated to be used only for construction associated with individual process units is listed separately. Motor vehicles and trips listed under "Refinery Construction Motor Vehicles" represent the peak daily anticipated motor vehicle usage during construction. The information in the table was developed from previous experience with similar refinery and terminal construction projects.

Table 4.1-2
Construction Schedule, Equipment Requirements, and Motor Vehicle Trips

Equipment/Vehicle Type	Number	Hours per Day Operation/Miles per Day per Vehicle
Common Refinery Construction Activities (1/1/02 - 9/30/03)		
300 Ton Crawler Crane	1	10
Forklift	5	6
Air Compressor, 230 hp	1	10
Concrete Pump	1	6
Scraper	2	10
Bulldozer	3	10
Grader	2	10
Vibratory Roller	2	10
Backhoe	3	10
Front End Loader	4	10
Hoe Ram	2	10
Wacker Packer Plate Compactor	5	6
Refinery Construction Motor Vehicles (1/1/02 - 9/30/03)		
Onsite pickup truck	12	20
Onsite flatbed truck	12	24
Onsite watering truck	2	30
Onsite dump truck	12	30
Onsite bus	8	20
Offsite construction commuter	262	50
Offsite heavy-duty delivery vehicle	40	20
Offsite haul truck	16	30
Offsite haul truck	4	400

Table 4.1-2 (continued)
Construction Schedule, Equipment Requirements, and Motor Vehicle Trips

Equipment/Vehicle Type	Number	Hours per Day Operation/Miles per Day per Vehicle
Alkylate Depentanizer Construction (1/1/02 - 10/31/02)		
200-Ton Crawler Crane	1	10
28-Ton Rough Terrain Crane	2	10
Welding Machine, 20 hp	6	10
Air Compressor, 230 hp	1	10
Isomax Depentanizer Construction (1/1/02 - 10/31/02)		
200-Ton Crawler Crane	1	10
28-Ton Rough Terrain Crane	1	10
Welding Machine, 20 hp	5	10
Air Compressor, 230 hp	1	10
Pentane Storage Sphere Construction (1/1/02 - 10/31/02)		
28-Ton Rough Terrain Crane	1	10
Air Compressor, 230 hp	2	10
Generator, 550 hp	2	10
Pentane Railcar Loading Facility Construction (1/1/02 - 10/31/02)		
100-Ton Rough Terrain Crane	1	10
28-Ton Rough Terrain Crane	1	10
Welding Machine, 20 hp	1	10
Air Compressor, 230 hp	1	10
Generator, 550 hp	1	10
NHT-1 Construction (1/1/02 - 9/30/02)		
230-Ton Crawler Crane	1	10
28-Ton Rough Terrain Crane	1	10
Welding Machine, 20 hp	2	10
Air Compressor, 230 hp	1	10
Additional Gasoline Storage Construction (1/1/02 - 9/30/02)		
55-Ton Rough Terrain Crane	1	10
28-Ton Rough Terrain Crane	4	10
8.5-Ton Carry Deck	1	8
Welding Machine, 20 hp	6	10
Air Compressor, 230 hp	1	10
Generator, 550 hp	4	10
FCC Emissions Reduction System Installation (10/1/02 - 9/30/03)		
140-Ton Crawler Crane	1	10
28-Ton Rough Terrain Crane	1	10
Welding Machine, 20 hp	5	10
Air Compressor, 230 hp	1	10

Table 4.1-2 (concluded)
Construction Schedule, Equipment Requirements, and Motor Vehicle Trips

Equipment/Vehicle Type	Number	Hours per Day Operation/Miles per Day per Vehicle
Alkylation Plant Modifications (10/1/02 - 9/30/03)		
8.5-Ton Carry Deck	1	8
Air Compressor, 230 hp	1	10
Montebello Terminal Construction (3/1/02 - 8/31/02)		
28-Ton Rough Terrain Crane	1	10
Forklift	3	10
Welding Machine, 40 hp	4	10
Air Compressor, 25 hp	3	10
Generator, 22 hp	1	10
Backhoe	2	10
Offsite construction commuter	28	60
Offsite heavy-duty delivery vehicle	7	60
Offsite medium-duty delivery vehicle	5	60
Offsite pickup truck	5	60
Van Nuys Terminal Construction (5/1/02 - 10/31/02)		
28 Ton Rough Terrain Crane	1	10
Forklift	2	10
Welding Machine, 40 hp	4	10
Air Compressor, 25 hp	1	10
Generator, 22 hp	1	10
Backhoe	1	10
Offsite construction commuter	20	60
Offsite heavy-duty delivery vehicle	7	60
Offsite medium-duty delivery vehicle	5	60
Offsite pickup truck	5	60
Huntington Beach Terminal Construction (1/1/02 - 6/30/02)		
28 Ton Rough Terrain Crane	1	10
Forklift	2	10
Welding Machine, 40 hp	4	10
Air Compressor, 25 hp	1	10
Generator, 22 hp	1	10
Backhoe	1	10
Offsite construction commuter	20	60
Offsite heavy-duty delivery vehicle	7	60
Offsite medium-duty delivery vehicle	5	60
Offsite pickup truck	5	60

The information in Table 4.1-2 was used to calculate onsite emissions from construction equipment exhaust and from fugitive dust PM_{10} emissions from grading.

The only major excavation at single locations will be the construction of the pentane railcar loading facilities, the pentane storage tank, and the new gasoline storage tanks. Minor excavation will occur during construction at other process units to install new foundations.

Onsite fugitive dust PM_{10} emission estimates were based on the following estimates of peak daily dust-generating operations:

- Maximum of 2,750 cubic yards of soil excavated per day, based on excavation of 82,500 cubic yards over a total of 30 working days. The total volume to be excavated was estimated from the anticipated areas and depths of the locations where excavation will occur.
- Maximum storage pile surface area of 0.154 acre based on excavation of 202,200 square feet over 30 days and the conservative assumption that the storage pile surface areas are the same as the excavated areas.
- Maximum daily haul truck trips as listed in Table 4.1-2.
- Maximum daily onsite vehicle travel as listed in Table 4.1-2.

All estimates of fugitive dust emissions assume that construction activities will comply with SCAQMD Rule 403 - Fugitive Dust, by watering active sites two times per day, which reduces fugitive dust emissions approximately 50 percent.

In addition to the combustion emissions associated with the operation of paving equipment used to apply asphalt materials, VOC emissions are generated from the evaporation of hydrocarbons contained in the asphalt materials. The maximum daily area anticipated to be paved during construction is 30,000 square feet (0.69 acre).

Architectural coating generates VOC emissions from the evaporation of solvents contained in the surface coatings applied to equipment, piping, storage tanks, etc. A VOC content of 3.5 pounds per gallon (lb/gal) (420 grams per liter) was assumed, based on the VOC limit specified in SCAQMD Rule 1113 for an industrial maintenance coating. The maximum daily volume of coating anticipated to be applied at the Refinery and at each of the three distribution terminals is estimated to be 10 gallons for touch-up purposes. The equipment to be installed at each site will be pre-painted to manufacturer specifications.

The maximum number and length of daily motor vehicle trips anticipated during each construction activity that is listed in Table 4.1-2 were used with the information about those trips in Table 4.1-3 to calculate peak daily emissions from both on- and offsite motor vehicles.

Table 4.1-3
Motor Vehicle Classes and Speeds During Construction

Vehicle Type	Vehicle Class	Speed (mph)
Onsite pickup truck	Medium duty truck (catalytic)	15
Onsite flatbed truck	Medium heavy-duty truck, diesel	15
Onsite watering truck	Medium heavy-duty truck, diesel	15
Onsite dump truck	Heavy heavy-duty truck, diesel	15
Onsite bus	Urban bus, diesel	15
Offsite construction commuter	Light duty truck (catalytic)	35
Offsite heavy-duty delivery vehicle	Heavy heavy-duty truck, diesel	25
Offsite medium-duty delivery vehicle	Medium heavy-duty truck, diesel	25
Offsite pickup truck	Light duty truck (catalytic)	25
Offsite haul truck	Heavy heavy-duty truck, diesel	25

Table 4.1-4 lists the estimated peak daily criteria pollutant emissions during construction for each process unit at the Refinery and for the construction at each terminal.

Table 4.1-4
Peak Daily Construction Emissions by Process Unit/Activity/Terminal

Process/Activity/Terminal	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	Exhaust PM_{10} (lb/day)	Fugitive PM_{10} (lb/day)	Total PM_{10} (lb/day)
Common Refinery Construction Activities	381.7	98.9	578.7	53.7	34.4	234.7	269.1
Refinery Construction Motor Vehicles	475.6	70.3	185.6	0.0	6.2	240.4	246.6
Alkylate Depentanizer Construction	38.5	10.1	81.7	7.8	5.0	0.0	5.0
Isomax Depentanizer Construction	31.9	8.0	65.8	6.4	4.0	0.0	4.0
Pentane Storage Sphere Construction	119.4	22.6	200.6	21.9	11.3	0.0	11.3
Pentane Railcar Loading Facility Construction	73.2	15.6	133.8	13.9	7.8	0.0	7.8
NHT-1 Construction	32.7	8.7	70.5	6.7	4.4	0.0	4.4

Table 4.1-4 (concluded)
Peak Daily Construction Emissions by Process Unit/Activity/Terminal

Process/Activity/Terminal	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	Exhaust PM_{10} (lb/day)	Fugitive PM_{10} (lb/day)	Total PM_{10} (lb/day)
Additional Gasoline Storage Construction	231.6	47.3	410.7	43.5	23.7	0.0	23.7
FCC Stack Emissions Reduction Installation	33.8	8.7	70.7	6.8	4.3	0.0	4.3
Alkylation Plant Modifications	14.5	3.0	25.8	2.7	1.5	0.0	1.5
Huntington Beach Terminal Construction	96.1	50.9	83.7	5.7	4.5	30.6	35.1
Montebello Terminal Construction	127.5	55.6	102.7	7.4	5.7	31.2	36.9
Van Nuys Terminal Construction	96.1	50.9	83.7	5.7	4.5	30.6	35.1

Because the emission generating activities listed in Table 4.1-4 are not anticipated to all take place at the same time, the overall peak daily construction emissions will not be equal to the sum of the peak daily emissions from all of the construction activities. Therefore, the anticipated overlap of construction at the various locations was evaluated to determine overall peak daily emissions. First, it was conservatively assumed that the peak daily emissions during construction at each overlapping location would occur at the same time. Next, the locations where construction is anticipated to be taking place were identified for each month of the entire construction period. The peak daily emissions from the construction activities taking place each month were then added together to estimate the total peak daily emissions during each month. Finally, the months with the highest peak daily emissions were identified.

The resulting peak daily emissions are anticipated to occur during a 2-month period that includes all of the construction activities except installation of the FCC stack emissions reduction facilities and modifications to the alkylation plant. The estimated emissions during this period are summarized in Table 4.1-5 along with the CEQA significance level for each pollutant. As shown in the table, significance thresholds are exceeded for all pollutants during construction. Most of the emissions are associated with construction activities at the Refinery, while emissions associated with construction at each of the terminals are below the significance levels. The emissions estimates represent a "worst-case," because they incorporate the assumption that construction activities at each location occur at the peak daily levels throughout the construction period. It is unlikely that the peak daily levels would actually occur at all locations where construction is taking place at the same time.

Table 4.1-5
Overall Peak Daily Construction Emissions Summary (Pre-mitigation)

Source	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	Exhaust PM_{10} (lb/day)	Fugitive PM_{10} (lb/day)	Total PM_{10} (lb/day)
Construction Equipment Exhaust	1,049.5	200.0	1,726.9	172.7	102.4	NA	102.4
Onsite Motor Vehicles	27.8	5.2	39.2	0.0	1.6	56.1	57.7
Onsite Fugitive PM_{10}	NA	NA	NA	NA	NA	202.7	202.7
Asphaltic Paving	NA	1.8	NA	NA	NA	NA	0.0
Architectural Coating	NA	140.0	NA	NA	NA	NA	0.0
Total Onsite	**1,077.3**	**346.9**	**1,766.1**	**172.7**	**104.0**	**258.8**	**362.8**
Offsite Haul Truck Soil Losses	NA	NA	NA	NA	NA	32.1	32.1
Offsite Motor Vehicles	627.0	92.1	231.4	0.0	7.5	276.7	284.2
Total Offsite	**627.0**	**92.1**	**231.4**	**0.0**	**7.5**	**308.8**	**316.2**
TOTAL	**1,704.4**	**439.0**	**1,997.5**	**172.7**	**111.5**	**567.6**	**679.1**
CEQA Significance Level	*550*	*75*	*100*	*150*	---	---	*150*
Significant? (Yes/No)	**Yes**	**Yes**	**Yes**	**Yes**			**Yes**

NA = pollutant not emitted by this source
Note: Sums of individual values may not equal totals because of rounding.

4.1.2 Operational Emissions

This section addresses the air quality impacts due to operation of the new and modified equipment associated with the proposed project. Impacts from indirect sources during operation, such as employee traffic, are discussed in Section 4.1.3.

4.1.2.1 Project Emission Sources

The sources of potential emissions resulting from new equipment and modifications to existing units proposed for the project are discussed below.

El Segundo Refinery

At the Refinery, the following equipment changes result in sources of emissions from fugitive components:

- Alkylate Depentanizer
- Isomax Light Gasoline Depentanizer

- FCC Light Gasoline Depentanizer
- FCC Light Gasoline Splitter
- Pentane Storage Sphere
- Pentane Export Railcar Load Rack
- NHT-1
- Additional Gasoline Storage
- FCC Deethanizer
- FCC Debutanizer
- FCC Depropanizer
- FCC C3 Treating
- Refinery Deisobutanizer Reactivation

In addition to these new and modified units, a new tank will be constructed at the Refinery for additional gasoline storage.

Modifications will also be made to the FCC, NHT-1 and cogen trains A and B.

Montebello Terminal

Ethanol will be brought to the Montebello Terminal by tanker truck and by railcar and unloaded into a new 50,000 bbl internal floating roof storage tank. A new two-lane unloading station will be constructed to unload the ethanol from the tanker trucks to the storage tank. A rail spur and rail car unloading facility, capable of unloading 12 ~~eight~~ rail cars simultaneously, will also be constructed. The existing loading rack will be modified to allow for ethanol blending. Ethanol will be loaded into tanker trucks for transport to the Van Nuys and Huntington Beach Terminals.

The new ethanol storage tank, as well as modifications associated with ethanol unloading and blending, will result in fugitive emissions from various components.

Van Nuys Terminal

Ethanol will be brought to the Van Nuys Terminal by tanker truck and unloaded into two existing gasoline tanks converted to ethanol service. For purposes of estimating emissions, it was assumed that tanks 1 and 2 will be converted to ethanol service. The associated tank and piping modifications are sources of fugitive emissions from these components.

The converted storage tanks, as well as modifications associated with ethanol unloading and blending, will result in fugitive emissions from various components.

The change in service of a tank to ethanol is anticipated to lead to a reduction in emissions because of differences in the vapor pressures between ethanol and the materials currently stored. This potential reduction has been estimated, but is not included in the evaluation of the project's significance.

Huntington Beach Terminal

Ethanol will be brought to the Huntington Beach Terminal by tanker truck and unloaded into one existing diesel fuel storage tank converted to ethanol service. A new two-lane unloading station will be constructed to unload the ethanol from the tanker trucks to the storage tank.

The converted storage tank, as well as modifications associated with ethanol unloading and blending, will result in fugitive emissions from various components.

4.1.2.2 Direct Operational Emission Calculation

Direct operational criteria and toxic air pollutant emission rates were calculated for all new and modified emission sources associated with the project at the Refinery and at the terminals. A further description of emissions estimates is provided in Appendix B.

Chevron provided expected fugitive component counts, stream types, and composition of process fluids to be utilized or produced as intermediates or end products as a result of the project. These composition data, as well as Chevron-provided fugitive emission factors, were used to calculate fugitive VOC and air toxic emissions associated with each of the new and modified units and tanks at the Refinery, three terminals, and the as yet to be identified marine terminal in the Port of Los Angeles. The resulting emissions from the proposed project were calculated by comparing the emissions associated with new components to the baseline emissions minus any emission source components removed as part of the proposed project. Chevron provided estimates of the numbers and types of service for components to be added and removed for each refinery process unit and at the terminals. It was assumed that all of the new valves less than eight inches in size would be bellows valves and that 50 percent of the removed valves less than two inches in size are bellows valves. It was assumed that none of the existing valves between three and eight inches in size are bellows valves.

Chevron has in place an SCAQMD-approved inspection and maintenance program to detect and remedy leaks from existing process components. This program has allowed Chevron to estimate emissions from process components using emission factors derived from actual leak events rather than the SCAQMD default factors.

New emissions from the new gasoline storage tank at the Refinery and the emissions from the new ethanol storage tank at the Montebello Terminal, were estimated using version 4.09 of the U.S. EPA TANKS program. The changes in VOC emissions that are anticipated to occur from changes in service of the two existing tanks at the Van Nuys Terminal and one existing tank at the Huntington Beach Terminal were also estimated using version 4.09 of the TANKS program. Additionally, emissions of TACs from new tanks and tanks changing service were estimated.

VOC emissions will be generated by ethanol loading of tanker trucks at a third-party terminal at the Port of Los Angeles. Because the specific terminal has not yet been identified, the vapor recovery unit control efficiency is not yet known. Therefore, it was assumed that the emissions would be at the 0.08 lb/1,000 gal-limit specified in SCAQMD Rule 462.

The ethanol that will be loaded into tanker trucks at the Port of Los Angeles contains five percent gasoline as a denaturant. Emissions of TACs during tanker truck loading were also estimated.

Pentanes will be loaded into railcars for transport out of the Refinery. The quantities of butanes and propane loaded into railcars will also increase. However, these loading operations will be conducted under pressure, with vapors from the railcar vapor space returned to the storage vessels. Therefore, these loading operations will not generate additional emissions.

Additional sulfur will be removed in order to meet the CARB Phase 3 specifications for gasoline sulfur content. Most of this sulfur will be recovered by the Refinery sulfur plant, but a small fraction will be emitted as sulfur oxides. The additional sulfur to be removed is estimated to be 131 pounds per day, based on expected production rates and feed sulfur content. Based on the 1999 emission report, the recovery efficiency was 99.94 percent.

Additional CO, VOC, NO_x, SO_x, and PM_{10} emissions from the combustion units, the FCC, the NHT-1, and cogen trains A and B were evaluated. Control equipment consisting of an SCR and a CO catalyst will be added onto the existing FCC unit. CO, VOC, and NO_x emissions will be maintained at or below current levels to comply with current permit limits. However, SO_x and PM_{10} emissions will increase due the increase in throughput. Additional PM_{10} emissions are created by the conversion of SO_2 to SO_3 in the SCR and subsequent reaction with water vapor and ammonia slip to form ammonia sulfate. The sulfate emissions are included in the total PM_{10} emissions for the FCC. The NHT-1 will have an increased firing rate capacity, as well as modifications that will result in lower emissions. The changes to the NHT-1 will result in an increase in CO, VOC, $SO_{x,}$ and PM_{10} emissions and a decrease in NO_x emissions. The cogen trains A and B are not anticipated to have any changes in emissions caused by the use of pentanes for fuel.

The direct operational criteria pollutant emissions are summarized in Table 4.1-6.

Table 4.1-6

Peak Daily Project ~~Direct~~ Operational Emissions Summary

Source	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	PM_{10} (lb/day)
Direct Emissions					
El Segundo Refinery					
Fugitive VOC from process components	0.0	-46.7	0.0	0.0	0.0
Modified equipment (FCC)	0.0	0.0	0.0	153.4	268.8
Modified equipment (NHT-1)	12.2	6.6	-29.4	7.3	13.7
Cogen Trains A and B	0.0	0.0	0.0	0.0	0.0
New tank 1016	0.0	34.3	0.0	0.0	0.0
Sulfur recovery plant	0.0	0.0	0.0	0.2	0.0
Total	**12.2**	**-5.9**	**-29.4**	**160.9**	**282.5**
Montebello Terminal					
Fugitive VOC from components	0.0	40.2	0.0	0.0	0.0
New ethanol storage tank	0.0	5.0	0.0	0.0	0.0
Total	**0.0**	**45.2**	**0.0**	**0.0**	**0.0**
Van Nuys Terminal					
Fugitive VOC from components	0.0	46.7	0.0	0.0	0.0
Converted ethanol storage tanks	0.0	-9.1	0.0	0.0	0.0
Total	**0.0**	**37.6**	**0.0**	**0.0**	**0.0**
Huntington Beach Terminal					
Fugitive VOC from components	0.0	32.3	0.0	0.0	0.0
Converted ethanol storage tank	0.0	-0.1	0.0	0.0	0.0
Total	**0.0**	**32.2**	**0.0**	**0.0**	**0.0**
Port of Los Angeles					
Ethanol tanker truck loading	0.0	31.7	0.0	0.0	0.0
Total	**0.0**	**31.7**	**0.0**	**0.0**	**0.0**
Total Direct Emissions	**12.2**	**140.7**	**-29.4**	**160.9**	**282.5**

Table 4.1-6 (concluded)
Peak Daily Project Direct Operational Emissions Summary

Source	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	PM_{10} (lb/day)
Indirect Emissions					
Refinery switch engine	2.2	1.2	21.3	0.2	0.5
Montebello Locomotive	2.3~~1.6~~	1.2~~0.9~~	21.5~~15.3~~	0.2~~0.1~~	0.5~~0.4~~
Ethanol tanker truck deliveries	21.5	5.2	95.0	0.0	71.4
Ethanol marine tanker deliveries	355.4	199.3	3,000.7	2,336.2	488.4
Total Indirect Emissions	**381.4~~380.7~~**	**207.0~~206.7~~**	**3,138.4~~3,123.3~~**	**2,336.6**	**560.8~~560.6~~**
Note: Sums of individual values may not equal totals because of rounding.					

Anticipated changes in annual operational emissions of TACs at the Refinery and terminals are listed in Table 4.1-7. The table shows that both increases and decreases in TAC emissions are anticipated at the Refinery, depending on the individual species. When components (valves, flanges, pumps, etc) are removed during modification of a process unit, emissions of TACs in the process streams associated with those components will not occur. When components are added to a modified unit, emissions of TACs in the process streams associated with those new components will be introduced. These decreased and increased TAC emissions caused by the removal and addition of components can result in either a net increase or a net decrease in emissions of individual TACs, depending on the number of components added and removed and the TACs in the streams associated with those components.

Overall, net decreases in emissions of 1,3-butadiene, methanol, and MTBE are anticipated. Emissions of acetaldehyde, ammonia, benzene, hexavalent chromium, copper, formaldehyde, hydrogen cyanide, hydrogen sulfide, manganese, mercury, naphthalene, nickel, phenol, PAH, toluene, xylenes, zinc, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(123cd)pyrene, sulfuric acid, ethyl benzene, and hexane are anticipated to increase. Potential effects on human health of these changes in TAC emissions have been estimated as described below in Section 4.1.3.2.

Table 4.1-7
Changes in Direct Operational Toxic Air Contaminant Emissions

Species	Emissions (lbs/year)			
	El Segundo Refinery	Huntington Beach Terminal	Montebello Terminal	Van Nuys Terminal
Toxic Air Contaminants for Which Health Risk Factors Exist				
Acetaldehyde	12.9	0.0	0.0	0.0
Acrolein	0.0	0.0	0.0	0.0
Ammonia	1,550.0	0.0	0.0	0.0
Benzene	6.8	7.3	9.2	-6.9
1,3-Butadiene	-18.6	0.0	0.0	0.0
Hexavalent Chromium	0.0	0.0	0.0	0.0
Copper	0.0	0.0	0.0	0.0
Formaldehyde	35.1	0.0	0.0	0.0
Hydrogen Cyanide	0.0	0.0	0.0	0.0
Hydrogen Sulfide	3.3	0.0	0.0	0.0
Manganese	0.4	0.0	0.0	0.0
Mercury	0.1	0.0	0.0	0.0
Methanol	-5,523.4	0.0	0.0	0.0
Naphthalene	7.7	0.0	0.0	0.0
Nickel	0.0	0.0	0.0	0.0
Phenol	3.6	0.0	0.0	0.0
PAH	0.0	0.0	0.0	0.0
Toluene	58.5	22.2	29.3	-43.9
Xylenes (Mixed)	25.8	29.0	39.5	-22.9
Zinc	0.6	0.0	0.0	0.0
Benzo(A)anthracene	0.0	0.0	0.0	0.0
Benzo(B)Fluoranthene	0.0	0.0	0.0	0.0
Benzo(K)Fluoranthene	0.0	0.0	0.0	0.0
Indeno(123cd)Pyrene	0.0	0.0	0.0	0.0
Sulfuric Acid	20.3	0.0	0.0	0.0
Other Toxic Air Contaminants				
Ethyl Benzene	4.6	1.0	1.4	-11.2
Hexane	-14.8	49.6	64.4	-41.8
MTBE	-65.7	0.0	0.0	0.0

4.1.2.3 Indirect/Mobile Source Operation Emissions

In addition to the process-related changes in emissions that will result from the modifications at the Refinery and terminals, emissions from indirect sources will increase. The indirect sources that were evaluated include:

- Tanker truck trips to deliver ethanol to distribution terminals
- Additional locomotive activity moving additional rail cars transporting pentane and delivering ethanol to the Montebello distribution terminal
- Additional marine tanker calls for importing ethanol

Appendix B provides further discussion of the emission estimating methodologies.

To calculate peak daily tanker truck emissions, it was assumed that all ethanol received at the Montebello, Van Nuys, and Huntington Beach Terminals would come from a third-party terminal(s) at the Port of Los Angeles by tanker truck. It was estimated that the peak daily number of tanker truck round trips would be 23, 10~~15~~, and 13~~12~~ to the Montebello, Van Nuys, and Huntington Beach Terminals, respectively. Although ethanol may also be transported to the Van Nuys and Huntington Beach terminals from the Montebello terminal, where it will be received by railcar, peak daily emissions from the tanker truck trips would be lower, because deliveries would be made to only two terminals from the Montebello terminal instead of to all three terminals from the Port of Los Angeles.

Pentane will be transported out of the Refinery by rail car. Based on the construction of 10 new rail loading spots, the maximum daily number of rail car shipments would increase by 10. This increase in rail car movement will require additional switch engine operating time at the Refinery. Additionally, approximately 28 ~~20~~ minutes of locomotive activity will be required each day that ethanol is delivered to the Montebello terminal by railcar.

Chevron currently imports MTBE, FCC feed, and toluene by marine tanker to Chevron's El Segundo marine terminal. MTBE will no longer be imported when the project becomes operational, resulting in a reduction in the number of marine tanker trips importing MTBE to the El Segundo marine terminal. Imports of FCC feed and toluene will increase. Chevron will also begin importing isooctane and isooctene by marine tanker to the El Segundo marine terminal. Chevron will also import ethanol by marine tanker to a third-party terminal(s) in the Port of Los Angeles. The increase in annual ship calls to import ethanol to the Port of Los Angeles and to import FCC feed, toluene, isooctane, and isooctene to the El Segundo marine terminal will exceed the decrease in MTBE marine tanker calls at the El Segundo marine terminal by an estimated 12 ship calls per year. Because ship calls will be made to two locations instead of only one, it is possible that the peak daily number of ship calls could increase by one, from one to two.

4.1.3 Significance of Project Operational Emissions

Two types of significance criteria are used to determine the air quality impacts from the emissions of criteria pollutants from operation of the project. First, the project operational emissions are compared to specific significance thresholds established for project emissions; and second, the project operational emissions are analyzed through air dispersion modeling to determine if the project may create changes in localized concentrations of air pollutants above the identified human health risk significance criteria. Risk assessments were conducted at the Refinery and three terminals because TACs are anticipated to increase at each of these locations due to new equipment. Although Table 4.1-7 shows a decrease in TAC emissions due to the project, such decreases were not accounted for in Tier 1 or 2 emissions screening.

4.1.3.1 Operational Emissions Summary

A summary of the project's daily emissions from RECLAIM sources is shown in Table 4.1-8. Table 4.1-9 includes the daily totals for both direct project emissions and offsite indirect emissions from non-RECLAIM sources. The summarized project operational emissions are compared to the CEQA significance thresholds. The project operational emissions for non-RECLAIM sources exceed the significance thresholds for VOC, NO_x, SO_x, and PM_{10}.

Table 4.1-8
Project Operational Criteria Pollutant Emissions Summary for RECLAIM Sources

Pollutant	Project Emissions (lb/day)	RECLAIM Allocations[a] (lb/day)	Total (lb/day)	SCAQMD CEQA Threshold (lb/day)	Significant?
NO_X	-29	5,668	5,639	15,533	No
SO_2	161	2,602	2,763	5,181	No

(a) The 1998 facility Allocation for NO_x and SO_x includes purchased RECLAIM trading credits and is converted to pounds per day by dividing 365 days per year.

Table 4.1-9
Project Operational Criteria Pollutant Emissions Summary for Non-RECLAIM Sources

Pollutant	Direct Emissions (lb/day)	Indirect Emissions (lb/day)	Total (lb/day)	SCAQMD CEQA Threshold (lb/day)	Significant?
CO	12	381	393	550	No
VOC[a]	141	207	347	55	**Yes**
NO_X	NA	3,138~~3,132~~	3,138~~3,132~~	55	**Yes**
SO_2	NA	2,337	2,337	150	**Yes**
PM_{10}	283	561	843	150	**Yes**

(a) Does not include emission reduction from changes in tank service.

4.1.3.2 Operational Emissions Modeling

Atmospheric dispersion modeling was conducted to determine the localized ambient air quality impacts from PM_{10} emissions due to the proposed project at the Refinery. PM_{10} emissions are the only direct criteria pollutant emissions that require modeling per SCAQMD Rule 1303 to determine impacts on ambient air. The atmospheric dispersion modeling methodology used for the project follows generally accepted modeling practice and the modeling guidelines of both the U.S. EPA and the SCAQMD. All dispersion modeling was performed using the Industrial Source Complex Short-Term 3 (ISCST3) dispersion model (Version 00101) (EPA, 2000).

This section provides details of the modeling performed and the results of the modeling. Model output listings of model runs are provided in the Air Quality Technical Attachment (Appendix B).

Model Selection

The dispersion modeling methodology used follows U.S. EPA and SCAQMD guidelines. The ISCST3 model (Version 00101) is an U.S. EPA model used for simulating the transport and dispersion of emissions in areas of both simple, complex, and intermediate terrain. Simple terrain, for air quality modeling purposes, is defined as a region where the heights of release of all emission sources are above the elevation of surrounding terrain. Complex terrain is defined as those areas where nearby terrain elevations exceed the release height of emissions from one or more sources. Intermediate terrain is that which falls between simple and complex terrain. Simple terrain exists in the vicinity of the Refinery.

Modeling Options

The options used in the ISCST3 dispersion modeling are summarized in Table 4.1-10. U.S. EPA regulatory default modeling options were selected except for the calm processing option. Since the meteorological data set developed by the SCAQMD is based on hourly average wind measurements, rather than airport observations that represent averages of just a few minutes, the SCAQMD's modeling guidance requires that this modeling option not be used.

Meteorological Data

The SCAQMD has established a standard set of meteorological data files for use in Basin air quality modeling. For the area in which the Refinery is located, the SCAQMD requires the use of its Lennox 1981 meteorological data file, which is consistent with the data used for previous air quality and health risk assessment modeling studies at the Refinery. To ensure consistency with this prior modeling methodology, and SCAQMD guidance, the 1981 Lennox meteorological data set was used for this modeling study at the Refinery.

In the Lennox data set, the surface wind speeds and directions were collected at the SCAQMD's Lennox monitoring station, while the upper air sounding data used to estimate hourly mixing heights were gathered at Los Angeles International Airport. Temperatures and sky observation (used for stability classification) were taken from Los Angeles International Airport data.

Receptors

Appropriate model receptors must be selected to determine the “worse-case” modeling impacts. For this modeling, a routine grid of receptors was used. In addition, residential receptors were located on the north and south sides of the property. No receptors were placed within the Refinery property line. Terrain heights for all receptors were obtained from the existing Refinery HRA.

Table 4.1-10
Dispersion Modeling Options for ISCST3

Feature	Option Selected
Terrain processing selected	Yes
Meteorological data input method	Card Image
Rural-urban option	Urban
Wind profile exponents values	Defaults
Vertical potential temperature gradient values	Defaults
Program calculates final plume rise only	Yes
Program adjusts all stack heights for downwash	Yes
Concentrations during calm period set = 0	No
Aboveground (flagpole) receptors used	No
Buoyancy-induced dispersion used	Yes
Surface station number	52118

Source Parameters

Table 4.1-11 summarizes the source parameter inputs to the dispersion model. The source parameters presented are based upon the parameters of the existing and proposed equipment at the facility. Three combustion source stacks were modeled using actual emission rates. The new NHT #1 Furnace 4531 stack will be located approximately 50 feet east of the existing stack. This location change is reflected in the coordinates listed for Model ID 90052 below. The emission rate used in the ISCST3 model run for the point sources is in units of g/s.

Table 4.1-11
Point Source Locations and Parameters Used in Modeling

Model ID/Equipment	UTM X [m]	UTM Y [m]	Stack Base Elevations Above MSL Z [m]	Release Height Above Ground Level [m]
90026/No. 39 Boiler Main Stack	369746	3752659	31.3	46.9
90027/No. 39 Boiler Auxiliary Stack	369746	3752654	31.4	42.6
90052/NHT#1 Furnace 4531 Stack (current)	370149	3752437	32.9	31.1
90052/NHT#1 Furnace 4531 Stack (proposed)	370164	3752437	32.9	31.1

Emissions

Modeling was performed using direct operational PM_{10} emissions associated with the proposed project. These emissions result from modifications to the FCC and modifications to the NHT-1. Two model runs were created, one for the current emission rates and stack parameters, and one for the proposed emission rates and stack parameters.

Results

The ambient air significant thresholds for PM_{10} project impacts are 2.5 µg/m^3 and 1.0 µg/m^3 for the 24-hour and annual impacts, respectively, as indicated in Table 4.1-1. The modeling indicates that the 24-hour impact at the property boundary is 1.98 µg/m^3 and the annual impact is 0.43 µg/m^3. Therefore, this project does not have significant impacts on PM_{10} ambient air concentrations.

4.1.3.3 Risk Assessments

Risk assessments procedures for SCAQMD Rule 1401 were followed for the Refinery, the three distribution terminals, and the third-party Port of Los Angeles marine terminal. SCAQMD Rule 1401 risk assessment procedures consist of four tiers, or levels of effort to assess impacts, from a quick look-up table (Tier 1) to a detailed risk assessment involving air quality modeling analysis (Tier 4). For the Refinery, a health risk assessment (Tier 4) was prepared and is described in detail below. The emissions of TACs at the terminals exceed Tier 1 thresholds. Therefore, a Tier 2 analysis was performed for the Huntington Beach, Montebello, and Van Nuys terminals. Results of the Tier 2 analysis are presented below.

The Tier 2 screening risk assessment consists of calculating the MICR, as well as the acute and chronic hazard index (HIA and HIC), due to all TACs at each terminal. Table 4.1-12 summarizes the calculated values for the MIC and compares them to the thresholds for each terminal.

Table 4.1-12
Tier 2 Analysis Results and Comparison to Significance Threshold for MICR

Terminal	MICR	Significance Threshold	Exceeds Threshold
Huntington Beach	0.11	1.0	No
Montebello	0.21	1.0	No
Van Nuys	0.19	1.0	No

Table 4.1-13 presents the HIA by target organ and compares this result to the threshold for each terminal.

Table 4.1-13
Tier 2 Analysis Results and Comparison to Threshold for HIA

Target Organ	Huntington Beach	Montebello Terminal	Van Nuys Terminal	Significance Threshold	Exceeds Threshold
Cardiovascular	3.11E-05	7.54E-05	NA	1.0	No
Central nervous system	3.84E-06	9.60E-06	NA	1.0	No
Endocrine	0.00E+00	0.00E+00	NA	1.0	No
Eye	1.22E-05	3.14E-05	NA	1.0	No
Immune	3.11E-05	7.54E-05	NA	1.0	No
Kidney	0.00E+00	0.00E+00	NA	1.0	No
Gastrointestinal system/liver	0.00E+00	0.00E+00	NA	1.0	No
Reproductive	3.50E-05	8.50E-05	NA	1.0	No
Respiratory	1.22E-05	3.14E-05	NA	1.0	No
Skin	0.00E+00	0.00E+00	NA	1.0	No

Table 4.1-14 presents the HIC by target organ and compares this result to the threshold for each terminal.

Table 4.1-14
Tier 2 Analysis Results and Comparison to Threshold for HIC

Target Organ	Huntington Beach	Montebello Terminal	Van Nuys Terminal	Significance Threshold	Exceeds Threshold
Cardiovascular	6.14E-05	1.22E-04	0.00E+00	1.0	No
Central nervous system	1.25E-04	2.51E-04	0.00E+00	1.0	No
Endocrine	2.55E-07	5.42E-07	0.00E+00	1.0	No
Eye	0.00E+00	0.00E+00	0.00E+00	1.0	No
Immune	0.00E+00	0.00E+00	0.00E+00	1.0	No
Kidney	2.55E-07	5.42E-07	0.00E+00	1.0	No
Gastrointestinal system/liver	2.55E-07	5.42E-07	0.00E+00	1.0	No
Reproductive	9.96E-05	2.00E-04	0.00E+00	1.0	No
Respiratory	6.13E-05	1.24E-04	9.35E-06	1.0	No
Skin	0.00E+00	0.00E+00	0.00E+00	1.0	No

An estimate of the cancer burden is only required when the MICR exceeds one in one million. As shown in Table 4.1-12, the Rule 1401 threshold value for the MICR is not exceeded at any of the terminals. Thus, the cancer burden has not been estimated. Additionally, the Rule 1401 threshold values of the HIA and the HIC have not been exceeded at any of the terminals. Therefore, further analysis was not required for the terminals.

The TAC emissions at the as-yet undetermined marine terminal in the Port of Los Angeles are due to the loading of ethanol at a third-party marine terminal into tanker trucks. Since the vapor recovery unit efficiency at the as-yet unidentified third-party marine terminal is not known, a conservative “worse-case” assumption was made, and the SCAQMD maximum emission factor per Rule 462 was used to estimate emissions. Estimated daily benzene emissions due to loading of 45 tanker trucks with ethanol at the marine terminal are less than the total project benzene emissions at either the Montebello or Huntington Beach Terminals. Since the third-party marine terminal has not yet been selected and information, such as distance to receptors and the property line, are not known, a site-specific detailed analysis has not been performed.

While the third-party marine terminal will be responsible for reporting the emissions from the ethanol tanker truck loading and performing any associated risk assessments that may be required, the TAC emissions can be compared to those from the Chevron distribution terminals to obtain a better understanding of the potential risks. Greater benzene emissions from the Montebello and Huntington Beach Terminals result in a maximum individual cancer risk (MICR) that is approximately one order of magnitude less than the threshold for this project, as shown in Table 4.1-12. Therefore, it is assumed that the lower emissions from ethanol loading at the third-party marine terminal will not result in a risk that is significant.

Atmospheric dispersion modeling was conducted to determine the localized ambient air quality impacts from the proposed project at the Refinery. The health risk assessment (HRA) modeling was prepared based on the most recent HRA for the Refinery. The atmospheric dispersion modeling methodology used for the project follows generally accepted modeling practice and the modeling guidelines of both the U.S. EPA and the SCAQMD. All dispersion modeling was performed using the Industrial Source Complex Short-Term 3 (ISCST3) dispersion model (Version 00101) (EPA, 2000). The outputs of the dispersion model were used as input to a risk assessment using the Assessment of Chemical Exposure for AB2588 (ACE2588) risk assessment model (Version 93288) (California Air Pollution Control Officers Association [CAPCOA] 1993). The updates to the ACE2588 model based on the most recent risk exposure levels as established by Office of Health, hazard Assessment (OEHHA, 2000) are consistent with those used in the most recent HRA for the Refinery.

This section provides additional details of the modeling performed not included in Section 4.3.2, as well as the results of the modeling. Model output listings of model runs are provided in the Air Quality Technical Attachment (Appendix B).

Source Parameters

Tables 4.1-15 and 4.1-16 summarize the source parameter inputs to the dispersion model. The source parameters presented are based upon the parameters of the existing and proposed equipment at the facility. Fifteen sources composed of 11 sources of components with fugitive emissions, one new storage tank, and three combustion source stacks were modeled. The 11 sources of components with fugitive emissions were modeled as rectangular area sources. The tank was modeled as an area source. The emission rate used in the ISCST3 model run for the area sources is in units of grams per second-square meters (g/s-m^2). A unit emission rate of 1.0 g/s was used, so that the emission rate is the inverse of the area in units of g/s-m^2. Table 4.1-15 details modeling parameters for the area sources and Table 4.1-16 details modeling parameters for the point sources.

The coordinates listed in Tables 4.1-15 and 4.1-16 are the first vertex of the rectangle, the center of the tank, or the location of the point source. The new NHT #1 Furnace 4531 stack will be located approximately 50 feet east of the existing stack. This location change is reflected in the coordinates listed for Model ID 90052 below.

Table 4.1-15
Area Source Locations and Parameters Used in Modeling the Proposed Project

Model ID/Equipment	UTM X [m]	UTM Y [m]	Elevation Z [m]	Area [m^2]	Q [g/s-m^2]
100/Fugitives for Additional Gasoline Storage	368585	3753275	46.8	455,000	2.20E-06
254/Fugitives for Alky Modifications	369671	3753040	33.3	11,751	8.51E-05
258/Fugitives for FCC Modifications consisting of Light Gasoline Depentanizer, Light Gasoline Splitter, Debutanizer, Depropanizer, C3 Caustic/Monoethanol Amine Treating	369723	3752628	31.2	12,210	8.19E-05
330/Fugitives for Deisobutanizer Reactivation	369671	3753040	33.3	6,300	1.59-04
346/Fugitives for FCC Modifications consisting of WGC Interstage System, Deetathanizer, Main Air Blower, Upgrade, Stack Emission Reduction, Relief/Vapor Recovery System	369740	3752588	32.4	10,000	1.00E-04
834/Fugitives for Isomax Depentanizer	370312	3752388	33.6	11,990	8.34E-05
837/Fugitives for NHT #1	370114	3752212	33.9	7,200	1.39E-04
1001/Fugitives for Pentane Storage Sphere	370592	3752666	32.0	600	1.67E-03
1002/Fugitives for Pentane Export Railcar Load Rack Facility	370875	3753230	32.0	153,000	6.54E-06
1016/Fugitives for Tank 1016	369730	3752221	32.0	4,933	2.03E-04

Table 4.1-16
Point Source Locations and Parameters Used in Modeling

Model ID/Equipment	UTM X [m]	UTM Y [m]	Stack Base Elevations Above MSL Z [m]	Release Height Above Ground Level [m]	Q [g/s]
90026/No. 39 Boiler Main Stack	369746	3752659	31.3	46.9	1.00E+00
90027/No. 39 Boiler Auxiliary Stack	369746	3752654	31.4	42.6	1.00E+00
90052/NHT#1 Furnace 4531 Stack (current)	370149	3752437	32.9	31.1	1.00E+00
90052/NHT#1 Furnace 4531 Stack (proposed)	370164	3752437	32.9	31.1	1.00E+00

Emissions

Modeling was performed using only direct operational emissions associated with the proposed project. These emissions consist of toxic emissions resulting from the removal and addition of components with fugitive emissions in various process streams at the Refinery, as well as the proposed new storage tank, increased usage of the No. 39 boiler, and modifications to the NHT #1 Furnace 4531.

Since the components with fugitive emissions are associated with a variety of streams, the emissions for some toxic pollutants increased at a specific location, whereas other toxics decreased. Thus, two model runs were created, one for the increase in toxic emissions and one for the decrease. For the components, the annual emission rate was based on the calculated annual emissions, and the peak hourly emission rate was derived from the annual emission rate assuming continuous operations at 8,760 hours per year. The emission rates used in the ACE2588 model run were in units of g/s.

For the point sources, two model runs were created, one for the current emission rates and stack parameters, and one for the proposed emission rates and stack parameters.

Model Runs

Four modeling files were created to assess the potential health risks from this project. The details of the runs are summarized in Table 4.1-17.

Table 4.1-17
Details of Model Runs

Model Run	Area Sources	Point Sources	Receptors
1	Positive emission values	Proposed emissions and proposed stack parameters	Residential receptors
2	Negative emission values	Current emissions and current stack parameters	Residential receptors
3	Positive emission values	Proposed emissions and proposed stack parameters	Routine grid receptors
4	Negative emission values	Current emissions and current stack parameters	Routine grid receptors

Health Risks

The potential health risk impacts addressed in this section are carcinogenic, chronic noncarcinogenic, and acute noncarcinogenic.

The ACE2588 Risk Assessment Model was used to evaluate the potential health risks from TACs. The ACE2588 model, which is accepted by the CAPCOA, has been widely used for required HRAs under the CARB AB2588 toxic hotspots reporting program. The model provides conservative algorithms to predict relative health risks from exposure to carcinogenic, chronic noncarcinogenic, and acute noncarcinogenic pollutants. This multipathway model was used to evaluate the following routes of exposure: inhalation, soil ingestion, dermal absorption, mother's milk ingestion, and plant product ingestion. Exposure routes from animal product ingestion and water ingestion were not assumed for this analysis.

The 93288 version of ACE2588 incorporates revised toxicity and pathway data recommended in the Toxic Air Pollutant Source Assessment Manual for California Air Pollution Control Districts and Applicants for Air Pollution Control District Permits (CAPCOA, 1993). The pathway data in ACE2588 were modified to include site-specific fractions of homegrown root, leafy, and vine plants. These site-specific fractions were used to maintain consistency with assumptions previously accepted for this particular site by SCAQMD.

The results obtained based on the CAPCOA HRA guidance are considered to be consistent with those which would be obtained following SCAQMD's Risk Assessment Procedures for Rules 1401 (SCAQMD, 2000) and 212 (SCAQMD, 1997).

Only TACs identified in the CAPCOA HRA guidance with potency values or RELs have been included in the HRA. The 25 TACs emitted from the proposed project consist of acetaldehyde, acrolein, ammonia, benzene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, 1,3-butadiene, copper, formaldehyde, hexavalent chromium, hydrogen cyanide, hydrogen sulfide, indeno(123cd)pyrene, manganese, mercury, methanol, naphthalene, nickel, phenol, polyaromatic hydrocarbons, sulfuric acid, toluene, xylenes, and zinc.

The dose-response data used in the HRA were extracted from the October 1993 CAPCOA HRA guidance. The pertinent data are located in Tables III-5 through III-10 of the CAPCOA guidance.

Following CAPCOA guidance, the inhalation, dermal absorption, soil ingestion, and mother's milk pathways were included in a multipathway analysis. Pathways not included in the analysis are water ingestion, fish, crops, and animal and dairy products because these pathways were not identified as a potential concern for the project setting.

Inhalation pathway exposure conditions were characterized by the use of the ISCST3 dispersion model, as previously discussed.

Significance criteria for this Draft EIR are an increased cancer risk of 10 in one million or greater. The established SCAQMD Rule 1401 limits are one in one million cancer risk for sources without toxics –best available control technology (T-BACT) and 10 in one million for those with T-BACT. The Refinery will implement T-BACT in the form of bellows or other leakless valves where appropriate. The significance criteria for noncarcinogenic acute and chronic hazard indices are 1.0 for any endpoint.

The net predicted cancer risks at each of the modeled receptors were reviewed by combining runs 1 and 2, as well as runs 3 and 4 as detailed in Table 4.1-17 above. The maximum increased cancer risk at any receptor is 0.005 per million. The peak receptor is a routine grid receptor and is located on the southeastern side of the property. The peak risk at a residential receptor is a negative value. Therefore, the modeling indicates that the proposed project is not anticipated to impact any residential receptors. The results of the HRA indicate that the potential impact of the project is well below the significance level of 10 per one million.

The maximum noncarcinogenic acute and chronic hazard indices from the model runs 1 and 3, as detailed in Table 4.1-17, were 0.03 and 0.03, respectively. These values are well below the significance level of 1.0. Thus, the HRA results indicate that impacts are not only below the SCAQMD significance criteria, but they indicate that there are minimal impacts as a result of the project.

4.1.4 Potential Health Risks from Diesel Exhaust Particulate Matter

The project will lead to increased emissions of diesel exhaust particulate matter during construction and operation. In 1998, CARB listed particulate matter in the exhaust from diesel-fueled engines (diesel particulate matter) as a TAC and concluded that it is probably carcinogenic to humans. Significant impacts associated with exposure to diesel particulate emissions are not expected during operation of the proposed project. Total tanker truck exhaust PM_{10} emissions from the 45 daily truck round trips are estimated to be only three pounds per day, which occur over a total distance of about 1,300 miles. Therefore, the exposure to exhaust diesel particulate matter resulting from the project at any single location is anticipated to be negligible.

4.1.5 Carbon Monoxide Impacts Analysis

Increases in traffic from a project might lead to impacts of CO emissions on sensitive receptors if the traffic increase worsens congestion on roadways or at intersections. A CO Hot Spots Analysis of these impacts is required if:

- The project is anticipated to reduce the level of service (LOS) of an intersection rated C or worse by one level, or
- The project is anticipated to increase the volume-to-capacity ratio of an intersection rated D or worse by 0.02.

As indicated in the transportation/traffic impacts analysis (Section 4.11), the volume-to-capacity ratio at the Sepulveda/SR-1 and El Segundo Boulevard intersection, which currently is rated E, may increase by 0.023 from construction worker traffic leaving the Refinery at the end of the working day. The construction period will be less than one year. This is the only intersection that meets either of the above criteria during the construction phase. None of the intersections affected by this project meet the above criteria during operation. Therefore, a CO Hot Spots Analysis for operational traffic impacts was not required.

The “no project” ambient background CO concentration was obtained from Table 3.1-5. As shown in the table, the peak one-hour and eight-hour CO concentrations for Station No. 094 for 1999 were 10 ppm and 8.4 ppm, respectively.

The dispersion model CALINE4 was used to perform a site-specific analysis and estimate the potential for CO hotspots. The model is based on continuous line source emissions and estimates roadway impacts. Three roadway segment links were identified for the analysis:

- El Segundo Boulevard between Gate 8 and Sepulveda/SR-1
- El Segundo Boulevard between Sepulveda/SR-1 and Aviation Boulevard
- Sepulveda/SR-1 between El Segundo Boulevard and Imperial Highway/105

The volume-to-capacity increase is a result of 79 additional vehicles leaving the Refinery from Gate 8 and driving eastbound on El Segundo Boulevard. At the subject intersection, 71 of these vehicles are expected to drive in the eastbound direction on El Segundo Boulevard and eight vehicles are expected to drive in the northbound direction on Sepulveda/SR-1. Since the workers will leave the site at 5 p.m., a peak traffic 1-hour period from 5 p.m. to 6 p.m. was used in this analysis. To be conservative, the 8-hour period was assumed to have the same vehicle per hour volumes as the 1-hour peak.

Consistent with the air quality analysis of indirect emission sources, it was assumed that the vehicles are light duty trucks traveling at 35 miles per hour. An EMFAC2000 CO emission factor of 12.06 grams per mile was used as input into CALINE4.

Figure 5-1 of the SCAQMD CEQA Air Quality Handbook (1993) defines sensitive receptors as:

- Long-term health care facilities
- Rehabilitation centers
- Convalescent centers
- Retirement homes
- Residences
- Schools
- Playgrounds
- Child care centers
- Athletic facilities

Potential sensitive receptors located along the three identified roadway segments were reviewed. Although there do not appear to be any sensitive receptors directly along the roadway, it was assumed for a “worse-case” that a person may be as close as five meters (16.5 feet) to the roadway. Thus, to be conservative for these short-term exposure analyses (1-hour and 8-hour), it was assumed that the receptors were located five meters (16.5 feet) from the edge of the roadways.

The CALINE4 analyses were performed with the peak traffic volume, the “worse-case” wind angle option, and with receptors located five meters off the roadway. The results of both the 1-hour and 8-hour runs indicate no change in ambient CO concentrations as a result of this project.

The significance criteria for ambient CO impacts are 1.0 ppm and 0.45 ppm for the 1-hour and 8-hour standards, respectively, as shown in Table 4.1-1. As shown in Table 4.1-18, the project impact is below the significance threshold for both the 1-hour and 8-hour standards.

In addition, the state and federal ambient air quality standards are summarized in Table 3.1-4. As shown in the Table 3.1-4, the state ambient 1-hour and 8-hour ambient CO standards are 20 ppm and 9 ppm, respectively. The federal ambient CO standards are 35 ppm and 9 ppm, respectively. The sum of the project and ambient background concentrations are below the state and federal ambient 1-hour and 8-hour standards as shown in Table 4.1-18. Therefore, the potential increase in congestion at this intersection during construction is not anticipated to lead to adverse CO impacts on sensitive receptors.

Table 4.1-18
CO Hot Spots Analysis

Time Period	Ambient Concentration	Project Impact	Significance Threshold	Total Concentration	Significant
1-hour	10 ppm	0.2 ppm	1.0 ppm	10.2 ppm	NO
8-hour	8.4 ppm	0.1 ppm	0.45 ppm	8.5 ppm	NO

4.1.6 Mitigation Measures

4.1.6.1 Construction Mitigation Measures

As indicated in the previous summary tables, construction activities may have significant unmitigated air quality impacts for CO, VOC, NO_X, SO_X, and PM_{10}. Construction emissions are primarily from: 1) onsite fugitive dust from grading and excavation; 2) onsite exhaust emissions (CO, VOC, NO_X, SO_X, and PM_{10}) from construction equipment; 3) onsite VOC emissions from asphaltic paving and painting; 4) offsite exhaust emissions from truck traffic and worker commute trips; 5) offsite road dust associated with traffic to and from the construction site; 6) and offsite fugitive dust (PM_{10}) from trucks hauling materials, construction debris, or excavated soils from the site.

Table 4.1-19 lists mitigation measures for each emission source and identifies the estimated control efficiency of each measure. As shown in the table, no feasible mitigation has been identified for the emissions from architectural coating or from on-road vehicle trips. Additionally, no other feasible mitigation measures have been identified to further reduce emissions. CEQA Guidelines §15364 defines feasible as ". . . capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

Table 4.1-20 presents a summary of overall peak daily mitigated construction emissions. The table includes the emissions associated with each source and an estimate of the reductions achieved with mitigation. The implementation of mitigation measures, while reducing emissions, does not reduce the construction-related CO, VOC, NO_X, SO_X, or PM_{10} impacts below significance.

Table 4.1-19
Construction-Related Mitigation Measures and Control Efficiency

Mitigation Measure Number	Mitigation	Source	Pollutant	Control Efficiency (%)
AQ-1	Increase watering of active site by one time per day[a]	Onsite Fugitive Dust PM_{10}	PM_{10}	16
AQ-2	Wash wheels of all vehicles leaving unimproved areas	Onsite Fugitive Dust PM_{10}	PM_{10}	Not Quantified

AQ-3	Remove visible roadway dust tracked out onto paved surfaces from unimproved areas by sweeping at the end of the workday	Onsite Fugitive Dust PM_{10}	PM_{10}	Not Quantified
AQ-4	Prior to use in construction, evaluate the feasibility of retrofitting the large off-road construction equipment that will be operating for significant periods. Retrofit technologies such as SCR, oxidation catalysts, air enhancement technologies, etc. will be evaluated. These technologies will be required if they are commercially available and can feasibly be retrofitted onto construction equipment.	Construction Equipment Exhaust	CO VOC NO_X SO_X PM_{10}	Unknown Unknown Unknown Unknown Unknown
AQ-5	Use low sulfur diesel (as defined in SCAQMD Rule 431.2) where feasible.	Construction Equipment	SO_X PM_{10}	Unknown
AQ-6	Proper equipment maintenance	Construction Equipment Exhaust	CO VOC NO_X SO_X PM_{10}	5 5 5 5 0
AQ-7	Cover haul trucks with full tarp	Haul Truck Soil Loss	PM_{10}	90
	No feasible measures identified	Architectural Coating	VOC	N/A
	No feasible measures identified[b]	On-Road Motor Vehicles	CO VOC NO_X PM_{10}	N/A N/A N/A N/A

[a] It is assumed that construction activities will comply with SCAQMD Rule 403 – Fugitive Dust, by watering the site two times per day, reducing fugitive dust by 50 percent. This mitigation measure assumes an incremental increase in the number of times per day the site is watered (i.e., from two to three times per day).

[b] Health and Safety Code §40929 prohibits the air districts and other public agencies from requiring an employee trip reduction program making such mitigation infeasible. No feasible measures have been identified to reduce emissions from this source.

Table 4.1-20
Overall Peak Daily Construction Emissions (Mitigated)

Source	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	Exhaust PM_{10} (lb/day)	Fugitive PM_{10} (lb/day)	Total PM_{10} (lb/day)
Onsite Construction Equipment Exhaust	1,049.5	200.0	1,726.9	172.7	102.4	NA	102.4
Mitigation Reduction (%)	0%	5%	5%	5%	5%	---	
Mitigation Reduction (lb/day)	0.0	-10.0	-86.3	-8.6	-5.1	---	-5.1
Remaining Emissions	**1,049.5**	**190.0**	**1,640.6**	**164.1**	**97.3**	---	**97.3**
Onsite Motor Vehicles	27.8	5.2	39.2	0.0	1.6	56.1	57.7
Mitigation Reduction (%)	0%	0%	0%	0%	0%	0%	
Mitigation Reduction (lb/day)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Remaining Emissions	**27.8**	**5.2**	**39.2**	**0.0**	**1.6**	**56.1**	**57.7**
Onsite Fugitive PM_{10}	NA	NA	NA	NA	NA	202.7	202.7
Mitigation Reduction (%)	---	---	---	---	---	16%	
Mitigation Reduction (lb/day)	---	---	---	---	---	-32.4	-32.4
Remaining Emissions	---	---	---	---	---	170.3	170.3
Asphaltic Paving	NA	1.8	NA	NA	NA	NA	NA
Mitigation Reduction (%)	---	0%	---	---	---	---	---
Mitigation Reduction (lb/day)	---	0.0	---	---	---	---	---
Remaining Emissions	---	**1.8**	---	---	---	---	---
Architectural Coating	NA	140.0	NA	NA	NA	NA	NA
Mitigation Reduction (%)	---	0%	---	---	---	---	---
Mitigation Reduction (lb/day)	---	0.0	---	---	---	---	---
Remaining Emissions	---	**140.0**	---	---	---	---	---
Total Onsite	**1,077.3**	**336.9**	**1,679.8**	**164.1**	**98.9**	**226.4**	**325.3**
Offsite Haul Truck Soil Loss[a]	NA	NA	NA	NA	NA	64.1	64.1
Mitigation Reduction (%)	---	---	---	---	---	90%	
Mitigation Reduction (lb/day)	---	---	---	---	---	-57.7	-57.7
Remaining Emissions	---	---	---	---	---	6.4	6.4
Offsite Motor Vehicles	627.0	92.1	231.4	0.0	7.5	276.7	284.2
Mitigation Reduction (%)	0%	0%	0%	0%	0%	0%	
Mitigation Reduction (lb/day)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Remaining Emissions	**627.0**	**92.1**	**231.4**	**0.0**	**7.5**	**276.7**	**284.2**
Total Offsite	**627.0**	**92.1**	**231.4**	**0.0**	**7.5**	**283.1**	**290.6**
TOTAL	**1,704.4**	**429.0**	**1,911.2**	**164.1**	**106.4**	**509.5**	**615.9**
Significance Threshold	*550*	*75*	*100*	*150*			*150*
Significant? (Yes/No)	**Yes**	**Yes**	**Yes**	**Yes**			**Yes**

Note: Sums of individual values may not equal totals because of rounding.
[a] Does not include 50% control from freeboard, since tarp is being used instead to achieve 90% control.

4.1.6.2 Operational Mitigation Measures

The projected operational CO emissions increase is less than the mass daily CO emissions significance threshold identified in Table 4.1-1. However, operational VOC, NO_x, SO_x, and PM_{10} mass daily emissions from sources that are not subject to RECLAIM are anticipated to exceed each relevant significance criterion. These increased VOC, NO_x, SO_x, and PM_{10} emissions are primarily due to ethanol deliveries by marine vessel at the Port of Los Angeles.

Project operational VOC emissions at the Refinery will be substantially reduced through the application of BACT, which, by definition, is the lowest achievable emission rate. For example, except for valves larger than eight inches, the new valves to be installed will be of the bellow-seals (leakless) variety.

The VOC exceedance does not include the actual emission reductions that will result from the storage of lower vapor pressure CARB Phase 3 reformulated gasoline at the Refinery and terminals. Although the actual VOC emission reductions will occur, the refinery has elected not to change the current maximum potential to emit permit conditions. This means that the Refinery will not be required to limit emissions to the new lower levels, but could, theoretically, continue to emit up to the maximum potential to emit. Therefore, no credit for reducing emissions due to the lower vapor pressure of CARB Phase 3 reformulated gasoline will be allowed for the proposed project. It also should be noted that the specific VOCs that increase as a result of the project were evaluated as part of a HRA (Section 4.1.3.2) and, based on their composition, are not anticipated to create localized human health risks.

NO_X, SO_X, and PM_{10} are of local, as well as regional concern. As seen from the summary in Table 4.1-20, anticipated peak daily emissions of these pollutants are primarily associated with a marine tanker ship calls to deliver ethanol at the Port of Los Angeles. Additionally, locomotive operations at the Refinery and Montebello Terminal contribute to NO_X emissions, and tanker trucks delivering ethanol to the terminals contribute to both NO_X and PM_{10} emissions.

No feasible mitigation measures have been identified to reduce emissions from marine tankers, locomotives, or the tanker trucks. No feasible technologies to reduce emissions to levels that would reduce operational emissions below the significance thresholds were identified. Additionally, the U.S. EPA has the authority to regulate emissions from locomotives and ocean-going vessels, and the U.S. EPA and CARB have the authority to regulate emissions from motor vehicles. The SCAQMD has limited authority to regulate emissions from on-road mobile sources. The SCAQMD, however, has no authority to regulate off-road mobile sources. In particular, the SCAQMD evaluated potential measures to mitigate marine vessel emissions for another project and concluded that the SCAQMD has no jurisdictional authority to impose conditions that affect marine vessel emissions. Further, the SCAQMD is prohibited from imposing mitigation measures that may hinder or impair safety at the Port of Los Angeles. For a complete discussion demonstrating that the SCAQMD has no jurisdictional authority to regulate emissions from marine vessels, the reader is referred to the Mobil Torrance Refinery Fuels Project Volume VII – Revised Draft EIR (SCAQMD, 1998).

Potential alternatives for importing ethanol would be by railcar or by tanker truck, but these modes could lead to emissions similar to those from marine tankers. Importing ethanol by pipeline is not feasible because of the risk of contamination with water.

Similarly, potentially feasible alternatives to exporting pentanes by railcar, such as by marine tanker, would lead to emissions similar to those from import of ethanol by marine tanker. Exporting pentanes by pipeline is not feasible without construction of new pipelines, which is not economically feasible.

The only potentially technically feasible alternative to ethanol delivery to the terminals by tanker truck would be delivery by pipeline. However, pipeline delivery would require dedicated pipelines to avoid contamination by water, and pipelines that could be dedicated to ethanol distribution do not exist.

Therefore, operational NO_X, SO_X, and PM_{10} emissions cannot be mitigated to levels below the significance thresholds. However, it should be noted that marine tanker calls to deliver ethanol are intermittent, so the peak daily emissions will not occur every day. Furthermore, in Table 4.1-21, SO_X and PM_{10} emissions from other sources that are not subject to RECLAIM are anticipated to be 0.2 and 121 pounds per day, respectively, which are below the significance thresholds. Additionally, total NO_X emissions from sources at the Refinery, including sources subject to RECLAIM, are anticipated to decrease by about 8 pounds per day, and NO_X emissions from non-refinery indirect sources are anticipated to be about 53 pounds per day, which is below the significance criterion.

Table 4.1-21
Peak Daily Operational Emissions Summary (Pre-mitigation)

Source	**CO (lb/day)**	**VOC (lb/day)**	**NO_X (lb/day)**	**SO_X (lb/day)**	**PM_{10} (lb/day)**
Direct Emissions					
El Segundo Refinery					
Fugitive VOC from process components	0.0	-46.7	0.0	0.0	0.0
Modified equipment (FCC)	0.0	0.0	0.0	153.4	268.8
Modified equipment (NHT 1)	12.2	6.6	-29.4	7.3	13.7
Cogen Trains A and B	0.0	0.0	0.0	0.0	0.0
New tank 1016	0.0	34.3	0.0	0.0	0.0
Sulfur recovery plant	0.0	0.0	0.0	0.2	0.0
Total	**12.2**	**-5.9**	**-29.4**	**160.9**	**282.5**

Table 4.1-21 (concluded)
Peak Daily Operational Emissions Summary (Pre-mitigation)

Source	CO (lb/day)	VOC (lb/day)	NO_X (lb/day)	SO_X (lb/day)	PM_{10} (lb/day)
Direct Emissions					
Huntington Beach Terminal					
Fugitive VOC from components	0.0	32.3	0.0	0.0	0.0
Converted ethanol storage tank	0.0	-0.1	0.0	0.0	0.0
Total	**0.0**	**32.2**	**0.0**	**0.0**	**0.0**
Montebello Terminal					
Fugitive VOC from components	0.0	40.2	0.0	0.0	0.0
New ethanol storage tank	0.0	5.0	0.0	0.0	0.0
Total	**0.0**	**45.2**	**0.0**	**0.0**	**0.0**
Van Nuys Terminal					
Fugitive VOC from components	0.0	46.7	0.0	0.0	0.0
Converted ethanol storage tanks	0.0	-9.1	0.0	0.0	0.0
Total	**0.0**	**37.6**	**0.0**	**0.0**	**0.0**
Port of Los Angeles					
Ethanol tanker truck loading	0.0	31.7	0.0	0.0	0.0
Total Direct Emissions	**12.2**	**140.7**	**-29.4**[a]	**160.9**[a]	**282.5**
Indirect Emissions					
Refinery switch engine	2.2	1.2	21.3	0.2	0.5
Montebello locomotive	2.3~~1.6~~	1.2~~0.9~~	21.5~~15.3~~	0.2~~0.1~~	0.5~~0.4~~
Ethanol tanker truck deliveries	21.5	5.2	95.0	0.0	71.4
Ethanol marine tanker deliveries	355.4	199.3	3,000.7	2,336.2	488.4
Total Indirect Emissions	**381.4~~380.7~~**	**207.0~~206.7~~**	**3,138.4~~3,132.3~~**	**2,336.6**	**560.8~~560.6~~**

Note:
[a] Emissions from RECLAIM sources.
Sums of individual values may not equal totals because of rounding.

4.1.7 AQMP Consistency

Pursuant to CEQA Guidelines, CCR, Title 14, § 15125 (d), an EIR shall discuss any inconsistencies between the proposed project and applicable general plans and regional plans, which include air quality management plans. The 1997 AQMP and the 1999 amendments to the AQMP demonstrate that applicable ambient air quality standards can be achieved within the timeframes required under federal law. This project must comply with applicable SCAQMD requirements and control measures for new or modified sources. It must also comply with prohibitory rules, such as Rule 403, for the control of fugitive dust. By meeting these requirements, the project will be consistent with the goals and objectives of the AQMP. Furthermore, the production of CARB Phase 3 reformulated gasoline will result in emission reductions from motor vehicles throughout the South Coast Air Basin, which will further the

SCAQMD's efforts to attain and maintain the applicable ambient air quality standards with a margin of safety for sensitive receptors.