CHAPTER 2

PROJECT DESCRIPTION

Introduction
Project Objectives
Project Location
Land Use and Zoning
Existing Refinery Configuration and Operation
Proposed Project Modifications to the Refinery
Construction of the Proposed Project
Operation of the Proposed Project
Permits and Approvals

2.0 PROJECT DESCRIPTION

2.1 INTRODUCTION

ConocoPhillips Los Angeles Refinery (Refinery) is proposing PM10 and NOx reduction projects to existing Refinery units at its Wilmington and Carson Plants. Modifications to the Wilmington Plant include the installation of a WGS, to comply with SCAQMD Rule 1105.1 – Reduction of PM10 and Ammonia Emissions from Fluid Catalytic Cracking Units, and an SCR unit on Boiler 7 to comply with the requirements of SCAQMD Regulation XX (RECLAIM). Upgrades at the Carson Plant include installation of new a new SCR unit on Boiler 11.

2.2 PROJECT OBJECTIVES

The objectives of the proposed projects are to:

1. Comply with recent revisions to SCAQMD Rule 1105.1 - PM10 and Ammonia Emissions from Fluid Catalytic Cracking Units at the Wilmington Plant.

2. Comply with recent revisions to SCAQMD Regulation XX – RECLAIM at both the Wilmington and Carson Plants.

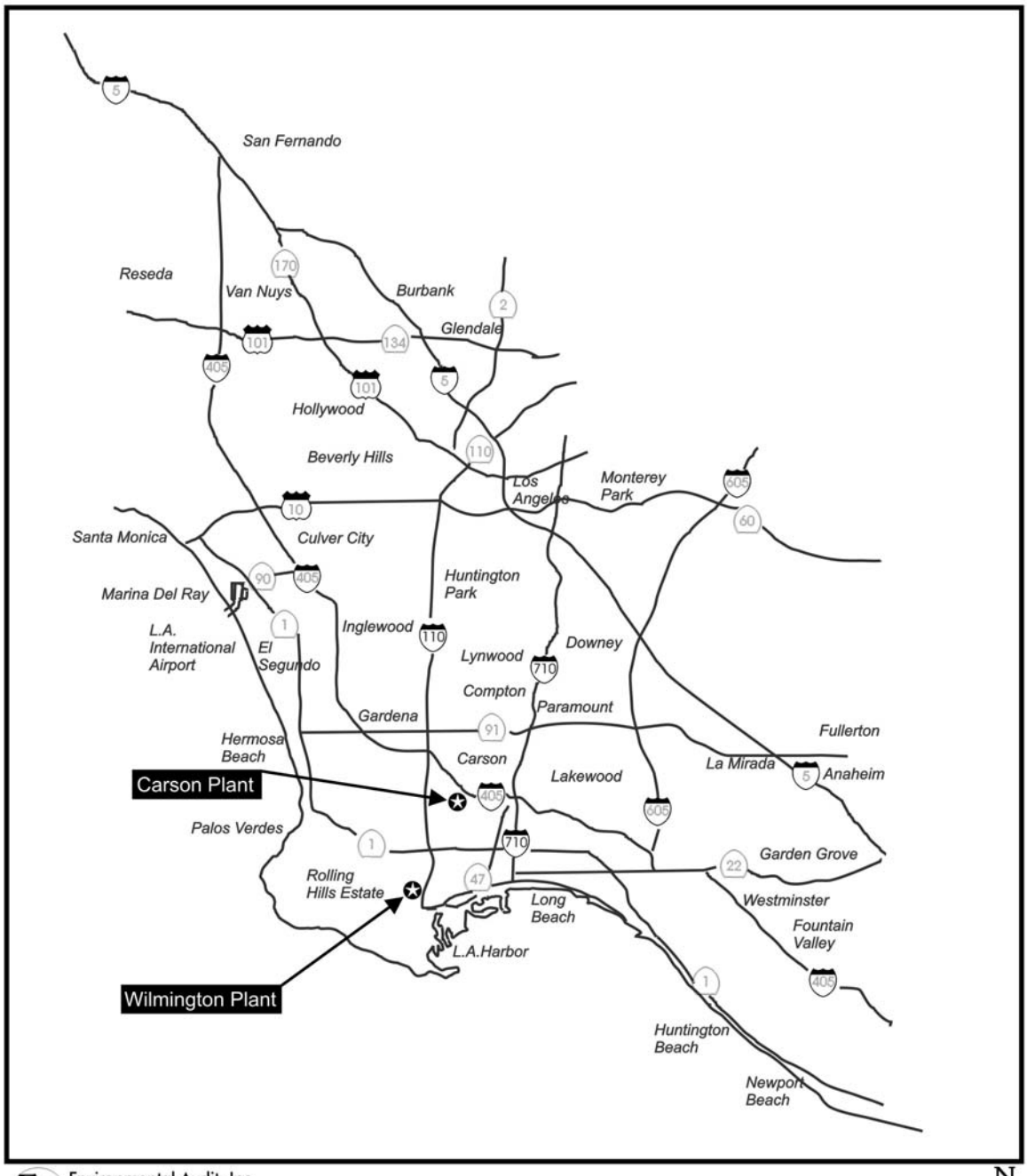
3. Further reduce emissions of ammonia and sulfur oxides at the Wilmington Plant.

The proposed projects will not increase or decrease the Refinery crude throughput capabilities at either site.

2.3 PROJECT LOCATION

The proposed projects will occur at the ConocoPhillips Los Angeles Refinery, which is made up of the Carson Plant and the Wilmington Plant (Figure 2-1). The Carson Plant is located at 1520 East Sepulveda Boulevard, Carson, California (Figure 2-2) while the Wilmington Plant is located at 1660 West Anaheim Street, Wilmington, California (Figure 2-3). The proposed modifications are entirely within the confines of the existing facilities.

The eastern part of the Wilmington Plant borders a residential area, a roofing materials plant, and a portion of the Harbor 110 Freeway. The northern portion of the site borders Harbor Lake Park, Harbor College, Harbor Golf Course, and a small residential area. The western part of the site borders Gaffey Street adjacent to a firing range, vacant fields, recreational fields, and a U.S. Navy fuel storage facility. Finally, the southern portion of the site shares a border with a warehouse facility.



Environmental Audit, Inc.

REGIONAL MAP
ConocoPhillips
Los Angeles Refinery

Project No. 2473

Figure 2-1

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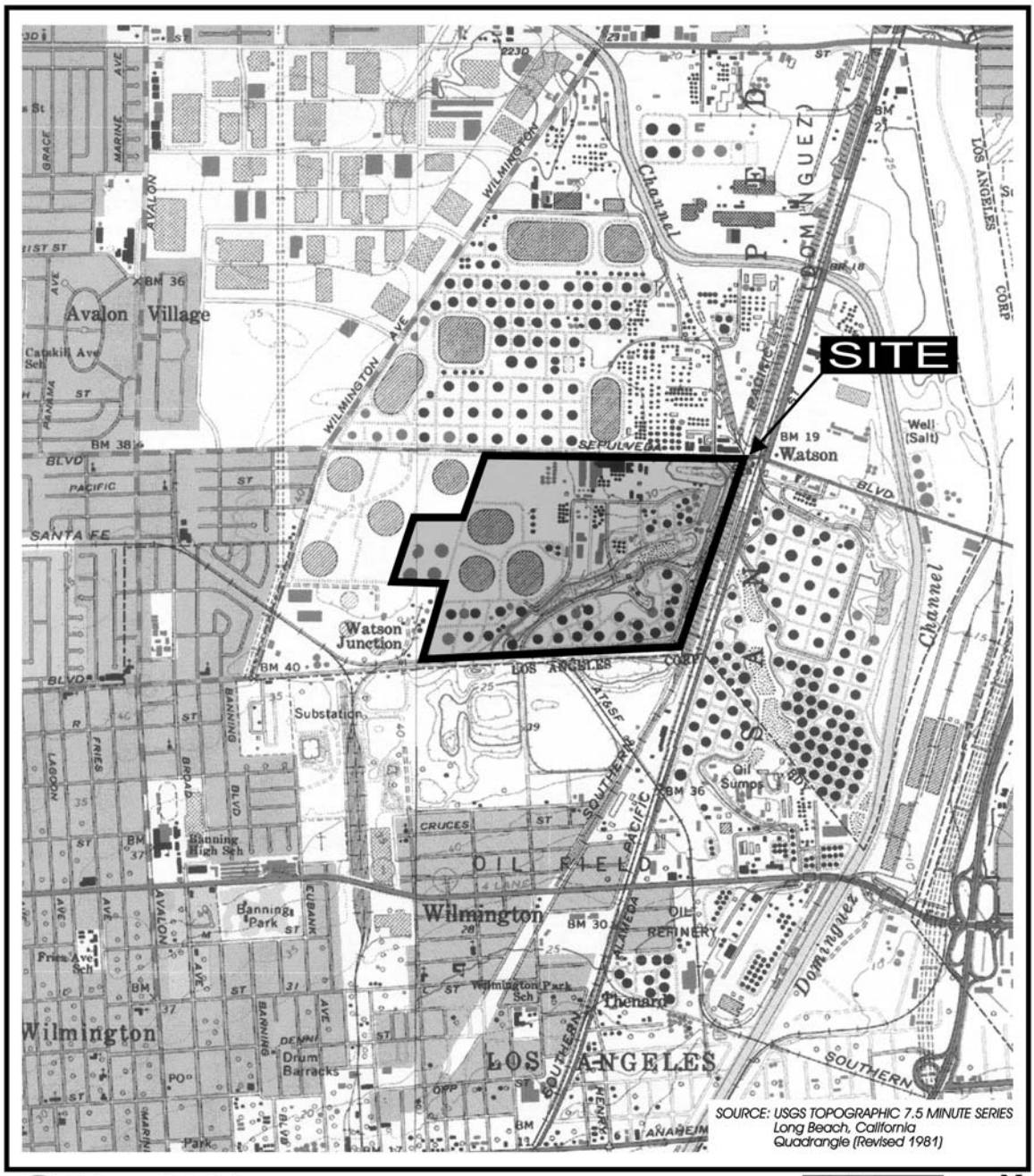
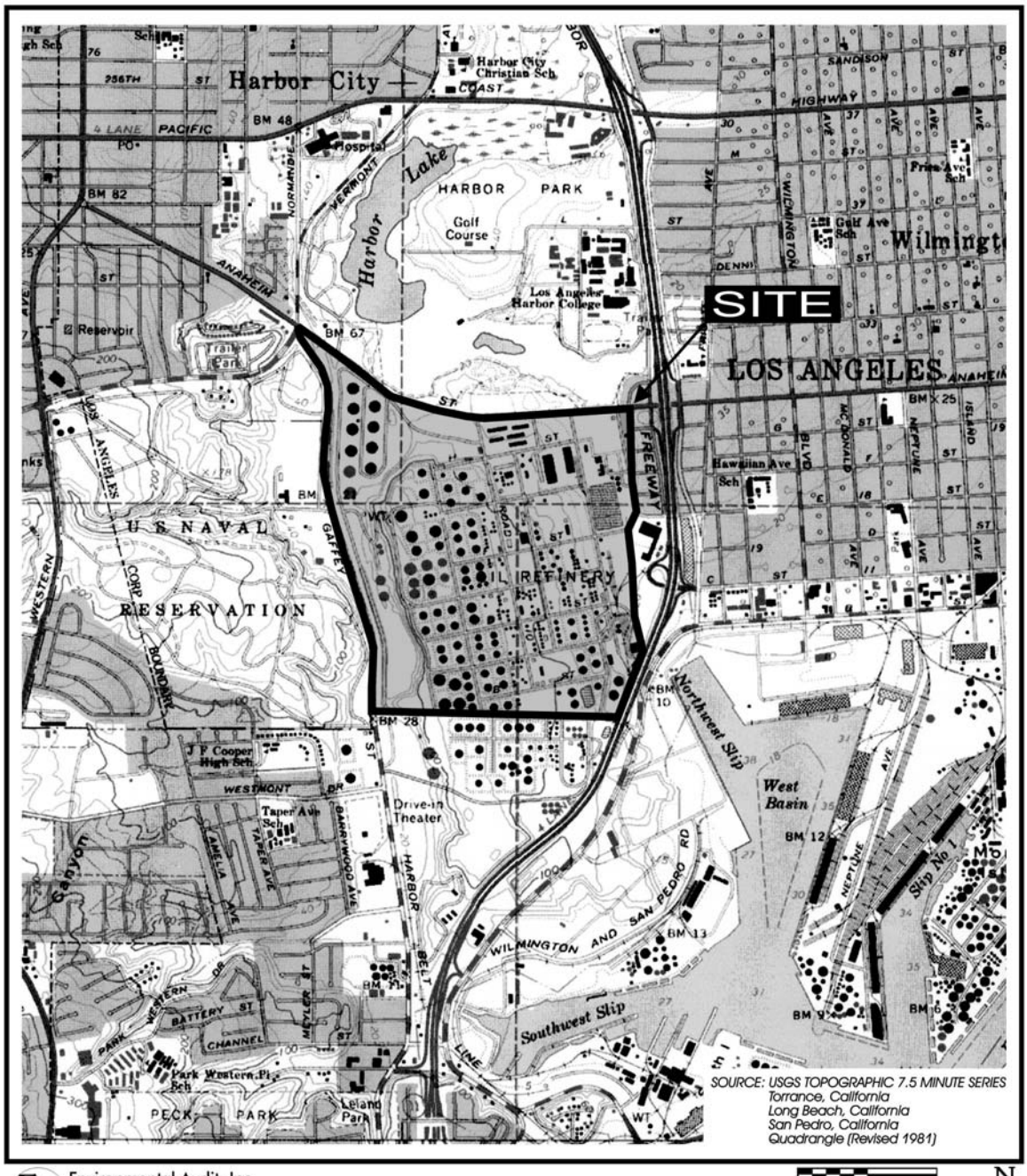


SITE LOCATION MAP
ConocoPhillips
Carson Plant

Project No. 2473

Figure 2-2

N:\2473\SiteLocMap (Carson).cdr



Environmental Audit, Inc.

SITE LOCATION MAP
ConocoPhillips
Wilmington Plant

Project No. 2473

Figure 2-3

N:\2473\SiteLocMap (Wilmington).cdr

The Carson Plant is bounded on the north by Sepulveda Boulevard, on the west by Wilmington Avenue; on the south by a branch of the Atchison, Topeka and Santa Fe Railroad; and on the east by Alameda Boulevard. Property to the north of the Carson Plant is occupied by the BP Los Angeles Refinery. The western boundary of the plant borders a shipping and container storage facility. Property across Wilmington Boulevard includes a residential neighborhood to the northwest and commercial uses to the southwest. Land uses to the south of the Carson Plant are heavy industrial. Land south of Lomita Avenue is dominated by port-related activities. Land east of Alameda Street is occupied by a storage tank farm and the Shell (formerly Equilon/Texaco) Refinery.

2.4 LAND USE AND ZONING

The proposed projects will occur at both the ConocoPhillips Carson and Wilmington Plants. The proposed modifications to the Wilmington Plant will be developed entirely within the existing Wilmington Plant property boundaries. Land use on the Wilmington Plant property is designated as M3, which is heavy industrial zoning. The proposed project is consistent with the land use designation of heavy industry and manufacturing. The proposed projects include construction at an existing industrial facility. The activities and products produced at the facility for the proposed projects are the same as existing activities and products produced. No new land would be required for the projects and no zoning and/or land use changes are required to be necessary as part of the projects.

Land use at the Wilmington Plant, and in the surrounding vicinity, is consistent with the City of Los Angeles General Plan land use designations. The Land Use element of the General Plan currently in force was adopted in December 1992. No revisions to the Land Use element have occurred since December 1992. There are no habitat conservation or natural community conservation plans in the area that would be impacted by the proposed projects.

The proposed modifications to the Carson Plant will be developed entirely within the existing Carson Plant property boundaries. The Carson Plant is designated as MH, Manufacturing Heavy land use zoning and all the surrounding land uses are heavy industrial, including other refinery facilities, tank farms, and transportation corridors. The proposed project is consistent with the land use designation of heavy industry and manufacturing. No new property will be acquired for the Carson Plant project. Additionally, the proposed projects are not expected to conflict with local habitat conservation plans, or natural community conservation plans, as the proposed project site is an existing developed industrial facility. The proposed projects will not trigger changes in the current zoning designations at the project sites.

Implementation of the proposed projects includes improvement and modifications that would occur entirely within the boundaries of the existing heavily industrialized Refinery at both the Carson and Wilmington Plants. The nature of the overall function and

products produced at the plants will remain the same. No new land will be acquired for the proposed projects and no zoning and/or land use changes will be necessary.

2.5 EXISTING REFINERY CONFIGURATION AND OPERATION

Crude oil and distillates and other raw materials are delivered to the Refinery by pipelines, ships, and trains. Crude oil is processed in the crude unit where it is heated and distilled into various hydrocarbon components, which are further processed in downstream Refinery units. The major Refinery products include unleaded gasoline, diesel, and jet fuels. Elemental sulfur and petroleum coke are produced as co-products of the refining process. Major processing units at the Refinery include the crude unit, vacuum flasher, coker unit, hydrotreating units, reforming units, fluid catalytic cracking unit, alkylation unit, sulfur recovery units, hydrogen plant, acid plant and the cogeneration unit. A plot plan of the existing Carson Plant is shown in Figure 2-4 and a plot plan of the existing Wilmington Plant is shown in Figure 2-5.

2.6 PROPOSED PROJECT MODIFICATIONS TO THE REFINERY

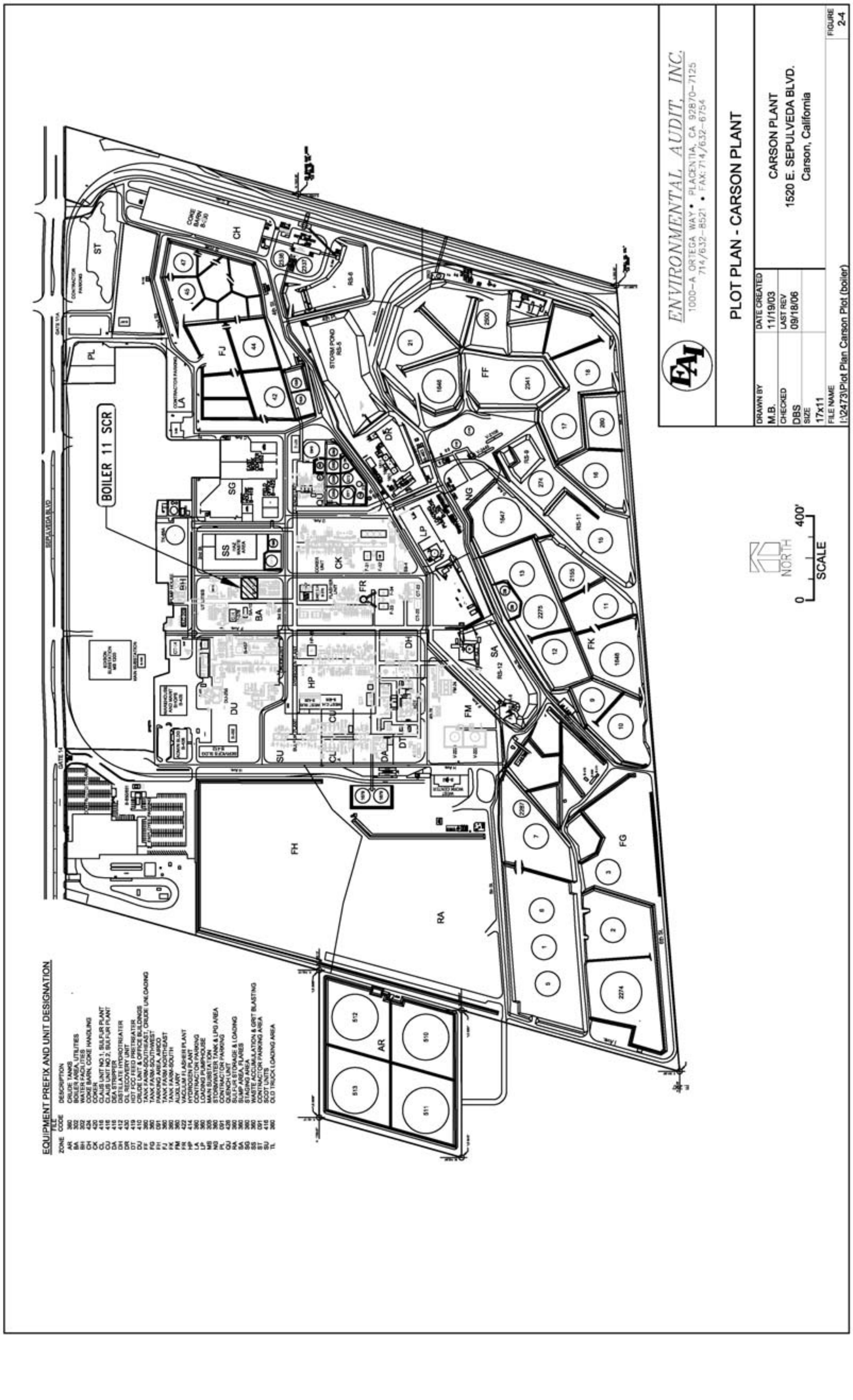
The proposed Refinery modifications to both the Wilmington and Carson Plants are summarized in this section. The locations of the proposed new and modified units are shown in Figures 2-4 and 2-5 for the Carson and Wilmington Plants, respectively. The components of the proposed project are associated with and designed to comply with recent amendments in the SCAQMD air quality rules and regulations for the existing Refinery. The WGS will eliminate the need for ammonia so ammonia emissions will be eliminated from the FCCU (SCAQMD Rule 1105.1 requires that ammonia emissions be limited to 10 ppm). Further, the WGS technology can also reduce SOx emissions (even though SOx emission reductions are not required to comply with SCAQMD Rule 1105.1).

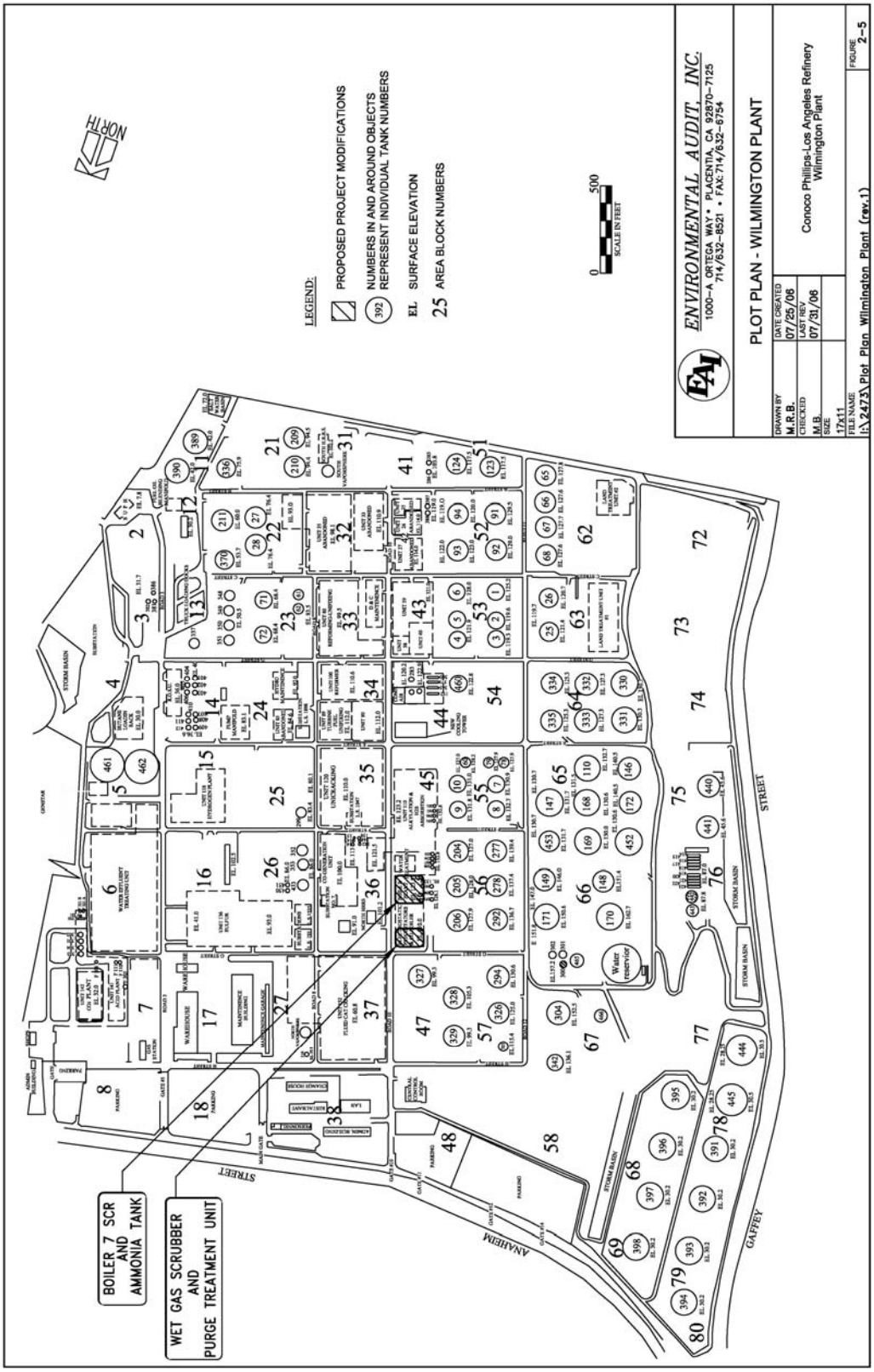
2.6.1 WILMINGTON PLANT MODIFICATIONS

2.6.1.1 Wet Gas Scrubber

In November 2003, the SCAQMD adopted Rule 1105.1 – PM10 and Ammonia Emissions from FCCUs, which regulates particulate matter less than 10 microns in diameter (PM10) and ammonia flue gas emissions from FCCUs. According to Rule 1105.1, operators of the affected FCCUs will need to comply with one of the following PM10 emission limits:

- 0.005 grains of PM10 per dry standard cubic foot (SCF) in the flue gas, corrected to three percent oxygen; or
- 3.6 pounds of PM10 per hour; or
- 2.8 pounds of PM10 per 1,000 barrels of fresh feed.


ENVIRONMENTAL AUDIT, INC.
1000-A ORTEGA WAY • PLACENTIA, CA 92870-7125
714/632-8521 • FAX: 714/632-6754
PLOT PLAN - CARSON PLANT
CARSON PLANT
1520 E. SEPULVEDA BLVD.
Carson, California
DRAWN BY M.B.
CHECKED DBS
SIZE 17x11
DATE CREATED 11/19/03
LAST REV 09/18/06
FIGURE 2-4
BOILER 11 SCR
SCALE
NORTH
EQUIPMENT PREFIX AND UNIT DESIGNATION


LEGEND:
PROPOSED PROJECT MODIFICATIONS
NUMBERS IN AND AROUND OBJECTS REPRESENT INDIVIDUAL TANK NUMBERS
EL SURFACE ELEVATION
AREA BLOCK NUMBERS
SCALE IN FEET
ENVIRONMENTAL AUDIT, INC.
1000-A ORTEGA WAY • PLACENTIA, CA 92870-7125
714/632-8521 • FAX: 714/632-6754
PLOT PLAN - WILMINGTON PLANT
Conoco Phillips-Los Angeles Refinery
Wilmington Plant
DRAWN BY M.R.B.
DATE CREATED 07/26/06
CHECKED M.B.
LAST REV 07/31/06
SIZE 17x11
FILE NAME I:\2473\Plot Plan Wilmington Plant (rev.1)
FIGURE 2-5
BOILER 7 SCR AND AMMONIA TANK
WET GAS SCRUBBER AND PURGE TREATMENT UNIT
ANAHEIM STREET
GAFFEY STREET
Water RESERVOIR
STORM BASIN

There are two leading technology options for FCCU flue gas particulate emission control: the WGS and the Dry ESP. ConocoPhillips has selected the WGS and the WESP as the best technology to meet the project objectives. WGSs require no ammonia use, can control sulfur oxides (SOx) emissions, a precursor to PM2.5, in addition to PM10, and can better control particulates during transient conditions like start-ups and shut downs.

Flue gas containing particulates and SOx will be vented to the WGS. In the scrubber, there is intimate contacting of the particulate matter and the sulfur oxides with scrubbing liquid that flows current to the gas flow. The scrubbing liquid is a mixture of water and caustic (sodium hydroxide) that is constantly re-circulated. Following the scrubber, a WGS section will remove most of the remaining fine particulates. The WGS system has two effluent streams: clean FCCU flue gas and a purge liquid. The clean FCCU flue gas passes up the stack of the scrubber system and is released to the atmosphere. The purge liquid goes to a purge treatment unit. Caustic (sodium hydroxide) will be supplied by installing a new 10,000 gallon storage tank by the scrubber. Caustic will be supplied from a local vendor in the Los Angeles area and delivered to the Wilmington Plant for storage and use.

Purge Treatment Unit: The WGS will generate a liquid discharge containing captured pollutants. That liquid will be treated at a new Purge Treatment Unit (PTU), which will consist of a clarifier and oxidation equipment. The estimated liquid discharge from the PTU is about 70 gallons per minute.

The purge treatment has two effluents, a liquid composed of water and sodium sulfate, and earth moist solids. The main constituent of the earth moist solids stream is the catalyst fines that have been captured from the FCCU flue gas in the WGS portion of the system. A clarifier separates the solids as an underflow thickened solids stream that is collected and, if necessary, further dewatered in a roll-off bin. The liquid passes out of the clarifier as an overflow clear liquid. Reduction of chemical oxygen demand is accomplished by air oxidation of the liquid. The treated clear liquid is then passed to the existing refinery wastewater treatment system where it is treated prior to discharge to the City of Los Angeles sewage treatment plant. The solids are collected as concentrated slurry for recycling or in a roll-off bin.

2.6.1.2 Boiler 7 SCR Unit

The Wilmington Plant currently operates Boiler 7. ConocoPhillips operators are proposing to install an SCR Unit on Boiler 7 to reduce emissions of nitrogen oxides (NOx) from the Boiler. Additional NOx emission reductions assist the Wilmington Plant in meeting the declining NOx RECLAIM annual allocation levels. SCR is considered to be best available control technology (BACT) for the control of NOx from combustion sources. NOx emissions are controlled by injecting aqueous ammonia into the exhaust gas stream upstream of a catalyst. The aqueous ammonia to be used in the SCR will consist of 19 percent ammonia. NOx, ammonia, and oxygen react on the surface of the catalyst to form nitrogen and water. The catalyst will be made from a metal with control

efficiencies expected to be approximately 90 percent or more. The NOx concentration after the SCR treatment is expected to be approximately 10 parts per million.

The ammonia will be supplied by installing a new 12,000-gallon pressurized storage tank for 19 percent aqueous ammonia. The location of the new ammonia storage tank and the new SCR Unit are shown in Figure 2-5. Aqueous ammonia will be supplied from a local vendor in the Los Angeles area and delivered to the Wilmington Plant for storage and use.

2.6.2 CARSON PLANT MODIFICATIONS

The ConocoPhillips Los Angeles Refinery operates at two locations, the Carson Plant and the Wilmington Plant. The Refinery only operates one FCCU at the Wilmington Plant. Therefore, no modifications are required to the Carson Plant to comply with SCAQMD Rule 1105.1.

2.6.2.1 Boiler 11 SCR Unit

The Carson Plant currently operates Boiler 11. ConocoPhillips operators are proposing to install new low NOx burners and an SCR Unit on Boiler 11 to reduce NOx emissions from the Boiler. Additional NOx emission reductions assist the Carson Plant to meet the declining NOx RECLAIM annual allocation levels. The aqueous ammonia to be used in the SCR will consist of 19 percent ammonia. The NOx concentration after the SCR treatment is expected to be approximately 10 parts per million.

The ammonia will be supplied from an existing 11,000-gallon pressurized ammonia storage tank. The location of the new SCR Unit is shown in Figure 2-4. Aqueous ammonia is currently supplied from a local vendor in the Los Angeles area and delivered to the Carson Plant for storage and use.

2.7 CONSTRUCTION OF THE PROPOSED PROJECT

The construction schedule for Refinery PM10 and NOx emission reduction projects at its Wilmington and Carson Plants will vary but overlap. Construction activities are expected to begin in 2007 and be completed by 2008 (See Figure 2-6).

2.8 OPERATION OF THE PROPOSED PROJECT

The permanent work force at the Refinery is not expected to increase as a result of the proposed projects. The proposed projects are expected to incrementally increase traffic by about one truck per day at each Plant associated with the delivery or transport of additional materials including caustic and ammonia.

FIGURE 2-6
ConocoPhillips Los Angeles Refinery
PM10 and NOx Reduction Projects

Construction Schedule

Location/Project	2007												2008											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wilmington Plant																								
Wet Gas Scrubber																								
Boiler 7 SCR Unit																								
Carson Plant																								
Boiler 11 SCR Unit																								

Demolition =
Construction =

2.9 PERMITS AND APPROVALS

The proposed projects will require approvals from a variety of federal, state, and local agencies (see Table 2-1). Examples of general permits and approvals currently required and issued for the Refinery are summarized below. The following discussion summarizes representative permits required for the Refinery, but is not necessarily exhaustive. Many of these permits are not expected to require permit modifications due to the proposed projects. Table 2-1 identifies the environmental permits required for the existing Refinery operations.

No federal agency approvals for the proposed projects are expected to be required. Many of the U.S. Environmental Protection Agency (U.S. EPA) regulations and requirements are implemented by state or local agencies. For example, New Source Performance Standards under the clean air act are implemented by the SCAQMD and hazardous waste regulations are enforced by the California Department of Toxic Substances Control (DTSC). The Spill Prevention Control and Countermeasure (SPCC) Plan may require modifications to assure that all new and modified Refinery units are included in the Plan. The U.S. EPA also has authority over the Prevention of Significant Deterioration (PSD) Program. However, no PSD review will be required because the proposed projects will result in overall emission reductions in NOx and SOx.

The Occupational Safety and Health Administration (OSHA) regulates workplace hazards and enforces regulations that protect workers health and safety. Under federal OSHA, regulations have been promulgated that require the preparation and implementation of a Process Safety Management (PSM) Program (40 CFR Part 1910, Section 119, and Title 8 of the California Code of Regulations, Section 5189). The Refinery will be required to complete a PSM program to evaluate and minimize hazards associated with the proposed project. Finally, the U.S. Department of Transportation regulates the transportation of hazardous substances.

State Approvals

Construction-related permits may be required from the California Occupational Safety and Health Administration (CalOSHA) for demolition, construction, excavation, and tower and crane erection. Any transport of heavy construction equipment, which requires the use of oversized transport vehicles on state highways, will require a Caltrans transportation permit. The proposed projects may require a Notice of Intent and preparation of a Stormwater Pollution Prevention Plan (Construction) under the statewide general storm water National Pollutant Discharge Elimination System (NPDES) permit from the State Regional Water Quality Control Board. DTSC regulates the generation, transport, treatment and disposal of hazardous wastes. Hazardous wastes generated by the proposed projects activities and related to refining activities will be governed by rules and regulations enforced by DTSC. The existing PSM program and hazard communication program may require updating with CalOSHA due to the proposed projects revisions.

Local Approvals

The SCAQMD has responsibility as lead agency for the CEQA process and for certification of the EIR because it has primary approval authority over the proposed projects (CEQA Guidelines §15051(b)). Permits to Construct/Operate for new equipment and modifications to existing units will be required. Certain components of the proposed projects would also be subject to existing SCAQMD rules and regulations. Permits or plan approvals also may be required by SCAQMD Rule 1166 for soil remediation activities and demolition activities.

The City of Los Angeles Bureau of Sanitation, the Los Angeles County Sanitation Districts (LACSD) and the County of Los Angeles Department of Public Works have responsibility for issuance of industrial wastewater discharge permits which are required for discharges into public sewers. Modifications may be required to the Refinery's existing industrial wastewater discharge permits due to the proposed projects.

The County of Los Angeles, Petro/Chemical Division, Fire Planning and Prevention Division is responsible for issuing permits for storage tanks and for review and approval of Risk Management Plans which will be required as part of the proposed projects. The Fire Department also is responsible for assuring that the city fire codes are implemented. Building and grading permits for the proposed project will be required from the City of Carson and the City of Los Angeles to assure that the proposed projects comply with the Uniform Building Code (UBC).

TABLE 2-1

Federal, State and Local Agency Permits and Applications

Agency Permit or Approval	Requirement	Applicability to Project
Federal		
U.S. EPA	Spill Prevention Control and Countermeasure Plan (40 CFR Part 112)	Modifications to Refinery facilities that affect the potential for oil or flammable materials discharge into navigable waters.
	Title III of the federal Clean Air Act Amendments of 1990, including development of an Accidental Release Program.	Modifications to Refinery facilities/operations involving listed air toxics or use of extremely hazardous substances. Requires the preparation of a Risk Management Plan (RMP).
	Title III of the Superfund Amendments and Reauthorization Act of 1986, including Section 313 – Annual Release Reporting (Form R)	Modifications to Refinery facilities/operations involving use of storage of extremely hazardous substances or other regulated hazardous materials.
	Prevention of Significant Deterioration	Air quality requirements for modifications to stationary sources in attainment areas.
	New Source Performance Standards (NSPS) 40 CFR Part 60 General Provisions (Subject A)	Requires facilities subject to an NSPS to provide notification, maintain and submit records, and in some cases undertake performance tests.
	NSPS for VOC equipment leaks in Synthetic Organic Chemicals Manufacturing Industry, 40 CFR Part 60 Subpart GGG/VV	Contains performance standards for equipment leaks from fugitive components.
Occupational Safety and Health Administration (OSHA)	Compliance with 29 CFR 1920, including preparation of an Emergency Response Plan, a Fire Prevention Plan, Process Hazards Safety Review, and employee training. Compliance with 40 CFR Part 1910, Section 119, that requires a PSM Program	Modifications to Refinery facilities involving materials that are acutely toxic, flammable, or explosive.
U.S. Department of Transportation (DOT)	Compliance with DOT regulations regarding transportation of hazardous substances (41 CFR Part 172)	Project-related transportation (import/export) of hazardous substances.

TABLE 2-1 (continued)

Federal, State and Local Agency Permits and Applications

Agency Permit or Approval	Requirement	Applicability to Project
State		
California Environmental Protection Agency, Dept. of Toxic Substances Control (DTSC)	On-site hazardous waste generation	Project-related modifications to applicable hazardous materials and hazardous waste generation and handling at the Refinery.
	Proposition 65 – California's Safe Drinking Water and Toxic Enforcement Act of 1986.	Project-related exposure of the public to listed carcinogens or reproductive toxins due to proposed modifications. Public notification is required under certain specified conditions.
State Water Resources Control Board (SWRCB)	National Pollutant Discharge Elimination System (NPDES) Permit/Waste Discharge requirement.	Project-related modifications to applicable storm water runoff plans.
Caltrans	Transportation Permit (CCR 21, Division 2, et. Seq.)	Project-related application to transport overweight, oversize and wide loads on state highways.
CalOSHA	Process Safety Management (PSM) Program (40 CFR Part 1910).	PSM program may require updating due to project revisions including written process safety information, hazardous operation (hazop) analysis, development of operating procedures, training procedures, and pre-start safety review.
	Construction-related permits (CCR Title 8, Division 1, Chapter 4)	Excavation, construction, demolition and tower and crane erection permit.
	Written Hazard Communication Standard Compliance Program	Project-related modifications to Refinery facilities/operations involving hazardous materials (including needed modifications to employee training programs).
Local		
South Coast Air Quality Management District (SCAQMD)	Permits to Construct and Title V of the 1990 Clean Air Act.	SCAQMD Rule 201: Permit to Construct and Regulation XXX: Title V Permits. Applications are required to construct, operate or modify air emission sources.
	Permits to Operate	SCAQMD Rule 203: Permit to Operate. Applications are required to operate emissions sources.
	California Environmental Quality Act (CEQA) Review	The SCAQMD is the lead agency for preparation of the environmental document (Public Resources Code § 21067).

TABLE 2-1 (continued)

Federal, State and Local Agency Permits and Applications

Agency Permit or Approval	Requirement	Applicability to Project
SCAQMD (cont.)	SCAQMD Rule 212: Standards for Approving Permits	Permits cannot be issued if air contaminants create a public nuisance or exceed capacity limits. Also requires public notification of a significant project.
	SCAQMD Rule 1173: VOC Emissions from Fugitive Components	Controls VOC leaks from various fugitive components including valves, fittings, pumps, pressure relief devices, and compressors.
	SCAQMD Regulation XIII - New Source Review and Rule 2005 – New Service Review for RECLAIM: BACT and Modeling	New source review rules require new or modified permit units to apply BACT, obtain offsets, and perform modeling of new emissions increases.
	SCAQMD Rule 1401: T-BACT and Risk Assessment	NSR of Toxic Air Contaminants. New or modified permit units must comply with maximum allowed risk levels.
	SCAQMD Regulation XX: RECLAIM	RECLAIM requires sources with emissions of NOx and SOx of four tons or more per year to reduce emissions on a specified schedule.
	SCAQMD Rule 1105.1: Emissions from FCCUs	Regulates PM10 and ammonia emissions from FCCUs.
	SCAQMD Rule 1118: Emissions from Flares	Places limitations on emissions from refinery flares.
	SCAQMD Rule 1403: Asbestos Emissions from Demolition/Renovation Activities	Controls emissions from certain demolition and renovation activities.
	SCAQMD Rule 1166: VOC Emissions from Decontamination of Soil. Soil Contamination	Requires the control of VOC emissions from soil remediation activities.

TABLE 2-1 (concluded)

Federal, State and Local Agency Permits and Applications

Agency Permit or Approval	Requirement	Applicability to Project
City of Carson and City of Los Angeles	Building Permits	Required for project-related foundations and buildings to assure compliance with UBC, etc.
	Grading Permit	Required prior to grading.
	Plumbing and Electrical Permit	General construction permit.
	Hazardous Materials Business Plan	Storage of project-related hazardous materials.
County Sanitation Districts of Los Angeles and City of Los Angeles Bureau of Sanitation	Industrial Wastewater Discharge Permit (CA Health & Safety Code, Division 6, Chapter 4, Article 1, Section 6521).	Project-related modifications to the Refinery's industrial wastewater discharge to the sewer if it affects the quantity, quality, or method of industrial wastewater disposal.
County of Los Angeles Dept. of Public Works	Industrial Wastewater Discharge Approval	Required when discharging into sewer.
County of Los Angeles, Petro/Chemical Div., Fire Planning and Prevention Div. and City of Los Angeles Fire Department	Permits for Above Ground Storage Tanks (AST) and Storage of Flammable Materials; business disclosure form, building plan check	Required for ASTs and areas where storage of flammable materials occur; required for storage of hazardous materials; required to review plans for construction.
	Risk Management and Prevention Program (RMPP) revision approval	Required to revise the RMPP (combined with federal RMP).