CHAPTER 4

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

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4.0 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 INTRODUCTION

This chapter assesses the potential environmental impacts of the construction and operation of the ConocoPhillips Los Angeles Refinery PM10 and NOx Reduction Projects discussed in Chapter 2.

Chapter 4 evaluates those impacts that are considered potentially significant under the requirements of CEQA, as determined by the NOP/IS (see Appendix A). Specifically, an impact is considered significant under CEQA if it leads to a "substantial, or potentially substantial, adverse change in the environment."

Impacts from the proposed projects fall within one of the following categories:

Beneficial – Impacts will have a positive effect on the resource.

No impact – There would be no impact to the identified resource as a result of the proposed projects.

Adverse but not significant – Some impacts may result from the proposed projects; however, they are judged to be insignificant. 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.

Potentially significant but mitigation measures reduce to insignificance – Significant adverse impacts may occur; however, with proper mitigation, the impacts can be reduced to insignificance.

Potentially significant and mitigation measures are not available to reduce to insignificance – Adverse impacts may occur that would be significant even after mitigation measures have been applied to lessen their severity.

The PM10 reduction portion of the proposed projects is to comply with SCAQMD Rule 1105.1 and the SCR projects are to comply with SCAQMD Regulation XX. The air quality analysis of construction-related emissions in the SCAQMD 2003 Final EA for Rule 1105.1 included potential impacts at five refineries in the Basin, assuming one, or a combination of the following two scenarios would occur in order to comply with Rule 1105.1:

- Scenarios Ia and IIa – Demolition of existing ESP equipment and construction of new ESP equipment; and,

- Scenarios Ib and IIb – Cleaning of ESP plates and rebuilding of the existing ESP.

The 2003 Final EA for Rule 1105.1 assumed that ESPs would be installed to comply solely with Rule 1105.1, but did not include the construction scenario of building a WGS or compliance projects associated with other District rules occurring concurrently.

To comply with Rule 1105.1, the 2003 Final EA also assumed that all of the existing ESPs at five of the six refineries in the Basin would either be replaced with new models or rebuilt by December 31, 2006 or by December 31, 2008 (if a requested extension was approved). Construction emissions in the Final EA assumed that two refineries would be under construction at any one time between 2004 and 2008 because of the lead time allowed by the rule. However, refineries did not begin construction until 2006 and most refineries will be under construction concurrently during 2007 and 2008, so that now construction activities at four refineries are expected to overlap (rather than the two analyzed in the Final EA.). Therefore, although the SCAQMD shall utilize the Final EA in its review of the WGS project pursuant to PRC §21159.2(a), there is a need to evaluate the cumulative impacts of construction activities required to comply with Rule 1105.1 at four refineries, rather than two, as well as the cumulative impacts of any other projects at the refineries not previously considered in the Final EA (PRC §21159.2(b)). There is also the need to evaluate the impacts associated with the WGS technology, which was not evaluated in detail in the 2003 Final EA, e.g., aesthetic, water demand, and wastewater impacts.

The SCAQMD prepared a Final EA (2004 Final EA) for proposed amendments to Regulation XX – RECLAIM (SCAQMD, 2004). The 2004 Final EA for Regulation XX assumed that potentially 13 SCR projects could have overlapping construction periods. No concurrent compliance projects other than for Regulation XX were considered. The discussion of environmental impacts set forth in this EIR tiers off the prior EAs, as discussed in more detail at pages 1-2 through 1-4 of the NOP/IS (Appendix A), and as permitted and encouraged by CEQA Guidelines §§15187 and 15189; this EIR provides additional environmental analysis to address project-specific and cumulative impacts and alternatives not previously addressed in the 2003 Final EA or 2004 Final EA.

4.2 AESTHETICS

4.2.1 SIGNIFICANCE CRITERIA

Significance Criteria

The proposed projects impacts on aesthetics will be considered significant if:

- The projects will block views from a scenic highway or corridor.
- The projects will adversely affect the visual continuity of the surrounding area.

- The impacts on light and glare will be considered significant if the projects add lighting which would add glare to residential areas or sensitive receptors.

4.2.2 ENVIRONMENTAL IMPACTS

4.2.2.1 Construction Impacts

Construction activities are expected to require cranes, which will temporarily change the skyline of the Wilmington and Carson Plants. The plants are complex industrial facilities that routinely use cranes for maintenance and upgrade projects. The cranes for the proposed projects are expected to be similar to those routinely used at the plants. Cranes at the Carson Plant will be located near the center of the Plant and are not expected to be visible to the surrounding community. At the Wilmington Plant, cranes and other construction activities will be located near the center of the Plant, at an elevated location, and are expected to be visible to portions of the surrounding community. The proposed projects' construction activities will be located within a heavily industrial area and are not expected to be discernable from routine operations at the plants and are not expected to affect the visual continuity of the surrounding area.

Construction activities are not anticipated to require additional lighting because they are scheduled to take place during daylight hours. However, if the construction schedule requires nighttime activities, temporary lighting may be required. Since the equipment associated with the proposed projects will be completely located within the boundaries of the existing Wilmington and Carson Plants, additional temporary lighting is not expected to be distinguishable from the existing permanent night lighting and no significant adverse impacts on lighting and glare are expected.

4.2.2.2 Operational Impacts

The proposed projects include the addition of two SCRs, a WGS, WESP, and a PTU for the FCCU. There are no scenic highways or corridors in the vicinity of the Wilmington and Carson Plants. Therefore, the proposed projects are not expected to block views from scenic highways or corridors.

The SCRs will have exhaust stacks of similar design as the existing exhaust stacks for Boilers 7 and 11. The proposed SCR Units will be a maximum of 40 feet high, which is smaller than most surrounding structures, so that the SCR Units are not expected to be visible to areas outside of the Refinery. Other surrounding structures include reactors (about 100 feet), heater stacks about 185 feet high, and various vessels and stacks that range in height from 70 to 165 feet. The SCR Units are small in comparison to the surrounding structures and are not expected to be visible to areas outside of the Refinery. Further, the SCR Units will be located within the center portions of the Carson and Wilmington Plants so they are expected to be shielded by other refinery units. Therefore, the SCR Units will not result in significant adverse visual impacts to areas outside of the Refinery.

The WGS will be replacing the existing FCCU exhaust stack at the Wilmington Plant. The WGS will be located in the vicinity of the existing FCCU exhaust stack and will be approximately 200 feet tall (about 50 feet taller than the existing stack). The new WGS will emit steam from a stack approximately 200 feet above grade that is saturated with water, forming a visible steam plume (i.e., contains mostly water). The steam plume is the result of using water to reduce the PM10 emissions in the WGS. Other equipment at the Wilmington Plant routinely generates steam plumes (e.g., cooling towers, see Chapter 3, Figures 3-1 and 3-2). Figures 4-1 and 4-2 show photos of the facility that have been altered to include the anticipated operational effect of the proposed WGS under different weather conditions. Figure 4-1 shows the steam associated with the WGS under temperature and humidity conditions that are typical present at the Wilmington Plant. Figure 4-1 represents the longest plume that will be seen about 77 percent of the time during daylight hours. Figure 4-2 shows the steam plume that will be seen under rare meteorological conditions (i.e., low temperature and/or high humidity) that is expected to occur not more than three percent of the daylight hours (less than about 11 days per year).

The Wilmington Plant is located adjacent to the Port of Los Angeles and near the Port of Long Beach. The industrial nature of the Ports is such that facilities in the Port routinely generate steam plumes (i.e., the Harbor Cogeneration Plant, the Long Beach SERRF facility, the BP Coke Calciner, and other refineries). While the steam plume from the WGS will be visible, it is not expected to adversely affect the visual continuity of the surrounding area and none of the significance criteria are expected to be exceeded.

- The WGS will not block views from a scenic highway or corridor since no scenic highways or corridors a located within the Wilmington area.

- As discussed above, the visual continuity of the surrounding area is not expected to be adversely impacted because the WGS will be constructed within the confines of an industrial area and is visually consistent with existing facilities.

Although the proposed new WGS will be visible, none of the above significance criteria would be exceeded, so no significant aesthetic impacts have been identified.

Finally, the components of the proposed projects will be located within existing industrial facilities, which are already lighted at night for nighttime operations. Consequently, although some minor lighting will be added, no overall increase in lighting impacts associated with the proposed projects is expected at the ConocoPhillips Los Angeles Refinery at either the Carson or Wilmington Plants. Therefore, no significant adverse impacts to light and glare are anticipated from the proposed projects.

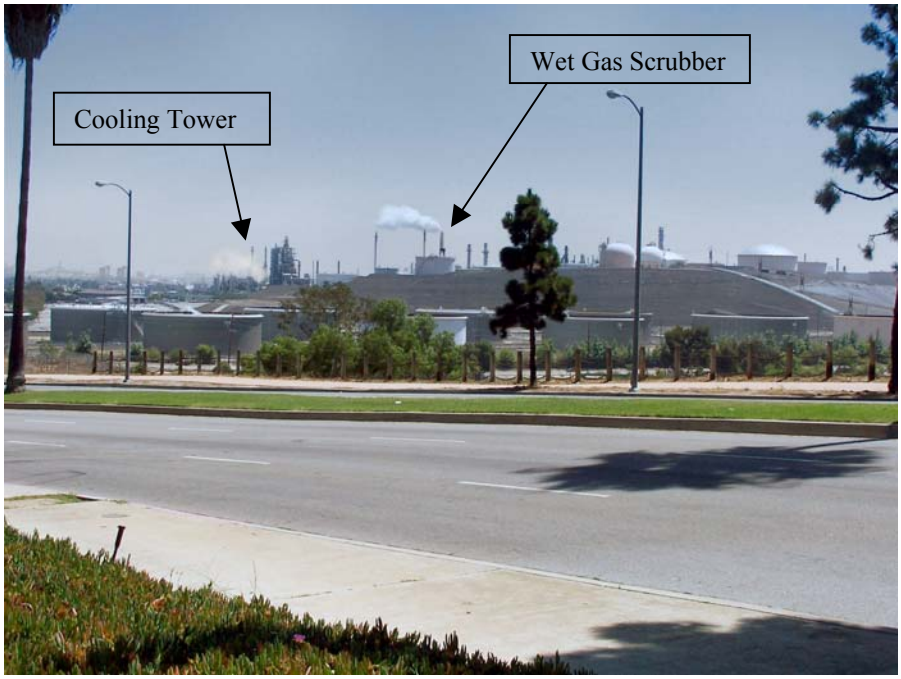

FIGURE 4-1
MODIFIED PHOTO SHOWING WET GAS SCRUBBER (Typical Conditions)

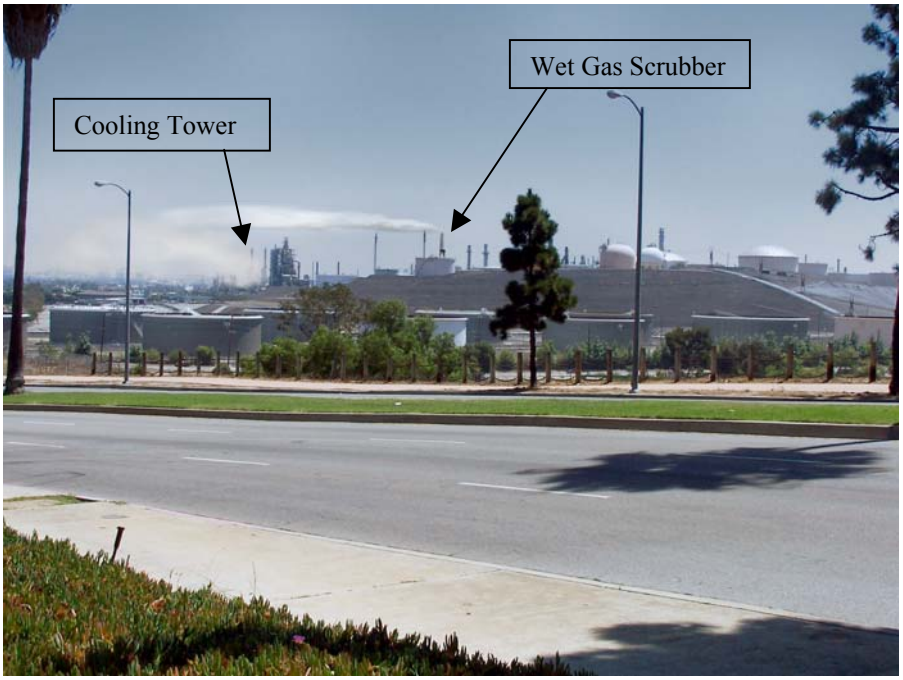

FIGURE 4-2
MODIFIED PHOTO SHOWING WET GAS SCRUBBER
(Under Low Temperature/High Humidity Conditions)

4.2.3 MITIGATION MEASURES

No significant adverse impacts associated with aesthetics are expected from the proposed projects during construction or operational phases, so no mitigation measures are required. ConocoPhillips has conducted and will continue to conduct public outreach programs to inform the surrounding public that the visible plume consists of mainly steam (i.e., water vapor).

4.2.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The aesthetic impacts of the proposed projects are considered to be adverse, but not significant because although the proposed new structures will be visible to the surrounding community, they consist solely of relatively minor additional industrial development within a highly industrial area.

4.3 AIR QUALITY

4.3.1 SIGNIFICANCE CRITERIA

To determine whether or not air quality impacts from the proposed projects are significant, impacts will be evaluated and compared to the significance criteria in Table 4-1. If impacts equal or exceed any of the criteria in Table 4-1, they will be considered significant. All feasible mitigation measures will be identified and implemented to reduce significant impacts to the maximum extent feasible.

The SCAQMD makes significance determinations for construction impacts based on the maximum or peak daily emissions during the construction period, which provides a "worst-case" analysis of the construction emissions. Similarly, significance determinations for operational emissions are based on the maximum or peak daily allowable emissions during the operational phase.

Subsequent to the adoption of the SCAQMD CEQA Air Quality Handbook (SCAQMD, 1993), the SCAQMD adopted Regulation XX - Regional Clean Air Incentive Market (RECLAIM), which fundamentally changed the framework of air quality rules and permits. The RECLAIM program is a pollution credit trading program which applies to the largest sources of NOx and SOx emissions within the jurisdiction of the SCAQMD. RECLAIM facilities (greater than or equal to four tons per year) are given an emissions allocation that reflects their historical usage, but that declines yearly to reduce total emissions. Operators of RECLAIM facilities are also allowed to buy credits in lieu of installing air pollution control equipment or sell credits if the control emissions more than required. The emissions from the universe of RECLAIM facilities were capped in 1994 (initial allocation). The emissions cap declined each year from 1995 to 2003, and is now fixed at a level of approximately 78 percent below the initial levels. After implementation of the RECLAIM program, the SCAQMD staff examined how to apply the CEQA significance thresholds to RECLAIM facilities, recognizing that CEQA case

TABLE 4-1

Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
SOx	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million Hazard Index $\geq$ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants[(a)]		
NO_2 1-hour average annual average	In attainment; significant if project causes or contributes to an exceedance of any standard: 0.25 ppm (state) 0.053 ppm (federal)	
PM10 24-hour annual geometric mean annual arithmetic mean	 10.4 ug/m^3 (recommended for construction)[(b)] 2.5 ug/m^3 (operation) 1.0 ug/m^3 20 ug/m^3	
PM2.5 24-hour average	 10.4 µg/m^3 (construction)[e] & 2.5 µg/m^3 (operation)	
Sulfate 24-hour average	 25 ug/m^3	
CO 1-hour average 8-hour average	In attainment; significant if project causes or contributes to an exceedance of any standard: 20 ppm (state) 9.0 ppm(state/federal)	

(a) Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.

(b) Ambient air quality threshold based on SCAQMD Rule 403.

ppm = parts per million; µg/m^3 = microgram per cubic meter; mg/m^3 = milligram per cubic meter; lbs/day = pounds per day; $\geq$ greater than or equal to

law directs that the existing environmental setting include permits and approvals that entitle operators to conduct or continue certain activities. SCAQMD staff determined that the baseline should consist of the RECLAIM initial allocation for each RECLAIM facility, and that a proposed project would be considered significant if it would cause the facility's emissions to exceed the baseline plus the adopted significance threshold.

Under the RECLAIM program, the SCAQMD issued facility-wide permits to sources. The facility permits specify an initial allocation and annual emission allocations for NOx and SOx. The initial allocations were based on historical reported emissions for the years immediately prior to implementation of the RECLAIM program. Annual allocations represent the number of RECLAIM Trading Credits (RTCs) the facilities begin with each year and the allocations showed a decline each year from 1994 through 2003. Operators of RECLAIM sources must not emit more than the total number of RECLAIM credits they possess, which include the annual allocation plus any credits bought and minus any credits sold. In this way, the RECLAIM process reduces, on an annual basis, the overall emissions of NOx and SOx in the Basin, while providing flexibility to individual facilities that purchase RTCs so that they can operate to their actual emission levels established in 1994. RECLAIM facilities can also reduce emissions through a variety of ways including curtailing production and installing pollution control equipment to reduce emissions below their annual allocations. These facilities can generate credits to sell. Although the allocations for RECLAIM facilities have declined each year since 1994, the maximum annual emissions of NOx and SOx permitted to each facility remain at the 1994 limits, provided that additional allocations ("trading credits") are acquired from another RECLAIM facility that has reduced its emissions below its current-year allocation.

Air quality impacts for a RECLAIM facility are considered to be significant if the incremental mass daily emissions for NOx and SOx from sources regulated under the RECLAIM permit, when added to the allocation for the year in which the project will commence operations, will be greater than the facility's 1994 allocation (including non-tradable credits) plus the mass daily emissions significance thresholds established in the SCAQMD Air Quality Handbook for that pollutant (55 pounds per day [lb/day] for NO_x and 150 lb/day for SO_x). In order to make this calculation, annual allocations as well as the project's incremental annual emissions are converted to a daily average by dividing by 365. Thus, the proposed project is considered significant if:

$$(A_1/365) + I < (P + A_2)/365$$

Where:

P = the annual emissions increase associated with the proposed project.

A_1 = 1994 initial annual allocation (including non-tradable credits).

A_2 = Annual allocation in the year the proposed project will commence operations.

I = Incremental emissions established as significant in the SCAQMD Air Quality Handbook (55 lb/day NO_x or 150 lb/day SO_x).

The determination of CEQA significance for RECLAIM facilities applies only to operational emissions of NOx and/or SOx that would be included in the RECLAIM allocation and subject to the RECLAIM regulations. The RECLAIM CEQA significance determination does not apply to sources that would not be regulated by the RECLAIM regulations (i.e., off-site sources of emissions such as trucks, rail cars, and marine vessels), construction emission sources, and to non-RECLAIM pollutants (i.e., VOC, CO, and PM10) for which the SCAQMD has established significance thresholds. The level of emissions at which CEQA significance is triggered for RECLAIM pollutants NOx and SOx for the ConocoPhillips Los Angeles Refinery ($(A_1/365) + I$) is calculated in Table 4-2.

TABLE 4-2

Determining Significance for RECLAIM Pollutants at the ConocoPhillips Los Angeles Refinery

Pollutant	A_1 Initial Allocation (lb/yr)[a]	$A_1/365$ Initial Allocation (lb/day)	I Significance Threshold (lb/day)	$A_1/365 + I$ (lb/day)	2010 Allocation (lb/day)	Maximum Allowable Emission Increase
Wilmington Plant						
NO_x	3,035,918	8,318	55	8,373	3,314	5,059
SO_x	1,802,538	4,938	150	5,088	2,459	2,629
Carson Plant						
NO_x	1,292,790	3,542	55	3,597	792	2,805
SO_x	486,168	1,332	150	1,482	1,307	175

[a] Includes non-tradeable credits

The use of the RECLAIM CEQA NOx and SOx significance criteria to determine the significance of air quality impacts from stationary sources subject to RECLAIM at the ConocoPhillips Los Angeles Refinery is appropriate because the refinery is a RECLAIM facility. However, the proposed projects reduce NOx and SOx emissions; therefore, there is no increase in emissions of NOx or SOx from stationary sources, and no exceedance of significance thresholds so the significance criteria identified in Table 4-2 are not applicable to the proposed projects.

4.3.2 ENVIRONMENTAL IMPACTS

4.3.2.1 Construction Emission Impacts

4.3.2.1.1 Regional Impacts

Construction emissions are expected from the following equipment and processes:

Construction Equipment (dump trucks, backhoes, graders, etc.)

Vehicle Emissions, including Delivery Trucks and Worker Trips
Fugitive Dust Associated with Site Construction Activities
Fugitive Dust Associated with Travel on Paved Roads

Construction emissions were calculated for different phases of construction activities. As shown in Figure 2-6, construction activities vary for the various portions of the proposed projects, but construction activities overlap for portions of the projects. ConocoPhillips expects that the start date for construction activities related to the proposed projects will begin in July 2007. Therefore, emission calculations were completed (see Appendix B) that assume proposed projects will begin in July 2007. Daily construction emissions were calculated for the peak construction day activities. Peak day emissions are the sum of the highest daily emissions from employee vehicles, fugitive dust sources, construction equipment, and transport activities for the construction period. Peak construction emissions for all pollutants are expected to occur during the construction phases of the projects at the Carson and Wilmington Plants, which overlap between December 2007 and November 2008 (see Appendix B). The construction phases for the WGS/WESP, SCR for Boiler 7, and SCR for Boiler 11 overlap and the peak construction emissions for the proposed projects occur during this overlap period (December 2007 through November 2008). The cumulative impacts analysis for the proposed projects and other related projects can be found in Chapter 5.

The peak daily emissions were calculated for each pollutant and are included in Table 4-3. The peak emissions for all pollutants are estimated to occur during the construction phase of all proposed projects (see Appendix B). Detailed construction emissions calculations are provided in Appendix B.

Construction Equipment

On-site construction equipment will be a source of combustion emissions. Construction equipment may include backhoes, compressors, cranes, forklifts, front-end loaders, generators, and welding machines. Most of the equipment is assumed to be operational for ten hours per day. Construction workers are expected to be at the site for longer than ten hours per day, but including time for lunch and breaks, organization meetings, and so forth, construction equipment would not be expected to operate for more than ten hours per day. Emission factors for construction equipment were taken from the off-road emission factors available on the SCAQMD CEQA webpage (SCAQMD, 2006, http://www.aqmd.gov/ceqa/handbook/offroad/offroadEF06_20.xls) using site-specific information, where available. Estimated emissions from construction equipment used for construction activities are included in Table 4-3.

Vehicle Emissions

Vehicle emissions include construction workers, refueling trucks, dump trucks, flatbed trucks and delivery trucks. Primary emissions generated will include combustion

emissions from engines during idling and while operating. Emissions are based on the estimated number of trips per day and the round trip travel distances.

TABLE 4-3

ConocoPhillips Los Angeles Refinery
Peak Daily Construction Emissions
(lbs/day)

ACTIVITY	CO	VOC	NOx[(1)]	SOx	PM10	PM2.5[(2)]
Wilmington Plant						
Construction Equipment	54.32	19.04	95.83	0.09	6.63	6.10
Vehicle Emissions and Road Dust	49.39	5.65	15.65	0.04	2.65	2.44
Fugitive Dust From Construction	--	--	--	--	59.01	12.27
Subtotal, Wilmington Plant	**103.71**	**24.69**	**110.98**	**0.13**	**68.29**	**20.81**
Carson Plant						
Construction Equipment	3.08	1.04	9.07	0.01	0.42	0.39
Vehicle Emissions and Road Dust	15.08	1.74	5.07	0.01	0.83	0.76
Fugitive Dust From Construction	--	--	--	--	23.52	4.89
Subtotal, Carson Plant	**18.16**	**2.78**	**14.14**	**0.02**	**24.77**	**6.04**
Proposed Projects Total Construction Emissions						
Total Construction Emissions[(3)]	**121.87**	**27.47**	**125.12**	**0.15**	**93.06**	**26.85**
SCAQMD Significance Threshold	550	75	100	150	150	55
Significant?	NO	NO	YES	NO	NO	NO

(1) Peak day emissions are expected to occur during the construction phase overlap for Boiler 7, WGS, and Boiler 11.
(2) PM2.5 fraction of PM10 calculated using the SCAQMD PM10 to 2.5 fraction file available at http://www.aqmd.gov/ceqa/handbook/PM2_5/finalAppA.doc.
(3) Construction emissions at the Carson Plant plus construction emissions at the Wilmington Plant. The emissions in the table may differ slightly from those in Appendix B due to rounding.

Construction emissions include emissions from construction worker vehicles traveling to and from the work site. Emission calculations were estimated assuming a maximum of 100 workers traveling to the Wilmington Plant and about 30 workers traveling to the Carson Plant each weekday during the construction activities (see Appendix B). Each worker commute vehicle is assumed to travel 16.2 miles (SCAG, 2000) to and from work each day, making two one-way trips per day. Emissions from employee vehicles are presented in Table 4-3. Emissions from employee vehicles were calculated using the EMFAC2002 emission factors from the SCAQMD CEQA webpage (SCAQMD, 2005, http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html). Estimated exhaust emissions for workers commuting are included in Table 4-3.

Medium-duty diesel trucks include flatbed trucks, delivery trucks, refueling trucks, dump trucks and water trucks. Primary emissions generated will include exhaust emissions from diesel engines while operating. Emission calculations were estimated assuming a maximum of eight delivery trucks traveling to the Wilmington Plant and three delivery trucks traveling to the Carson Plant each day during the peak construction emission period to deliver large equipment. Delivery trucks are assumed to travel on average of 50 miles per trip. Flatbed, refueling and dump trucks are expected to travel locally at an average of 10 miles per day and would be medium duty vehicles. Emissions from trucks were calculated using the EMFAC2002 emission factors developed by CARB. Estimated emissions for heavy trucks are included in Table 4-3. Detailed emission calculations are provided in Appendix B.

Fugitive Dust Associated with Site Construction Activities

Fugitive dust sources include grading, trenching, wind erosion and truck filling/dumping at the site to construct necessary foundations. During construction activities, water used as a dust suppressant will be applied in the construction area during grading, trenching, and earth-moving activities to control or reduce fugitive dust emissions. Application of water reduces emissions by a factor of approximately 34 to 68 percent (SCAQMD, 1993). It is assumed herein that one water application per day reduces emissions by 34 percent and two applications reduce emissions by 50 percent. Fugitive dust suppression, often using water, is a standard operating practice and is one method of complying with SCAQMD Rule 403. Estimated peak PM10 emissions during peak construction activities for fugitive dust sources are provided in Table 4-3. The detailed emission calculations are provided in Appendix B.

Fugitive Dust Associated with Travel on Paved Roads

Vehicles and trucks traveling on paved roads are also a source of fugitive emissions during the construction period. Fugitive dust emissions were also calculated for on-site cars, light-duty trucks and buses. The fugitive emissions for trucks assume delivery trucks will travel on paved roads and water trucks will travel on unpaved roads. Emissions of dust caused by travel on paved roads were calculated using the U.S. EPA's, AP-42, Section 13.2.1 emission factor for travel on paved roads and using the CARB's Methodology 7.9 to determining the appropriate silt loading. No travel on unpaved roads is expected because the roads within the Refinery are paved. The estimated PM10 emissions during peak construction activities from trucks and passenger autos for fugitive dust on paved roads are provided in Table 4-3.

Miscellaneous Emissions

In addition to the construction-related emissions already identified for the proposed projects, the projects could generate emissions of VOC if contaminated soil is found and soil remediation activities are necessary. Emission estimates for VOC would be speculative at this time, however, because the amount of contaminated soil, if any, and

the levels of contamination are currently unknown. VOC-contaminated soil is defined as soil which registers 50 parts per million or greater per the requirements of SCAQMD Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil.

Excavation in impacted areas is heavily regulated, and ConocoPhillips has developed detailed procedures to manage these activities. In the event that contaminated soil is discovered onsite, the Refinery employs contractors that have soil mitigation plans for impacted soils pursuant to SCAQMD Rule 1166 (the "Rule 1166 Plan"). These plans were reviewed and approved by the SCAQMD. Copies of the plans are on file with the SCAQMD. Pursuant to the Rule 1166 Plan, when the Refinery encounters soil that is impacted by petroleum hydrocarbons, it must have the soil analyzed by a State-certified laboratory to determine the concentration and type of contamination. During excavation, the impacted soils area is subject to periodic organic vapor analyzer sampling of impacted soils. Measures to minimize fugitive emissions generally include covering soil piles with heavy plastic sheeting, watering activities to assure the soil remains moist, and use of odor suppressants as appropriate. Soil remediation activities are under the jurisdiction of the Los Angeles Regional Water Quality Control Board (RWQCB) and it may be necessary for the RWQCB and SCAQMD to coordinate in order to assure air quality impacts are adequately mitigated.

The ConocoPhillips Refinery also is subject to Occupational Safety and Health Agency (OSHA) regulations in its construction projects and operations, including in connection with the proposed projects.

In addition to the numerous requirements imposed by regulations, ConocoPhillips has implemented institutional controls in the form of a Policy & Procedures Manual that governs soil excavation, spill clean-up, trenching, and earthwork. The Soil Excavation Policy further defines the procedures to be followed for assurance that soils excavation, including soil removal due to spills, is carried out in conformance with applicable regulations. Among other things, the Soils Excavation Policy addresses advance notice relating to potentially impacted soil, training for those responsible for defining and overseeing soils excavation work, and air monitoring procedures and equipment. The Soils Excavation Policy also requires the contractor performing excavation to immediately stop excavating if VOC concentrations measured in soils exceed 50 ppm. Because of the existing policies, plans and regulations in place to control fugitive emissions due to contaminated soils, no significant adverse air quality impacts are expected should contaminated soils be encountered.

Construction Emission Summary

Construction activities associated with the modifications to the Refinery would not result in significant emissions of CO, VOC, SOx, PM10, and PM2.5. Construction activities associated with the proposed project are expected to exceed the significance threshold for NOx. Peak daily construction emissions for the proposed projects are summarized in Table 4-3, together with the SCAQMD's daily construction threshold levels. The

construction phase of the Refinery's proposed projects will not exceed the significance thresholds for CO, VOC, SOx, PM10, and PM2.5; however, NOx emissions are expected to exceed the significance thresholds. Therefore, the air quality impacts associated with construction activities are less than significant for CO, VOC, SOx, PM10, and PM2.5 emissions. The air quality impacts associated with construction activities are significant for NOx emissions.

4.3.2.1.2 Localized Construction Impacts

The SCAQMD has developed a localized significant threshold (LST) methodology to evaluate the potential localized impacts of criteria pollutants from construction activities (SCAQMD, 2003c). The LST methodology requires an analysis regarding whether or not emissions of specified criteria pollutants exceed ambient air quality standards at a sensitive receptor. The LST analysis is performed for emissions of carbon monoxide (CO), nitrogen dioxide (NO_2), and particulates, both PM10 and PM2.5, associated with the proposed projects.

The ConocoPhillips Refinery is located in source receptor area 4 (SCAQMD, 2003c). The estimated construction emissions associated with construction of the new SCR units and the WGS were compared to the SCAQMD adopted localized significance thresholds for CO, NOx, and PM10. In all cases, the construction emissions were below the localized significance thresholds (see Table 4-4). Therefore, no significant localized air quality impacts are expected.

TABLE 4-4

Localized Significance Threshold Emissions Comparison

	Emissions (lbs/day)		
	CO	**NOx**	**PM10**
Wilmington Plant			
Total Construction Emissions(1)	54	95	66
Localized Significance Threshold(2)	6,547	311	242
Significant?	No	No	No
Carson Plant			
Total Construction Emissions(1)	18	14	25
Localized Significance Threshold(2)	1013	150	89
Significant?	No	No	No

(1) The sum of the highest peak day on-site construction emissions only

(2) Source: Localized Significance Threshold Methodology, SCAQMD, 2003 for resource receptor area No. 4, south coastal Los Angeles County, one acre sites and closest receptor at 100 and 500 meters at the Carson and Wilmington plants, respectively.

4.3.2.2 Operational Emission Impacts

The operational emissions from the proposed projects are evaluated in this section. Detailed emission calculations are provided in Appendix B. The total operational emissions from the proposed projects are identified in Table 4-5. The proposed projects are primarily emission reductions projects. At the Wilmington Plant, a new WGS, WESP, and a PTU for the FCCU, a caustic storage tank and an SCR on Boiler 7 with an aqueous ammonia storage tank will be installed. At the Carson Plant, an SCR will be installed on Boiler 11, as well as low NOx burners.

TABLE 4-5

ConocoPhillips Los Angeles Refinery Stationary Source Peak Daily Operational Emissions (lbs/day)[(1)]

Sources	CO	VOC	NOx	SOx	PM10	PM2.5
STATIONARY SOURCES:						
Wilmington Plant						
Wet Gas Scrubber	--	--	--	(1,300 -1,600)	(~200)	--[(2)]
Purge Treatment Unit	--	--	--	--	--	--
Ammonia Storage Tank	--	--	--	--	--	--
SCR on Boiler 7	--	--	(160 – 370)	--	--	--
Carson Plant						
SCR and Low NOx Burner on Boiler 11	--	--	(290 – 545)	--	--	--
Total Stationary Source Emission Increases:	**0.0**	**0.0**	**(450 – 915)**	**(1,300-1,600)**	**(~200)**	--
OFF-SITE EMISSION SOURCES:						
Delivery Trucks	0.55	0.12	3.56	0.00	0.06	**0.06**
Fugitive Road Dust	--	--	--	--	2.01	**0.42**
Total Off-Site Emission Increases:	**0.55**	**0.12**	**3.56**	**0.00**	**2.07**	**0.48**
Total Daily Operational Emission Increases:	**0.55**	**0.12**	**(446 – 911)**	**1,300-1,600)**	**(~198)**	**0.48**
SCAQMD Significance Thresholds	550	55	55	150	150	**55**
Significant?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

(1) See Appendix B for detailed emission calculations. Numbers in parentheses denote emission reductions.
(2) The portion of PM10 emission reductions from the WGS that is PM2.5 is currently unknown.

Operational emissions are characterized as either stationary source emissions or off-site source emissions. Stationary emission sources include the WGS, WESP, PTU, and the SCRs. Affected stationary sources will provide emission reductions and do not generate emission increases with the exception of minor ammonia emissions from the SCR units.

The only operational emission increases associated with the proposed projects are associated with the increase in truck trips to deliver additional aqueous ammonia for the new SCR's and additional caustic for the WGS. The maximum operational emission increase assumes that a maximum of two truck deliveries of aqueous ammonia and/or caustic occur each day, one to the Wilmington Plant and one to the Carson Plant. At Wilmington, the WGS will require one truck trip to deliver caustic about every three days; the Boiler 7 SCR will require one truck trip to deliver aqueous ammonia about every twelve days. At Carson, the Boiler 11 SCR will require one truck trip to deliver aqueous ammonia about every fourteen days. Total operation emissions from the proposed projects are summarized in Table 4-5, together with the SCAQMD's daily operational threshold levels. The operation of the proposed projects is not expected to exceed the SCAQMD significance thresholds for any pollutant. Therefore, the air quality impacts associated with operational emissions from the proposed projects are less than significant. Additional documentation of the procedures used to calculate the emissions estimates is provided in Appendix B.

The use of SCR control equipment has become a widespread method of complying with SCAQMD NOx control rules and the SCAQMD has reviewed SCR technology in a number of CEQA documents (e.g., Final EIR for Rule 1135, August 1989, SCH No. 88032315 and Final EIR for Rule 1134, August 1989, SCH No. 86121708, which are incorporated by reference). The SCAQMD has evaluated potential air quality impacts resulting from secondary particulate formation from ammonia slip emissions. The SCAQMD concluded in the CEQA documents identified above that secondary particulate formation from ammonia slip would not be considered a significant adverse air quality impact if ammonia slip is limited to 10 ppm or less.

Ammonia slip depends on a variety of factors including space velocity, ammonia to NOx molar ratio, temperature, and NOx inlet concentration. Better technology has allowed operators to minimize ammonia slip: (1) by ensuring adequate mixing of ammonia in the flue gas to maintain uniform ammonia injection; (2) maintaining the proper ammonia to NOx molar ratio; (3) decreasing the exhaust gas flow rate; (4) maintaining consistent exhaust velocity, and maintaining an optimal temperature regime (SCAQMD, 1990). The potential for secondary particulate emissions can be alleviated by reducing ammonia slip (SCAQMD, 1990). This will be done for the SCR units for the proposed projects by imposing a BACT limit of five ppm ammonia slip limit on the SCAQMD permits for each SCR unit. Therefore, no significant adverse air quality impacts are expected due to the formation of secondary particulate emissions due to ammonia slip.

The potential impacts of ammonia are also evaluated under Section 4.3.2.4 – Toxic Air Contaminants.

4.3.2.3 Operational Emission Benefits

Table 4-5 describes the potential emission increases and decreases associated with the operation of the proposed projects. It should be noted that the proposed projects are expected to provide emission benefits associated with the following:

- The proposed projects are expected to reduce particulate emissions from the FCCU due to the installation of additional air pollution control equipment (new WGS and WESP) through compliance with Rule 1105.1. The WGS/WESP are expected to reduce PM10 emissions by about 200 lbs/day and eliminate ammonia emissions. The PM10 reduction is based on the difference between historical emissions of about 15 lb/hr and the Rule 1105.1 limit of less than 6 lb/hr.

- The proposed projects are expected to reduce SOx emissions from the FCCU due to the installation of the new WGS. The WGS is expected to reduce SOx emissions by approximately 1,300 to 1,600 lbs/day, based on the difference between historical emissions as reported for RECLAIM and projected SOx emissions of about 10 to 20 ppm with the WGS.

- The proposed projects are expected to reduce NOx emissions from the Wilmington Plant Boiler 7 and Carson Plant Boiler 11 due to the installation of additional air pollution control equipment (SCRs). It is expected that NOx emissions will decrease by 160 to 370 lbs/day for Boiler 7 and 290 to 545 lbs/day for Boiler 11, depending on firing rate. The estimated reductions are based on the difference between historical emissions as reported for RECLAIM and projected NOx emissions of about 10 ppm with the SCR's.

Therefore, following completion of the construction phase, the proposed projects are expected to provide an overall beneficial impact on air quality.

4.3.2.4 Toxic Air Contaminants

A health risk assessment screening was performed for each project to determine if emissions of toxic air contaminants generated by the proposed projects would exceed the SCAQMD thresholds of significance. The proposed projects will increase the use of ammonia at the Wilmington and Carson Plants and potentially generate ammonia emissions through ammonia slip. Ammonia is regulated as a toxic air contaminant under SCAQMD Rule 1401, New Source Review for Toxic Air Contaminants. A Tier 1 screening health risk assessment was prepared for the proposed emissions increase from each new SCR unit using the SCAQMD Rule 1401 Risk Assessment Procedures (Version 7.0).

New SCR Unit for Boiler 7 at Wilmington Plant: The ammonia emission estimates for the new Wilmington Plant SCR unit were calculated using the SCAQMD BACT permit limit for ammonia slip of five parts per million (ppm) (see Appendix B). The annual

estimated emissions of 6,205 lbs/year were compared to the chronic screening level (51,700 lbs/year). The chronic screening level of 51,700 lbs/year is the highest level of ammonia emissions that can be emitted before triggering a chronic hazard index of 1.0. The estimated ammonia emissions are substantially below the yearly screening level for ammonia; therefore, the chronic hazard index for the proposed project is expected to be less than the chronic hazard index significance threshold of 1.0. Therefore, no significant adverse chronic health impacts are expected due to exposure to ammonia.

A screening health risk assessment was also prepared to evaluate the potential for acute health impacts. The maximum one-hour ammonia emission estimate (0.71 lb/hour) was compared to the acute screening level for ammonia (8.57 lbs/hour). The acute screening level of 8.57 lbs/hour is the highest level of ammonia emissions that can be emitted before triggering an acute hazard index of 1.0. The estimated hourly ammonia emission rate is substantially below the hourly screening threshold for ammonia; therefore, the acute hazard index for the proposed project is expected to be less than the acute hazard index significance threshold of 1.0. Therefore, no significant adverse acute health impacts are expected due to exposure to ammonia from the new SCR unit.

Ammonia does not have a cancer potency value and is not classified as a carcinogen. Therefore, a cancer risk analysis was not performed.

New SCR Unit for Boiler 11 at Carson Plant: The ammonia emission estimates for the new Carson Plant SCR unit were calculated using the SCAQMD BACT permit limit for ammonia slip (five ppm). The annual estimated emissions of 7,026 lbs/year were compared to the chronic screening level (51,700 lbs/year). The chronic screening level of 51,700 lbs/year is the highest level of ammonia emissions that can be emitted before triggering a chronic hazard index of 1.0. The estimated ammonia emissions are below the yearly screening level for ammonia; therefore, the chronic hazard index for the proposed projects is expected to be less than the chronic hazard index threshold of 1.0. Therefore, no significant adverse chronic health impacts are expected due to exposure to ammonia from the new SCR unit.

A screening health risk assessment was also prepared to evaluate the potential for acute health impacts for the new SCR unit. The one-hour ammonia emission estimates (0.802 lbs/hour) were compared to the acute screening level for ammonia (8.57 lbs/hour). The acute screening level of 8.57 lbs/hour is the highest level of ammonia emissions that can be emitted before triggering an acute hazard index of 1.0. The estimated hourly ammonia emission rate is below the hourly screening threshold for ammonia; therefore, the acute hazard index for the proposed projects is expected to be less than the acute hazard index significance threshold of 1.0. Therefore, no significant adverse acute health impacts are expected due to exposure to ammonia from the new SCR unit.

Ammonia does not have a cancer potency value and is not classified as a carcinogen. Therefore, a cancer risk analysis was not performed.

4.3.2.5 Greenhouse Gas Emissions

Since these ConocoPhillips proposed projects reduce emissions of PM, SOx, and NOx from existing sources without affecting the maximum capacity and/or permitted firing rates of those sources, the proposed projects have no adverse affect on or increased emissions of greenhouse gases.

4.3.3 MITIGATION MEASURES

Mitigation measures are required to reduce the potentially significant impacts associated with NOx emissions during construction activities. The SCAQMD 2003 Final EA for Rule 1105.1 included the following mitigation measures, where feasible, to reduce emissions associated with construction activities for Rule 1105.1 projects:

- Develop a Construction Traffic Emission Management Plan to minimize emissions from vehicles including, but not limited to, scheduling truck deliveries to avoid peak hour traffic conditions, consolidating truck deliveries, and prohibiting truck idling in excess of five consecutive minutes or what is allowed under Title 13 California Code of Regulations §2485 (CARB's Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling).

- Suspend the use of all construction equipment during first-stage smog alerts.

- Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment to the extent feasible.

- Maintain construction equipment by conducting regular tune-ups and retard diesel engine timing, to the extent feasible.

- Use electric welders to avoid emissions from gas or diesel welders in portions of the project site where electricity is available.

- Use on-site electricity rather than temporary power generators in portions of the project site where electricity is available.

- Prior to use in construction, the project applicant will evaluate the feasibility of retrofitting the large off-road construction equipment that will be operating for significant periods. Retrofit technologies such as particulate traps, SCR, oxidation catalysts, air enhancement technologies, etc., will be evaluated. These technologies will be required if they are certified by CARB and/or the EPA and are commercially available and can feasibly be retrofitted onto construction equipment.

No mitigation measures are required for operation because the proposed project was determined to be less than significant in the operational phase.

4.3.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The construction emissions of NOx are expected to remain significant following mitigation. Construction impacts of the proposed projects are considered to be less than significant for CO, VOC, SOx, PM10 and PM2.5. The operational emissions associated with the proposed projects would be less than significant for all pollutants because no CEQA significance thresholds would be exceeded.

4.4 HYDROLOGY AND WATER QUALITY

The NOP/IS (see Appendix A) determined the hydrology and water quality impacts of the proposed projects at the ConocoPhillips Carson Plant were less than significant. However, the NOP/IS identified wastewater discharges associated with the WGS at the Wilmington Plant as having the potential for significant impacts. The hydrology and water quality impacts at the Wilmington Plant is provided in this section.

4.4.1 SIGNIFICANCE CRITERIA

Hydrology/water quality impacts will be considered significant if any of the following occur:

- Substantial increases in mass inflow of effluents to public wastewater treatment facilities.
- Substantial degradation of surface water or ground water quality.
- Changes in absorption rates, drainage patterns or the rate and amount of surface runoff.
- Substantial increases in the area of impervious surfaces, such that interference with ground water recharge efforts occurs.
- Alternations to the course of flow of floodwaters.

4.4.2 ENVIRONMENTAL IMPACTS

4.4.2.1 Construction Impacts

No significant increase in wastewater generation is expected due to the construction phase of the proposed projects. Wastewater may be created from the pressure-testing of vessels and pipelines to ensure integrity and may contain minor amounts of oil, scale, and rust. Wastewater resulting from hydrostatic testing or start up of the WGS will be routed

to the existing process wastewater treatment systems and recycled or discharged after treatment along with the process wastewater. Therefore, wastewater generated during hydrostatic testing will not affect groundwater quality. The volume of wastewater that will be treated can be accommodated within the capacity of the refinery's existing wastewater treatment systems.

Construction workers will be required to use portable sanitary facilities maintained by the contractor. Sanitary wastes at staging areas will be collected in portable chemical toilets and removed by a private contractor and disposed of off-site.

The proposed construction is anticipated to disturb less than one acre at each Plant site. As the area to be disturbed is less than one acre, a NPDES General Permit for Storm Water Discharges Associated with Construction Activity (Storm Water Construction Permit) is not required. Because the proposed projecst disturbs such a small area (less than one acre), on-site collection of storm water in the existing refinery's combined process and storm water sewer system is expected to be approximately the same as that currently collected; therefore, no significant adverse impacts are expected from storm water during construction.

4.4.2.2 Operational Impacts

Wastewater Discharges: The Wilmington Plant currently discharges about 2.6 million gallons per day (1,800 gallons per minute) of wastewater. Higher wastewater discharges can occur during periods of heavy rain (over 5,000 gallons per minute). Process wastewater streams from the Wilmington Plant are treated in the Oil Recovery Unit (ORU) before discharge to the sewer under a permit from the LACBS.

The construction of the WGS requires additional water use and will result in additional wastewater discharged. The NOP/IS indicated that the WGS would result in an estimated increase in wastewater discharged at the Wilmington Plant of about 259,200 gallons per day (about 180 gallons per minute). Additional engineering of the WGS has occurred such that the estimated wastewater discharge from the equipment is expected to be about 70 gallons per minute (about 100,800 gallons per day). The increase in wastewater discharge represents about a four percent increase in wastewater discharge over current operating conditions. The on-site ConocoPhillips wastewater treatment equipment can handle the increase because it is within the range of wastewater typically handled by the Refinery (1,800 gallons per minute) and the maximum wastewater discharges (over 5,000 gallons per minute).

The potential impacts of the increase in wastewater have been reviewed with the LACBS. The wastewater discharge permit allows ConocoPhillips to discharge zero to more than 5,000 gallons per minute. The permit does not contain a maximum limit on the flow, but references the average flow rate. Modifications to the wastewater discharge permit will be required to add the WGS discharge to the drawing showing sources of wastewater and possibly providing drawings that show the oxidation system of the WGS for sulfide

control. The LACBS has indicated that the 70 gallons per minute increase in wastewater is within the range of the wastewater flows typically sent to the LACBS and they do not expect significant adverse impacts to the wastewater treatment system (personal communication, Nicanor Tolentino, LACBS).

The LACBS permit requires monthly sampling for arsenic, cadmium, chromium, copper, cyanides, lead, mercury, nickel, zinc, silver, total phenol, pH, dissolved sulfides, chlorides, suspended solids, chemical oxygen demand, biochemical oxygen demand and ignitability. Daily sampling is required for ammonia, oil and grease, selenium and thiosulfate. The ability to comply with existing permit limits for regulated contaminants is not expected to change as a result of the additional WGS discharge. As a result, significant adverse impacts associated with wastewater discharges at the refinery are not expected.

Storm Water Quality: The existing Storm Water Pollution Prevention Plan will be reviewed and, if necessary, updated to reflect operational modifications to the Plant and include additional Best Management Practices, if required. As discussed in Chapter 3.4.2, wastewater streams at the Wilmington Plant are combined and treated in the ORU before discharge to the sewer. Accordingly, since stormwater discharge or runoff to local storm water systems does not occur, no significant adverse storm water quality impacts are expected to result from the operation of the proposed projects.

Groundwater Quality: The proposed new equipment will be constructed on concrete pads or asphalt, which will allow materials to be contained and recovered in the event of equipment leaks. The proposed modifications include additional piping to transport water to the WGS. The proposed new piping will be leak tested prior to operation, which will ensure that contaminants will not be released by leaks from the piping. The proposed projects do not require construction of new storage tanks that would have the potential to leak and release contaminants into groundwater. The new aqueous ammonia tank is mounted on saddles above ground in a concrete containment area. The new caustic tank will have a double wall design for containment. Therefore, the proposed projects are not expected to cause significant adverse impacts to groundwater quality.

4.4.3 MITIGATION MEASURES

No significant adverse impacts associated with hydrology and water quality from the proposed projects are expected during construction or operational phases, so no mitigation measures are required.

4.4.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The hydrology and water quality impacts of the proposed projects are considered to be less than significant because no CEQA significance thresholds would be exceeded.

4.5 TRANSPORTATION AND TRAFFIC

4.5.1 SIGNIFICANCE CRITERIA

The impacts on transportation and traffic will be considered significant if any of the following criteria apply:

- Peak period levels on major arterials within the vicinity of the proposed project sites are disrupted to a point where intersections with a LOS of C or worse are reduced to the next lower LOS, as a result of the projects for more than one month.

- An intersection's volume to capacity ratio increases by 0.02 (two percent) or more when the LOS is already D, E or F for more than one month.

- A major roadway is closed to all through traffic, and no alternate route is available.

- There is an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.

- The demand for parking facilities is substantially increased.

- Substantial alterations to current circulation or movement patterns of people and goods are induced.

- Water borne, rail car or air traffic is substantially altered.

- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.

4.5.2 ENVIRONMENTAL IMPACTS

4.5.2.1 Construction Impacts

The following evaluates the construction traffic impacts associated with the PM10 and NOx Emission Reduction Projects at the ConocoPhillips Los Angeles Refinery. The construction of modifications at the Refinery will create additional traffic from travel by construction workers and transportation of materials and equipment to and from both the Wilmington and Carson Plants. Traffic impacts were evaluated based on the potential peak labor force at each location. The complete Traffic Analysis is included in this EIR as Appendix D.

Carson Plant: It was determined that the peak construction labor force of about 30 workers would be expected during peak construction activities. The traffic analysis (see

Appendix D) makes worst-case assumptions regarding traffic flow during construction activities in order to provide a worst-case traffic analysis. The LOS analysis assumes 30 construction workers will be commuting to the Refinery. In addition, three delivery trucks are expected to make deliveries during peak construction activities. It is assumed that all of the construction personnel would commute to the site alone. The traffic analysis also assumes that all construction personnel and delivery trucks would enter the construction parking lot from Sepulveda Boulevard. Parking for all construction workers will be provided onsite.

Construction activities at the Carson Plant are anticipated to occur five days a week (Monday through Friday). The work shift is scheduled to begin at 7:00 AM and end at 5:30 PM. Traffic attributable to the project construction will arrive at the site before the AM peak traffic period (7:00 to 8:00 AM) would begin and will not affect the AM peak hour. Traffic for the proposed projects will leave at 5:30 PM and is not expected to affect the PM peak hour (4:30 PM – 5:30 PM). In order to provide a worst-case analysis, the traffic analysis will only examine impacts from traffic attributable to the proposed projects during the PM peak hour and assume that the work shift ends during peak traffic conditions.

Table 4-6 shows the predicted LOS analysis and volume to capacity ratios due to peak construction activities for the proposed projects at the Carson Plant (see Appendix D for the complete traffic analysis). Table 4-6 indicates that no intersections are expected to show a change in LOS and all intersections are expected to continue to operate at existing conditions (all intersections operating at LOS A, with the exception of Alameda Connector at 223rd Street which operates at LOS C). Therefore, the impacts from the proposed projects on traffic in the vicinity of the Carson Plant are less than significant.

The construction phase is not expected to result in an increase or decrease in marine vessel or rail traffic because no equipment or construction materials will be imported through ConocoPhillips marine terminal as a result of the project.

Wilmington Plant: It was determined that the peak construction labor force of about 100 workers would be expected during peak construction activities. The traffic analysis (see Appendix D) makes worst-case assumptions regarding traffic flow during construction activities in order to provide a worst-case traffic analysis. The LOS analysis assumes 100 construction workers will be commuting to the Refinery and eight delivery trucks per day are expected during peak construction activities. It is assumed that most of the construction personnel would commute to the site alone. The traffic analysis assumes that all construction personnel and delivery trucks would enter the construction parking lot from Anaheim Street. Parking for all construction workers will be provided onsite.

TABLE 4-6

ConocoPhillips Carson Plant Construction Traffic Impacts Level of Service Analysis and Volume-to-Capacity Ratios

INTERSECTION	BASELINE (1)		IMPACTS		
	PM LOS	Peak Hour V/C	PM LOS	Peak Hour V/C	Change in V/C
Alameda Street and I-405 NB ramps	A	0.560	A	0.561	0.001
Alameda St. and 223rd Connector	A	0.510	A	0.512	0.002
ICTF Entry/I-405 Ramps and Wardlow/223rd St.	A	0.493	A	0.495	0.002
Alameda Connector and 223rd St.	C	0.731	C	0.734	0.003
Alameda St. and Sepulveda Connector	A	0.443	A	0.446	0.003
Alameda Connector and Sepulveda Blvd.	A	0.578	A	0.592	0.015
CP Entrance and Sepulveda Blvd.	A	0.345	A	0.365	0.020
Alameda St. and PCH Connector	A	0.232	A	0.234	0.002
Wilmington Ave. and Sepulveda Blvd.	A	0.552	A	0.553	0.001

Notes: V/C = Volume to capacity ratio (capacity utilization ratio)
LOS = Level of Service
(1) See Table 3-6 and Appendix D.

Construction activities at the Wilmington Plant are anticipated to occur five days a week (Monday through Friday). The work shift is scheduled to begin at 6:30 AM and end at 5:30 PM. Traffic attributable to the project construction will arrive at the site before the AM peak traffic period (7:00 to 8:00 AM) would begin and will not affect the AM peak hour. Traffic for the proposed projects will leave at 5:30 PM and is not expected to affect the PM peak hour (4:30 PM – 5:30 PM). In order to provide a worst-case analysis, the traffic analysis will only examine impacts from traffic attributable to the proposed projects during the PM peak hour and assumes that the work shift ends during peak traffic conditions.

Table 4-7 shows the predicted LOS analysis and volume to capacity ratios due to peak construction activities for the proposed projects at the Wilmington Plant (see Appendix D for the complete traffic analysis). Table 4-7 indicates that the LOS is expected to remain unchanged at all intersections except the intersection of Figueroa Street and "I" Street/I-110 Freeway onramp, which is expected to change from LOS A to LOS B. Therefore, the proposed projects impact on traffic in the vicinity of the Wilmington Plant is less than significant.

TABLE 4-7

ConocoPhillips Wilmington Plant Construction Traffic Impacts Level of Service Analysis and Volume-to-Capacity Ratios

INTERSECTION	BASELINE (1)		IMPACTS		
	PM LOS	Peak Hour V/C	PM LOS	Peak Hour V/C	Change in V/C
Figueroa St. and Anaheim St.	A	0.570	A	0.594	0.024
Figueroa Pl. and Anaheim St.	C	0.772	C	0.797	0.025
Figueroa St. and I St./I-110 on-ramp	A	0.600	B	0.635	0.035
Figueroa St. and G St./I-110 off-ramp	A	0.308	A	0.308	0.000
Figueroa Pl. and I St./I-110 off-ramp	C	0.781	C	0.782	0.001
Figueroa Pl. and I-110 on ramp/G St.	A	0.249	A	0.253	0.003
CP Gate 11 and Anaheim St.	A	0.443	A	0.444	0.001
Gaffey St .- Palos Verdes Dr. – Vermont - Anaheim St.	D	0.900	D	0.900	0.000

Notes: V/C = Volume to capacity ratio (capacity utilization ratio)
LOS = Level of Service
(1) See Table 3-7 and Appendix D.

4.5.2.2 Operational Impacts

The proposed projects are not expected to increase the number of permanent employees at the Refinery at either the Carson or Wilmington Plants. So no increase in worker traffic is expected. The proposed projects will result in a maximum increase in truck traffic of about one additional truck trip per day traveling to/from the Carson Plant and the Wilmington Plant (total project impact of two truck deliveries per day). Since these would mainly consist of ammonia and sodium hydroxide deliveries, they would be spread throughout the workday with few deliveries occurring during the peak hour. Therefore, their contribution to overall traffic impacts would be negligible. Therefore, no significant impacts to traffic during operation of the proposed projects are expected at either the Wilmington or Carson Plants.

The operational phase is not expected to result in an increase or decrease in marine vessel or rail traffic.

4.5.3 MITIGATION MEASURES

No significant adverse impacts associated with transportation and traffic from the proposed projects is expected during construction or operational phases, so no mitigation measures are required.

4.5.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The transportation and traffic impacts of the proposed projects are considered to be less than significant because no CEQA significance thresholds would be exceeded.

4.6 OTHER CEQA TOPICS

4.6.1 GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECTS

CEQA defines growth-inducing impacts as those impacts of a proposed project that "could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects, which would remove obstacles to population growth" (CEQA Guidelines §15126.2(d)).

The proposed projects are not expected to foster population growth in the area, nor will additional housing or infrastructure be required. The projects involve the modification of existing industrial facilities. No new services will be required; therefore, no infrastructure development or improvement will be required, and no population growth will be encouraged as a result of the proposed projects. It is expected that construction workers necessary to build new, or modify existing equipment will be largely drawn from the existing workforce pool in southern California. Further, operation of the proposed projects is not expected to require any additional Refinery workers.

The proposed Refinery modifications are associated with reducing PM10 and NOx emissions associated with operation of the existing Refinery, providing air quality benefits during the operational phase. Therefore, the proposed projects will not cause an increase in crude throughput and are not expected to result in growth-inducing impacts.

4.6.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES AND ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

CEQA requires an EIR to discuss significant environmental effects (CEQA Guidelines §15126.2(b)) and irreversible environmental changes (CEQA Guidelines §15126.2(c)), which would result from a proposed project, should it be implemented. Irreversible changes include a large commitment of nonrenewable resources, committing future generations to specific uses of the environment (e.g., converting open spaces into urban development), or enduring environmental damage due to an accident.

No significant adverse impacts on aesthetics, air quality during operation of the proposed projects, hydrology and water quality, and transportation and traffic have been identified associated with the construction or operation of the proposed projects. The proposed project is expected to generate significant NOx emissions during project construction, so mitigation measures have been imposed. Following completion of the construction phase, the proposed projects are expected to provide an overall beneficial impact on air quality, reducing emissions of PM10, PM2.5, NOx, and SOx. Therefore, ConocoPhillips' PM10

and NOx Reduction Projects are not expected to have long-term adverse environmental impacts.

The proposed projects involve modifications to an existing Refinery, located within an industrial area, which has been operating since the 1920s. Therefore, there is no major commitment of nonrenewable resources or changes that would commit future generations to specific uses of the environment.

4.6.3 ENVIRONMENTAL EFFECTS FOUND NOT TO BE SIGNIFICANT

The environmental effects of the ConocoPhillips PM10 and NOx Reduction Projects are identified and discussed in detail in the preceding portions of Chapter 4 of this EIR and in the Initial Study (see Appendix A) per the requirements of the CEQA Guidelines (§15128). The following topics analyzed in this EIR were found to have no potentially significant adverse effects:

Aesthetics
Air Quality – Operational Impacts
Hydrology and Water Quality
Transportation/Traffic

The following topics of analysis were found to have no potentially significant adverse effects in the Notice of Preparation/Initial Study (see Appendix A):

Aesthetics
Agriculture Resources
Biological Resources
Cultural Resources
Energy
Geology/Soils
Hazards
Land Use/Planning
Mineral Resources
Noise
Population/Housing
Public Services
Recreation
Solid/Hazardous Waste

The NOP/IS for the proposed project evaluated the hazards associated with a potential release of aqueous ammonia. It was determined that in the unlikely event that a tanker truck would rupture and release the entire 7,000 gallon capacity of aqueous ammonia, the ammonia solution would have to pool and spread out over a flat surface in order to create sufficient evaporation to produce a significant vapor cloud. For a road accident, the roads are usually graded and channeled to prevent water accumulation and a spill would be

channeled to a low spot or drainage system, which would limit the surface area of the spill and the subsequent evaporative emissions. Additionally, the roadside surfaces may not be paved and may absorb some of the spill. In a typical release scenario, because of the characteristics of most roadways, the pooling effect on an impervious surface would not typically occur. As a result, the spilled aqueous ammonia would not be expected to evaporate into a toxic cloud at concentrations that could significantly adversely affect residences or other sensitive receptors in the area of the spill.

In addition to aqueous ammonia, the proposed project will require the transport of sodium hydroxide. The impacts of a release of sodium hydroxide are not expected to be substantially different from a release of aqueous ammonia because the vapor pressure of sodium hydroxide is less than aqueous ammonia. Therefore, a sodium hydroxide spill would not be expected to generate a vapor cloud and hazards would be limited to the spilled material. As discussed above related to aqueous ammonia, a release of sodium hydroxide would not be expected to evaporate into a toxic cloud at concentrations that could significantly adversely affect residences or other sensitive receptors in the area of the spill.

Based of the low probability of an ammonia or sodium hydroxide tanker truck accident with a major release and the potential for exposure to low concentrations, if any, the conclusion of the hazard analysis in the NOP/IS was that potential impacts due to accidental release of materials transported as part of the proposed project are less than significant.

4.6.4 CONSISTENCY

The Southern California Association of Governments (SCAG) and the SCAQMD have developed, with input from representatives of local government, the industry community, public health agencies, the U.S. EPA - Region IX and CARB, guidance on how to assess consistency within the existing general development planning process in the Basin. Pursuant to the development and adoption of its Regional Comprehensive Plan and Guide (RCPG), SCAG has developed an Intergovernmental Review Procedures Handbook. The SCAQMD also adopted criteria for assessing consistency with regional plans and the AQMP in its CEQA Air Quality Handbook. The following sections address consistency of the proposed project and relevant regional plans pursuant to the SCAG Handbook and SCAQMD CEQA Handbook.

The RCPG provides the primary reference for SCAG's project review activity. The RCPG serves as a regional framework for decision making for the growth and change that is anticipated during the next 20 years and beyond. The Growth Management Chapter (GMC) of the RCPG contains population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies that shall be used by SCAG in all phases of implementation and review. It states that the overall goals for the region are to (1) re-invigorate the region's economy, (2) avoid social and

economic inequities and the geographical isolation of communities, and (3) maintain the region's quality of life.

The Growth Management goals are to develop urban forms that enable individuals to spend less income on housing cost, that minimize public and private development costs, and that enable firms to be more competitive, strengthening the regional strategic goal to stimulate the regional economy. The proposed project in relation to the Growth Management goals would not interfere with the achievement of such goals, nor would it interfere with any powers exercised by local land use agencies. The proposed project proposes to further reduce emissions and reach attainment with federal and state ambient air quality standards. Therefore, the proposed project would not not interfere with regional efforts to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.

The Growth Management goals to develop urban forms that avoid economic and social polarization promotes the regional strategic goals of minimizing social and geographic disparities and of reaching equity among all segments of society. Consistent with the Growth Management goals, local jurisdictions, employers and service agencies should provide adequate training and retraining of workers, and prepare the labor force to meet the challenges of the regional economy. The proposed project would promote social equity by reducing exposure of air pollutants (particulates, SOx, and NOx) to populations that may be disproportionately exposed to high levels of air pollutants.

The Growth Management goals also include attaining mobility and clean air goals and developing urban forms that enhance quality of life, accommodate a diversity of life styles, preserve open space and natural resources, are aesthetically pleasing, preserve the character of communities, and enhance the regional strategic goal of maintaining the regional quality of life. The RCPG encourages planned development in locations least likely to cause environmental impacts, as well as supports the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals. While encouraging the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites, the plan discourages development in areas with steep slopes, high fire, flood and seismic hazards, unless complying with special design requirements. Finally, the plan encourages mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and develop emergency response and recovery plans. The proposed projects in relation to the GMC is not expected to interfere with attaining these goals but rather assist in improving the regional quality of life by reducing criteria pollutants within the region.

The proposed projects are consistent with the RTP and CMP since no significant adverse impact to transportation/circulation were identified in the Draft EIR. The proposed

project is not expected to require additional employees or increase traffic during peak traffic hours, following completion of construction activities.