SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Final Negative Declaration for:
Chevron Products El Segundo Refinery
Fluid Catalytic Cracking Unit NOx Reduction Project

SCH# 2007021023

July 2007

Submitted to:
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
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PREFACE

This document constitutes the Final Negative Declaration (ND) for the Chevron Products El Segundo Refinery Fluid Catalytic Cracking Unit NOx Reduction Project. The Draft ND was circulated for a 30-day public review and comment period (February 6, 2007 through March 7, 2007). Three comment letters were received during the public comment period. Those comments were reviewed and evaluated and are included in Appendix C of this Final ND.

Minor modifications have been made to the Draft ND such that it is now a Final ND. None of the modifications alter any conclusions reached in the Draft ND, nor provide new information of substantial importance relative to the draft document that would require recirculation of the Draft ND pursuant to CEQA Guidelines §15088.5. Therefore, this document is now a Final ND. Additions to the text of the ND are denoted using italics. Text that has been eliminated is shown using ~~strike outs~~.

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1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

The Chevron Products Company (Chevron) El Segundo Refinery (Refinery) processes crude oil to produce motor fuels and other products. Chevron is proposing to install selective catalytic reduction (SCR) unit at its El Segundo Refinery to reduce nitrogen oxide (NOx) emissions from the existing Fluid Catalytic Cracking Unit (FCCU). Chevron is pursuing the proposed SCR project to satisfy the requirements of a Consent Decree with the U.S. Environmental Protection Agency (U.S. EPA).

1.2 AGENCY AUTHORITY

The California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq., requires that the environmental impacts of proposed "projects" be evaluated and that feasible methods to reduce, avoid or eliminate significant adverse impacts of these projects be identified and implemented. The proposed modifications at the Chevron Refinery constitute a "project" as defined by CEQA. To fulfill the purpose and intent of CEQA, the SCAQMD is the "lead agency" for this project and has prepared this Negative Declaration to address the potential adverse environmental impacts associated with the proposed project at the Chevron Refinery.

The lead agency is the public agency that has the principal responsibility for carrying out or approving a project that may have a significant adverse effect upon the environment (Public Resources Code §21067). The primary purpose of the proposed project is to comply with the Consent Decree imposed by U.S. EPA. It will also allow the Refinery to maintain compliance with the SCAQMD RECLAIM regulation (Regulation XX). Since the proposed project requires discretionary approval from the SCAQMD and the SCAQMD has the greatest responsibility for supervising or approving the project as a whole, it was determined that the SCAQMD would be the most appropriate public agency to act as lead agency (CEQA Guidelines §15051(b)).

To fulfill the purpose and intent of CEQA, the SCAQMD has prepared this Negative Declaration to address the potential adverse environmental impacts associated with the proposed project. A Negative Declaration for a project subject to CEQA is prepared when an environmental analysis of the project shows that there is no substantial evidence that the project may have a significant effect on the environment (CEQA Guidelines §15070(a)). As shown in Chapter 2, no significant adverse impacts are expected from the proposed project and, therefore, the preparation of a negative declaration is the appropriate CEQA document.

1.3 PROJECT BACKGROUND

The U.S. EPA targeted certain industries, of which refining was one, for national enforcement priority. At the time of this writing, nearly 80 percent of United States refining is now under Petroleum Refinery Initiative settlements ("Consent Decrees"). Chevron was not selected for in-depth investigation by U.S. EPA, but rather was invited to settlement discussions. Chevron agreed to enter into a Consent Decree without admitting liability. Although no violations were found, Chevron agreed to meet limits for NOx emissions at its El Segundo Refinery. These limits require

installation of control technology. Chevron is pursuing the SCR project to satisfy the requirements of a Consent Decree with the U.S. EPA signed on June 27, 2005. The Consent Decree requires that the Chevron El Segundo Refinery comply with a NOx emission limit from the FCCU of 20 parts per million by volume dry (20 ppmvd) (at zero percent oxygen) on a 365 day rolling average basis and 40 ppmvd (at zero percent oxygen) on a seven day rolling average basis by December 31, 2008. The Consent Decree further dictates that NOx emissions during periods of startup, shutdown, or malfunction shall not be used in determining compliance with the emission limit of 40 ppmvd at zero percent oxygen on a seven day rolling average basis. The currently proposed project will allow Chevron to comply with the Consent Decree.

1.4 PROJECT LOCATION

The location of the Chevron El Segundo Refinery within the overall southern California region is shown in Figure 1-1. The Refinery is located at 324 West El Segundo Boulevard in the City of El Segundo, California, as shown in Figure 1-2. The El Segundo Refinery occupies an irregularly shaped parcel of land, between Vista Del Mar on the west, El Segundo Boulevard on the north, Sepulveda Boulevard on the east, and Rosecrans Avenue on the south. The proposed location within the Refinery for the new SCR unit is shown in Figure 1-3. All proposed modifications will occur within the confines of the existing Refinery.

Land use at the Refinery and in the surrounding vicinity is consistent with the City of El Segundo General Plan land use designations for the area. The Land Use element of the General Plan currently in force was adopted in December 1992, and no revisions have occurred since that time (City of El Segundo Planning Department, 2005). The strip of development on the north side of El Segundo Boulevard between Main Street and Richmond Boulevard, northeast of the Refinery's main office visitor parking lot and approximately one-half mile west of the No. 4 Crude Unit, is part of the Downtown Specific Plan, adopted in August 2000. The Refinery site is zoned by the City of El Segundo as Heavy Industrial (M-2) (City of El Segundo Planning Department, 2005).

The Chevron Refinery is located in an area of mixed land uses, with industrial, recreation, residential, and commercially zoned areas nearby. Land use to the north of the Chevron Refinery is primarily residential, with a mix of commercial and light industrial zoning mixed in. The predominant adjacent land uses west of the Refinery are nearly all heavy industrial or open space, which includes Dockweiler State Beach, Manhattan Beach, and the El Segundo Generating Station, although a small parcel of land at the southwest corner of the Chevron property is made up of commercial and multiple-family residential. Directly south of the Refinery, there is a single-family residential use bordering the entire length of the Refinery separated by Rosecrans Avenue. The corridor immediate east of the proposed site is comprised of a golf course at the corner of Sepulveda Boulevard and El Segundo Boulevard, with light commercial and heavy industrial zoning for the rest of the tract.

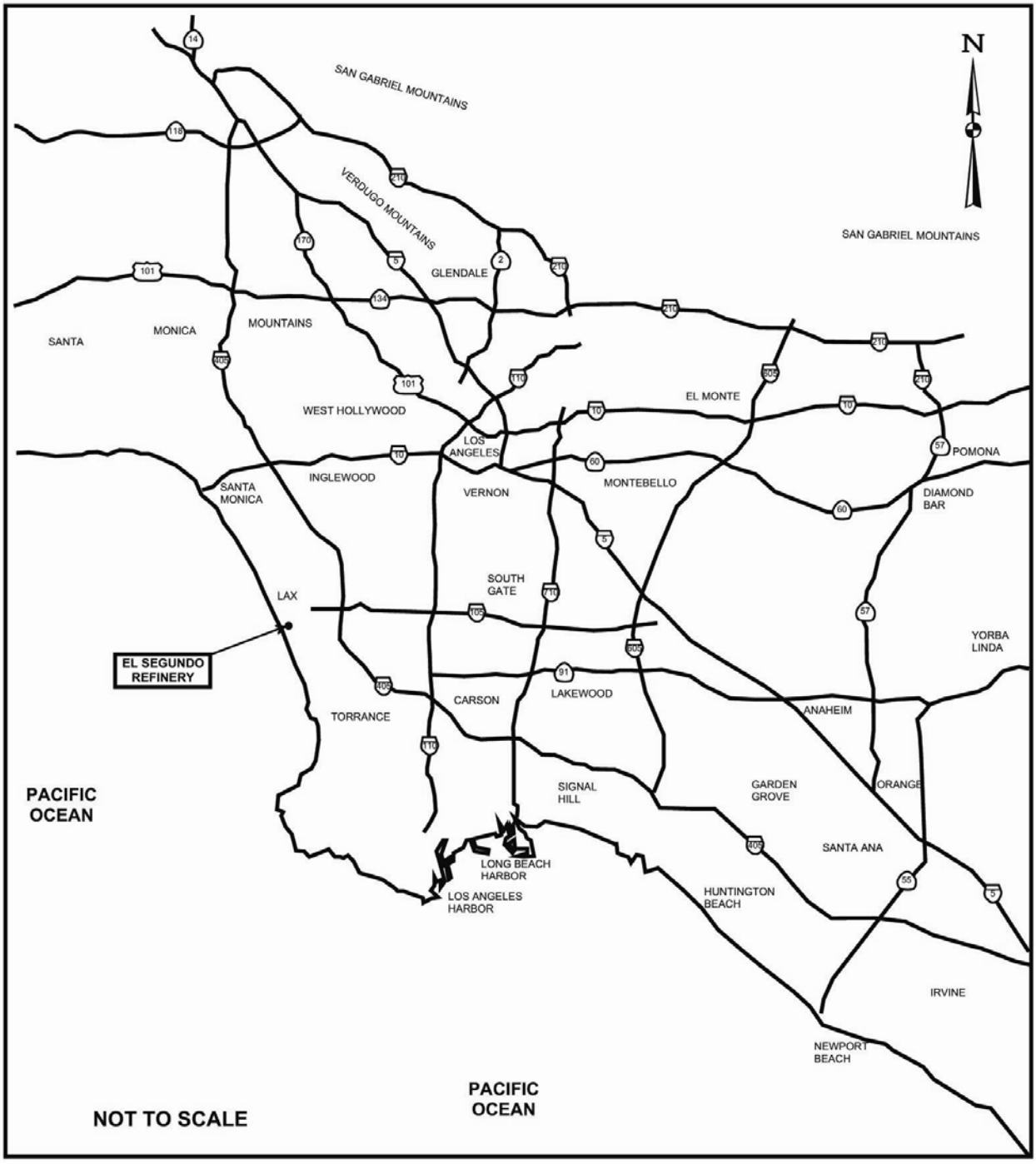

Figure 1-1: Regional Location Map

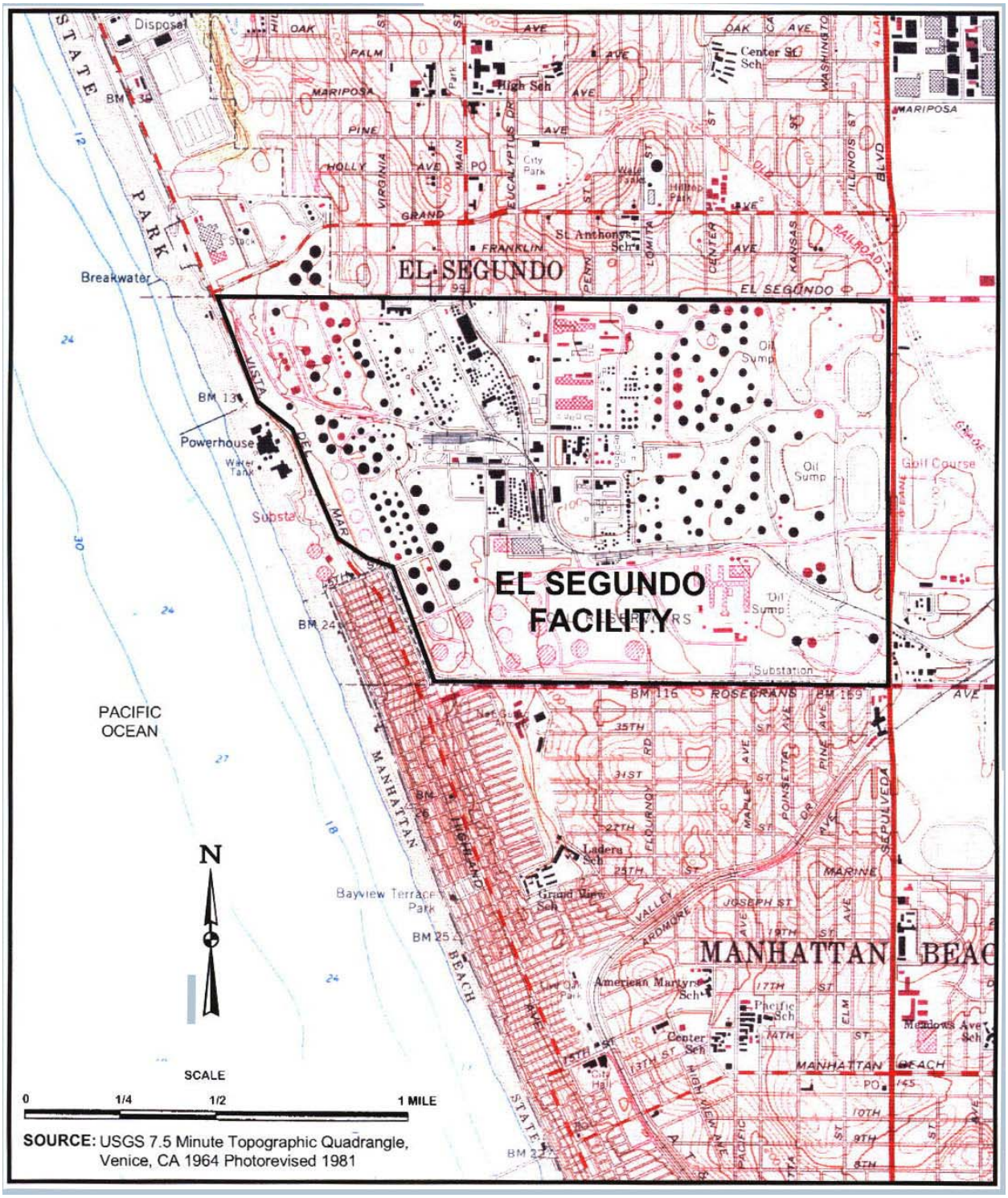

Figure 1-2: Site Location Map Chevron El Segundo Refinery

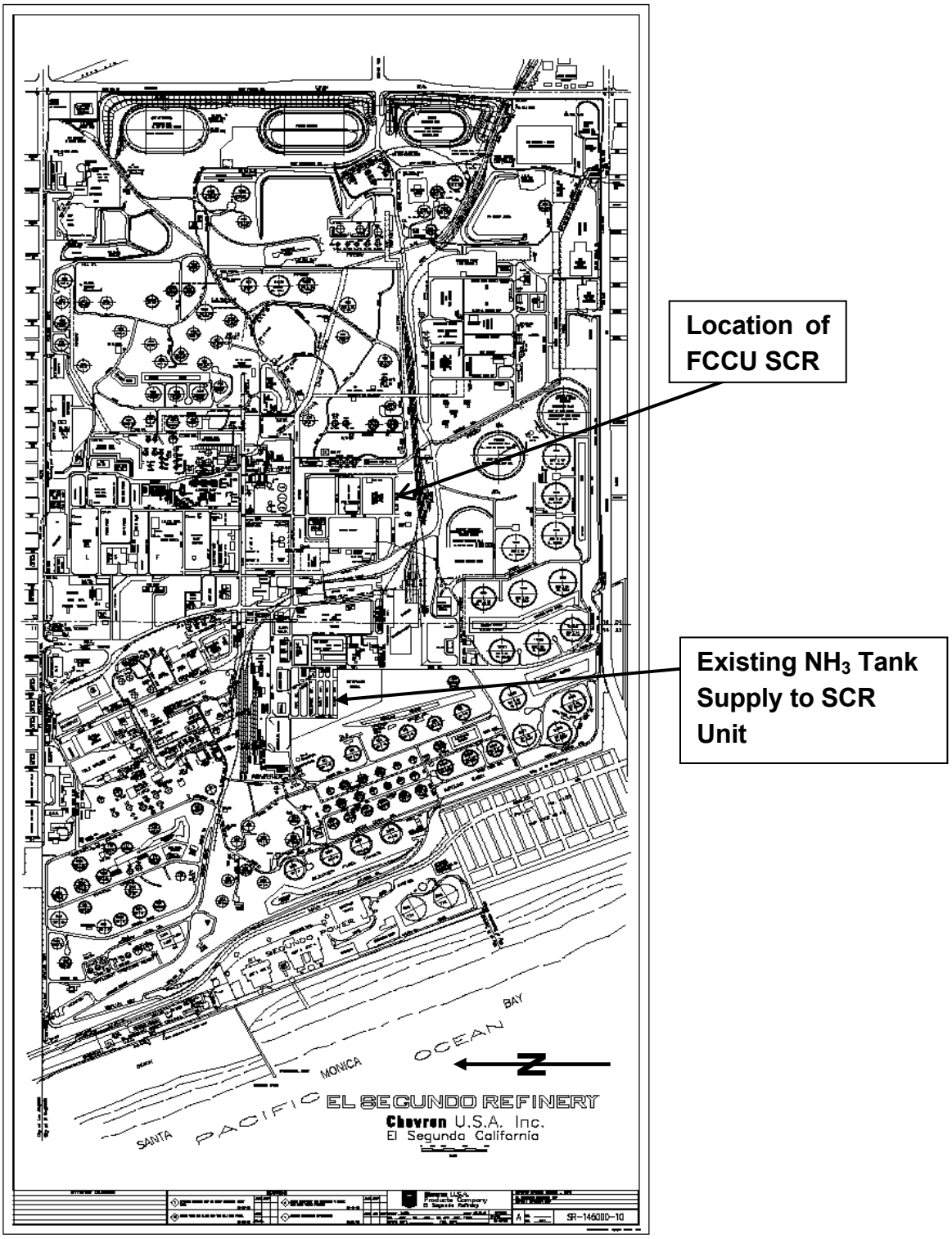

Figure 1-3: Site Plan Showing Location of Proposed Project

1.5 OVERVIEW OF CURRENT OPERATIONS

The following discussion provides an overview of the petroleum refining process. All crude oil consists of a mixture of hydrocarbons, which are chemical compounds made up of hydrogen and carbon atoms that are combined into molecules of different sizes, shapes, and degrees of complexity. The smallest hydrocarbons in crude oil contain only a few atoms of hydrogen and carbon and are gases, such as propane and butane. Somewhat larger hydrocarbon molecules are liquids, such as gasoline and diesel fuel. Very large hydrocarbon molecules are solids, such as asphalt and tar. Crude oil also contains impurities, such as sulfur and metals.

The overall purpose of the Refinery is to separate these mixtures in the crude oil into useful products. This separation is accomplished by heating the crude oil in order to change the form of the complex hydrocarbon mixtures from liquids to vapors and then separating the different hydrocarbon compounds by their physical properties. Figure 1-4 is a simplified overview of Refinery operations which shows the incoming crude oil, key Refinery processing operations and key products.

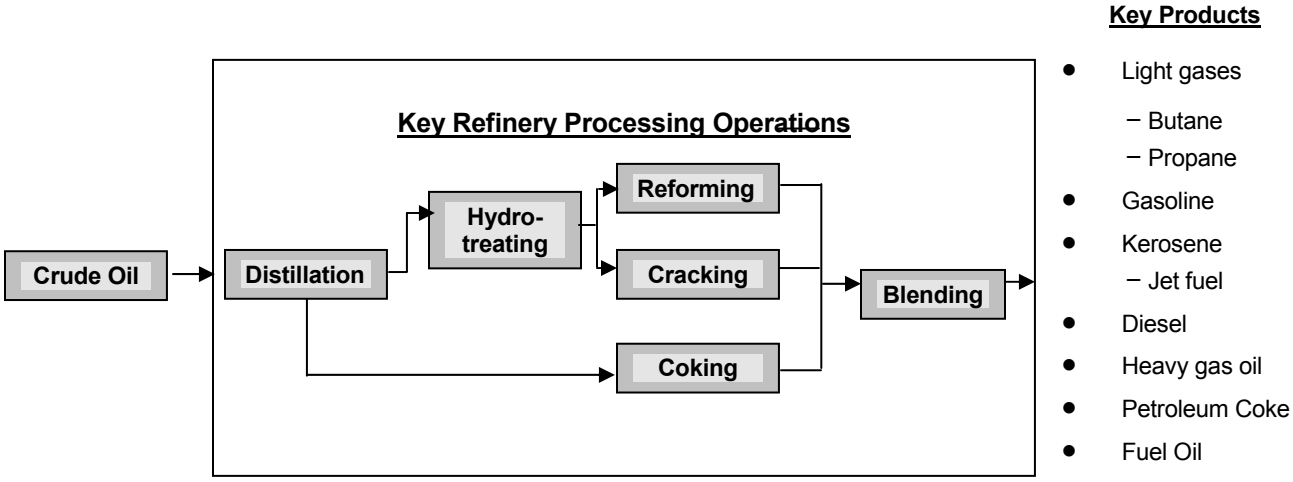

FIGURE 1-4: Simplified Overview of Petroleum Refinery Operations

The first major step in the refining process is to heat the crude oil until it is partly vaporized. The heated vapors are then introduced into what are called "distillation units," where the mixed hydrocarbon vapors rise through the distillation columns. The distillation process takes advantage of the fact that hydrocarbons boil at different temperatures and pressures according to the size of their molecules. Inside the distillation columns are a series of horizontal trays that allow separation of the many types of hydrocarbon compounds into several distinct streams. The temperature at the bottom of the distillation column is higher than at the top, so that heavy hydrocarbons with high boiling points condense on the lower trays of the tower and lighter hydrocarbons with lower boiling points condense on trays near the top.

Refineries have two types of distillation units, referred to as atmospheric and vacuum distillation units. Atmospheric distillation separates the hydrocarbon compounds under atmospheric pressure conditions. The vacuum distillation unit receives the heavy hydrocarbons collected from the lower

trays of the atmospheric distillation unit and further separates these heavy hydrocarbons under a vacuum.

Certain hydrocarbon fractions from the distillation processes are further refined in a variety of refinery processes. These downstream processes change the molecular structure of hydrocarbon molecules by breaking them into smaller molecules, joining them together to form larger molecules, or reshaping them into molecules that are a necessary part of a product, e.g., gasoline, diesel, or jet fuel. Some of the major downstream processes are coking, treating, cracking and reforming. The FCCU is part of the cracking processes.

Fluidized catalytic cracking is a major refinery process utilized for the purpose of converting heavy oils into more valuable, marketable petroleum-based products. An FCCU is the equipment that "cracks" the complex molecular structure of various hydrocarbons that exist in heavy oils, with the assistance of a catalyst, into gasoline and lighter petroleum products. Each FCCU consists of three main components: a reaction chamber, a catalyst regenerator and a fractionator.

The cracking process begins in the reaction chamber where fresh catalyst is mixed with pre-heated heavy oils. The catalyst typically used for cracking is a fine powder, often comprised of silica-alumina, made up of tiny particles with surfaces covered by several microscopic pores. A high heat-generating chemical reaction occurs that converts the heavy oil liquid into a cracked hydrocarbon vapor mixed with catalyst. As the cracking reaction progresses, the cracked hydrocarbon vapor is routed to a distillation column or fractionator for further separation into lighter hydrocarbon components such as light gases, gasoline, light gas oil, and cycle oil.

Towards the end of the reaction, the catalyst surface becomes inactive or spent because the pores are gradually coated with a combination of heavy oil liquid residue and solid carbon (coke), thereby reducing its efficiency or ability to react with fresh heavy liquid oil in the feed. To prepare the spent catalyst for re-use, the remaining oil residue is removed by steam stripping. The spent catalyst is later cycled to the regenerator, where hot air burns the coke layer off the surface of each catalyst particle to produce reactivated or regenerated catalyst. Subsequently, the regenerated catalyst is cycled back to the reaction chamber and mixed with more fresh heavy liquid oil feed. Thus, as the heavy oils enter the cracking process through the reaction chamber and exit the fractionator as lighter components, the catalyst continuously circulates between the reaction chamber and the regenerator.

The refining processes, including the FCCU, produces emissions of air pollutants, including oxides of nitrogen (NOx), the pollutant that would be reduced as a result of the proposed project. Various emission reduction equipment and operating strategies are used to control emissions from the Refinery to comply with stringent SCAQMD rules and regulations.

1.6 PROPOSED PROJECT DESCRIPTION

The following describes modifications proposed by Chevron to the FCCU in order to reduce the emissions of NOx to the levels required by the Consent Decree.

1.6.1 SCR Description

SCR Units are catalytic systems that convert the oxides of nitrogen (NOx) in the flue gas into nitrogen and water by catalyzing the reaction between NOx and ammonia (NH_3).

$$NO_x + NH_3 \rightarrow N_2 + H_2O$$

The proposed SCR Unit will consist of two parallel reactors installed upstream of the existing Electrostatic Precipitator (ESP). Only one reactor will be in service at any given time, while the other is available for routine maintenance, repair and replacement flexibility (See Figure 1-5). The exhaust gases from the SCR will enter the ESP, where they will be treated to reduce the emissions of particulate matter (PM) before being discharged to the atmosphere.

Based on industry experience in similar installations throughout the world, SCR catalyst beds on FCCU's typically foul over time as the catalyst bed is coated with fine PM. Soot blowers (see Figure 1-5), which are required by the catalyst vendor, will remove this PM from the catalyst bed without the need to shutdown and vacuum out reactor surfaces and are included as part of the Chevron SCR project. Spent catalyst is typically recycled for metal content.

The proposed new SCR also includes purge air blowers that will provide the volume of air required to displace flue gas from an SCR reactor to permit safe entry for servicing. The blowers also provide the seal air required to prevent flue gas from leaking out the soot blower seal glands, where the soot blower shaft penetrates the SCR reactor walls. Only one of the blowers is required to provide air for soot blower operation. The possibility of ammonium salts contributing to plugging decreases with the higher operating temperatures upstream of the ESP. Positioning the SCR upstream of the ESP allows the capture and removal of particulates from the SCR catalyst by soot blowing (see Figure 1-5).

The Chevron Refinery has an on-site ammonia plant. The aqueous ammonia to be used in the new SCR Unit for the FCCU will be supplied from the existing ammonia plant and stored in an existing aqueous ammonia storage tank, so no new storage tank will be required, and there will be no increase in the quantity of aqueous ammonia stored on site at any given time. No changes are required to the ammonia plant and the Refinery currently sells excess aqueous ammonia.

The existing ammonia storage vessels handle all of the aqueous ammonia that is used in the Refinery. Additional piping will be installed to transport ammonia from the existing storage tank to the new SCR. In addition, no physical modifications are required to the existing storage tank. Although the annual throughput of the existing aqueous ammonia tank will increase slightly, no increase in ammonia emissions is expected. The increase in ammonia use due to the installation of the SCR is very small (less than one gallon per minute). Chevron currently injects ammonia to improve the operation of the ESPs so the only additional ammonia injection required is the ammonia required to reduce the concentration of NOx in the FCCU stack. The additional ammonia throughput in the aqueous ammonia storage vessels (less than one gallon per minute) is negligible compared with the total throughput of the storage vessels. Therefore, it will have little or no impact on the amount of venting that occurs from the storage vessels. Further, the tank vapors released from the ammonia tanks pass through a water scrubber before they are released to

the atmosphere. Finally, the ammonia storage vessels are operated on running a gauge, so there is continuous flow into and out of the storage vessels at all times. The vessels vent to the atmosphere only when the liquid level in the storage vessels increases. Otherwise, there is no flow to the atmosphere through the small vent gas scrubber. Since the project is not expected to result in any changes in the ammonia level in the storage vessels, there will be little or no increase in the amount of venting as a result of this project.

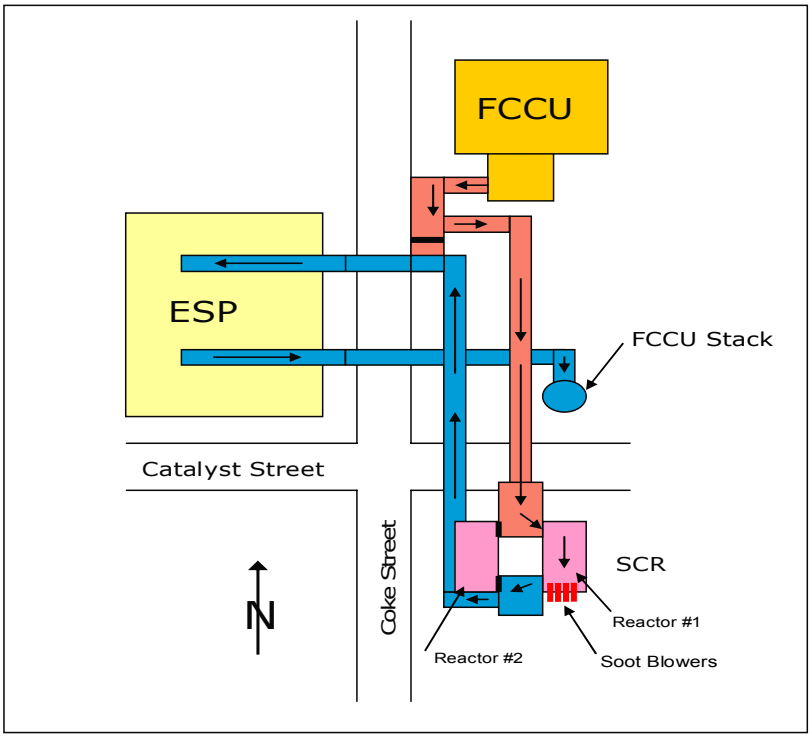

Figure 1-5: Chevron El Segundo FCCU NOx Reduction Project
SCR Upstream of the ESP

1.6.2 Construction Schedule

Table 1-1 shows that Chevron plans to start field construction on or about September 1, 2007. Construction will be suspended during November and December 2007 due to conflicting construction activity at the Delayed Coking Unit. Construction of the SCR project is expected to resume in January 2008 and be completed, except for final tie-ins, about June 2008.

By approximately July 2008, the SCR will be placed in service downstream of the ESP. The FCCU is scheduled to be shut down by mid January 2009 for a scheduled turnaround for normal maintenance. The ducting to and from the SCR will be modified to allow the SCR to treat the flue gas upstream of the ESP (see Figure 1-5). This future work will not require the SCR reactors to be relocated. New duct work will be installed so that the SCR's are upstream of the ESP's at that

time. This construction is expected to be minor in comparison with the initial installation of the SCR Unit. During this period, between January 2009 and April 2009, the number of workers will be much lower (a maximum of about 150 construction workers) and will decrease throughout that period. Maximum construction employment of about 440 workers is expected to occur in April 2008.

Table 1-1 also shows anticipated peak construction manpower levels, construction hours per day, and construction days per week by month for the proposed project. As shown in Table 1-1, the overall project construction period is expected to last a total of 20 calendar months, with actual construction activities occurring during 12 months of that time. Peak manpower for construction is anticipated to take place over two shifts, 10 hours each, from 6:30 a.m. to 5:00 p.m., and 6:00 p.m. to 4:30 a.m. five days per week, Monday through Friday.

TABLE 1-1

FCCU NOx Reduction Project Peak Construction Manpower and Construction Schedule by Month[(1)]

Item	Sep 07	Oct 07	Jan 08	Feb 08	Mar 08	Apr 08	May 08	Jun 08	Jan 09	Feb 09	Mar 09	Apr 09
Peak Manpower	200	220	260	280	360	440	420	400	150	120	50	20
Manpower (Hours/Shift)	10	10	10	10	10	10	10	10	10	10	10	10
Days/Week	5	5	5	5	5	5	5	5	5	5	5	5
Construction Phase	Demolition		Construct SCR						FCCU Turnaround, modify SCR ducting			

(1) During peak construction activities, two shifts per day will be employed, each operating 10 hours per shift.

1.6.3 Operating Schedule

Chevron anticipates that operation of this project will occur in two phases with two different ducting configurations. The first phase is scheduled to begin about July 2008. During the first phase, with the FCCU operating, flue gas will be rerouted from the FCCU stack (K-25) to the SCR via an existing tie-in point downstream of the ESP. This will allow the SCR to operate on a temporary basis before the FCCU turnaround. This step is necessary to meet the compliance date in the Consent Decree by December 31, 2008. During the first phase and ahead of the compliance date, the SCR equipment will be tested and if necessary, shut down for inspection, cleaning, and maintenance. This first phase of operation may be cancelled due to the current timing of the FCCU turnaround, which is dictated by business needs, resource availability, and the schedules of other turnarounds and projects.

The second and final phase is scheduled to begin after the January 2009 FCCU turnaround. During the second phase, the SCR ducting will be tied-in upstream of the ESP (see Figure 1-5). The upstream location is necessary for long-term reliable operation, i.e., positioning the SCR upstream

of the ESP allows the capture and removal of particulates from the SCR catalyst by soot blowing (see Figure 1-5).

1.7 REQUIRED PERMITS

The proposed project will require Permits to Construct/Operate from the SCAQMD and may require building permits from the City of El Segundo. No other permits are expected to be required.

CHAPTER 2

ENVIRONMENTAL CHECKLIST

ENVIRONMENTAL CHECKLIST

INTRODUCTION

The environmental checklist provides a standard evaluation tool to identify a project's adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed project.

GENERAL INFORMATION

Project Title:	Chevron Products Company El Segundo Refinery FCCU NOx Reduction Project
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive, Diamond Bar, CA 91765
CEQA Contact Person and Phone Number:	Mr. Michael Krause. (909) 396-2706
Project Sponsor's Name:	Chevron Products Company
Project Sponsor's Address:	324 West El Segundo Boulevard El Segundo, CA 90245
Project Sponsor's Contact Person and Phone Number:	Mr. Pat Kittikul (310) 615-5267
General Plan Designation:	Heavy Industrial
Zoning:	M-2 Heavy Industrial
Description of Project:	Chevron is proposing to install a selective catalytic reduction (SCR) unit in the Fluid Catalytic Cracking Unit at the El Segundo Refinery to reduce the emissions of NOx as required under a Consent Decree with the U. S. EPA.
Surrounding Land Uses and Setting:	The Chevron Refinery is located in an area of mixed uses, with industrial, recreation, residential, and commercial uses nearby. The predominant adjacent land uses include: Dockweiler State Beach and Manhattan Beach and the El Segundo Generating Station to the west; a residential area of Manhattan Beach to the south; a golf course, a commercial and light industrial corridor to the east; and commercial and residential areas of El Segundo to the north.
Other Public Agencies Whose Approval is Required:	City of El Segundo may require building permits.

POTENTIALLY SIGNIFICANT IMPACT AREAS

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed project. Any checked items represent areas that may be adversely affected by the proposed project. An explanation relative to the determination of impacts can be found following the checklist for each area.

☐	Aesthetics	☐	Geology and Soils	☐	Population and Housing
☐	Agricultural Resources	☐	Hazards and Hazardous Materials	☐	Public Services
☐	Air Quality	☐	Hydrology and Water Quality	☐	Recreation
☐	Biological Resources	☐	Land Use and Planning	☐	Solid/Hazardous Waste
☐	Cultural Resources	☐	Mineral Resources	☐	Transportation/Traffic
☐	Energy	☐	Noise	☐	Mandatory Findings

DETERMINATION

On the basis of this initial evaluation:

☑	I find the proposed project, COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION will be prepared.
☐	I find that although the proposed project could have a significant effect on the environment, there will not be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
☐	I find that the proposed project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL IMPACT REPORT will be prepared.
☐	I find that the proposed project MAY have a "potentially significant impact" on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
☐	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Date: February 6, 2007 **Signature:** Steve Smith

Steve Smith, Ph.D.
Program Supervisor
Planning, Rules, and Area Sources

ENVIRONMENTAL CHECKLIST AND DISCUSSION

		Potentially Significant Impact	Less Than Significant Impact	No Impact
1.	**AESTHETICS.** Would the project:			
a)	Have a substantial adverse effect on a scenic vista?	☐	☐	☑
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☑
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☑	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☑

1.1 Significance Criteria

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

The project will block views from a scenic highway or corridor.

The project will adversely affect the visual continuity of the surrounding area.

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

1.2 Environmental Setting and Impacts

1.a), b) & c) The Chevron Refinery is located in an area of mixed uses, with industrial, recreation, residential, and commercial uses nearby. The predominant adjacent land uses include: Dockweiler State Beach and Manhattan Beach and the El Segundo Generating Station to the west; a residential area of Manhattan Beach to the south; a golf course, a commercial and light industrial corridor to the east; and commercial and residential areas of El Segundo to the north. Some of these areas, particularly those associated with the beaches and Santa Monica Bay, are of scenic value.

All project activities will take place within the boundaries of the existing Refinery (see Figure 1-3). The new Refinery equipment to be installed as part of the proposed project will be similar in size, appearance, and profile to the existing facilities and equipment at the El Segundo Refinery.

The primary change with a potential for visual resources impacts will be the proposed installation of the SCR in the FCC Unit. The proposed SCR equipment is generally not as tall as the existing FCCU equipment. The tallest portion of the SCR will be the SCR stack, about 103 feet high, which will be less than the FCCU stacks and columns. As shown in Figure 1-3, the SCR will be located in the center of the Refinery, adjacent to the existing FCCU, in an area that is not visible from outside the Refinery because of the berming and landscaping that surrounds the Refinery.

The Refinery site is zoned by the City of El Segundo as M-2 (Heavy Manufacturing), with a variety of zoning (commercial to industrial) surrounding the Refinery, reflecting the diverse land uses. Section 15-6B-7 of the City of El Segundo Municipal Code provides Site Development Standards with which all uses within the M-2 zone must comply. Section 15-6B-7B states that buildings and structures in the M-2 zone shall not exceed a height of 200 feet. Thus, the proposed project structures would be consistent and in compliance with the height requirements of the City of El Segundo.

Because of the physical similarity of the new equipment associated with the proposed project relative to the existing equipment being upgraded or replaced, and because the new equipment will be located in areas of the Refinery that already contain numerous and similar existing pieces of large Refinery equipment, the structures that will be constructed as part of the proposed project are expected to have less-than-significant impacts on the existing visual character or quality of the Refinery site and its surroundings. No substantial degradation of visual resources is expected.

1.d) Construction activities associated with the proposed project are planned to occur over two shifts during the peak construction period, therefore, construction activities will occur during the nighttime. Construction activities are proposed adjacent to the existing FCCU, which is already lighted for safety purposes during nighttime operations. Additional lighting maybe required to provide adequate lighting during nighttime construction activities, but these light sources will be directed towards the Refinery and the locations of construction activities (i.e., away from residential areas), are temporary, and not expected to be noticeable to the surrounding community because of their central location in the Refinery (see Figure 1-3).

There will be minimal additional permanent light sources required as part of the proposed project. New lighting that will be installed on the proposed equipment will be consistent in intensity and type with the existing lighting on equipment and other near-by Refinery structures. Because of the central location of the proposed new SCR unit, the light sources are expected to blend in with existing light sources and not be noticeable to the surrounding community. The new Refinery equipment will be illuminated at night for safety and security purposes. All proposed project modifications will occur within the boundaries of the existing Refinery property. Thus, no new areas would be illuminated on-site or off-site by permanent additional lighting.

Based on these considerations, the proposed project is not expected to create substantial new sources of light or glare which would adversely affect day or nighttime views in the area.

1.3 Conclusion

No significant adverse impacts on aesthetics or light and glare impacts are expected from the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2. AGRICULTURE RESOURCES. Would the project:			
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☑
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☑
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☑

2.1 Significance Criteria

Project-related impacts on agricultural resources will be considered significant if any of the following conditions are met:

The proposed project conflicts with existing zoning or agricultural use or Williamson Act contracts.

The proposed project will convert prime farmland, unique farmland or farmland of statewide importance as shown on the maps prepared pursuant to the farmland mapping and monitoring program of the California Resources Agency, to non-agricultural use.

The proposed project would involve changes in the existing environment, which due to their location or nature, could result in conversion of farmland to non-agricultural uses.

2.2 Environmental Setting and Impacts

2.a) The proposed project involves modifications within the confines of an existing refinery that are consistent with heavy industrial zoning of the Refinery site. No agricultural resources exist at or in the vicinity of the Chevron Refinery and no new land will be acquired as part of the proposed project. Further, the proposed project will not convert farmland (as defined above) to non-agricultural use or involve other changes in the existing environment that could convert farmland to non-agricultural use.

2.b) & c) Land in the vicinity of the Refinery is not currently zoned for agricultural use. The proposed project does not conflict with an existing agricultural zone or Williamson Act contracts and does not include converting agricultural land for non-agricultural uses.

2.3 Conclusion

No impacts on agricultural resources are expected from the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
3. AIR QUALITY Would the project:			
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☑
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	☐	☑	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☑
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☑
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☑
f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☑

3.1 Significance Criteria

Impacts will be evaluated and compared to the significance criteria in Table 2-1. If impacts equal or exceed any of the following criteria, they will be considered significant.

TABLE 2-1

Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction**	**Operation**
NOx	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 ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants [b]		
NO2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.25 ppm (state) 0.053 ppm (federal)	
PM10 24-hour average annual geometric average annual arithmetic mean	10.4 $\mu g/m^3$ (construction)[c] & 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$ 20 $\mu g/m^3$	
PM2.5 24-hour average	10.4 $\mu g/m^3$ (construction)[c] & 2.5 $\mu g/m^3$ (operation)	
Sulfate 24-hour average	25 $\mu g/m^3$	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)	

[a] Source: SCAQMD CEQA Handbook (SCAQMD, 1993)

[b] Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.

[c] Ambient air quality threshold based on SCAQMD Rule 403.

KEY: lbs/day = pounds per day ppm = parts per million $\mu g/m^3$ = microgram per cubic meter ≥ greater than or equal to

3.2 Environmental Setting and Impacts

3.a) and f) The Air Quality Management Plan (AQMP) is a blueprint of control measures designed to attain and maintain all state and national ambient air quality standards. The control measures are developed by compiling a current air pollutant emissions inventory, projecting the

emissions inventory to future years, evaluating the impacts of future emissions on ambient air quality through air quality modeling, determining reductions in the projected future emissions needed to attain the standards, and devising control measures that will achieve those emission reductions. The AQMP is updated every three years. The last update to the AQMP was adopted by the SCAQMD Governing Board in 2003 (SCAQMD, 2003). The SCAQMD is currently developing the 2007 AQMP.

An inventory of existing emissions from the industrial facilities is included in the baseline inventory in the SCAQMD's AQMP. The AQMP identifies emission reductions from existing sources and air pollution control measures that are necessary in order to comply with the state and federal ambient air quality standards (SCAQMD, 2003). The 2003 AQMP demonstrates that applicable ambient air quality standards can generally be achieved within the timeframes required under federal law. Chevron is pursuing the new SCR project to satisfy the requirements of a Consent Decree with the U.S. EPA. This proposed project must comply with applicable SCAQMD rules and regulations for new or modified sources. For example, the project proponent must comply with prohibitory rules, such as Rule 403, for the control of fugitive dust. By meeting these requirements, the project will be consistent with the goals and objectives of the AQMP to improve air quality in the basin. In addition, the project will result in a reduction in NOx emissions associated with the operation of the FCCU, assisting in compliance with SCAQMD Regulation XX, and providing an overall air quality benefit. No existing air quality rule of future compliance requirement will be diminished.

3.b) & c) The following paragraphs discuss the potential for the proposed project to violate or contribute to an exceedance of an air quality standard or result in cumulatively considerable net increases in any criteria pollutant.

Construction Emissions: Construction activities associated with the proposed project would result in emissions of carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM10), PM2.5, volatile organic compounds (VOCs), NOx and sulfur dioxide (SOx)**.** Construction activities include construction of new foundations, and installation of NOx control equipment. The site is currently graded, so no grading activities are necessary.

Construction activities can generate emissions from heavy construction equipment, construction worker vehicles, truck deliveries, and fugitive dust. Daily construction emissions were calculated for the peak construction day. Peak day emissions are the sum of the highest daily emissions from employee vehicles, fugitive dust sources, construction equipment, and transport activities for the entire construction period to install piping, the SCR unit and ductwork. The peak day emissions is based on the day in which the highest emissions are expected to occur, calculated separately for each pollutant.

Based on the construction schedule in Table 1-1 and emission factors developed by U.S. EPA, the California Air Resources Board (CARB), etc., the peak daily construction emissions associated with the SCR Project are summarized in Table 2-2. The details of the construction emission analysis and emission calculations are presented in Appendix A.

Table 2-2 shows that peak construction emissions from the Chevron Proposed Project are less than SCAQMD significance thresholds. Thus, construction air quality impacts for the proposed project are determined to be less than significant.

TABLE 2-2

FCCU SCR Peak(1) Daily Construction Emissions

ACTIVITY	CO	VOC	NOx	SOx	PM10	PM2.5(2)
Construction Equipment	32.01	10.35	78.02	0.06	3.86	3.86
Vehicle Emissions (including road dust)	203.80	22.06	16.51	0.15	9.56	6.46
Total Project Construction Emissions	235.81	32.41	94.53	0.21	13.42	10.32
SCAQMD Threshold Level	550	75	100	150	150	55
Significant?	NO	NO	NO	NO	NO	NO

1. Peak emissions for CO, VOCs, SOx, and PM10 are predicted to occur during April 2008. Peak emissions of NOx are predicted to occur during February 2008.
2. PM2.5 emissions are assumed to be 1.0 fraction of PM10 per the California Emission Inventory Data and Reporting System (CEIDARS) for all construction equipment and vehicular emissions and about 21 percent for fugitive dust emissions (SCAQMD, 2006b).

In addition, the construction emissions were compared to the SCAQMD's localized significance thresholds (SCAQMD, 2003b) (see Table 2-3). The estimated construction emissions associated with the SCR project were compared to the localized significance thresholds for CO, NOx, and PM10. The localized significance threshold analysis is based on a project site less than one-acre in size with the closest receptors over 500 meters away (about 2,400 feet). In all cases, the construction emissions were below the localized significance thresholds (see Appendix A). Therefore, no significant localized air quality impacts are expected during the construction phase.

TABLE 2-3

Localized Significance Threshold Emissions Comparison

	Emissions (lbs/day)		
	CO	NOx	PM10
Total Construction Emissions (1)	32	78	4
LST Allowable Emissions (2)	890	174	19
Significant	No	No	No

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

(2) Source: Localized Significance Threshold Methodology, SCAQMD, 2003 for resource receptor area No. 3, southwest Los Angeles County, 1-acre project with closest receptor greater than 500 meters.

Operation Emissions: The operation emissions from the proposed project will be a decrease in NOx emissions from the Chevron FCCU. Therefore, the proposed project is expected to provide an overall air quality benefit to the surrounding population, including sensitive receptors. No significant adverse air quality impacts are expected due to the operation of the proposed project.

Cumulative Emissions: CEQA Guidelines indicate that cumulative impacts of a project shall be discussed when the project's incremental effect is cumulatively considerable, as defined in CEQA Guidelines §15065(a)(3). SCAQMD policy defines cumulatively considerable air quality impacts as impacts that exceed project-specific significance thresholds. It is for this reason the SCAQMD's air quality significance thresholds apply to both project-specific and cumulative impacts. Since construction emissions from the proposed project do not exceed the applicable significance threshold, they are not considered to be cumulatively considerable. Further, the operation of the proposed project is expected to result in an overall reduction in PM10 and NOx emissions from the Refinery. As a result, the Chevron proposed project is not expected to create significant adverse cumulative air quality impacts.

3. d) The proposed project will only result in a short-term increase in emissions related to construction activities. These emissions will cease following completion of construction. The main contaminant of concern associated with construction activities is diesel exhaust particulate that has been listed as a TAC by CARB. While carcinogenic and chronic non-carcinogenic health risk values have been established for diesel exhaust particulates, no acute diesel exhaust health risk values have been established to evaluate acute (i.e., short-term) health effects related to diesel particulates. Since construction for the proposed project is considered to be short term (i.e., lasts less than two years) and does not require a substantial number of construction equipment, no health risk assessment (HRA) is required to be prepared. Further, the proposed project is expected to result in long-term health benefits by reducing NOx emissions from the Refinery. Therefore, no significant adverse health effects are expected from construction activities associated with the proposed project.

Ammonia emissions from the new SCR unit can be generated by ammonia slip. To ensure maximum NOx reduction efficiency, SCR operators typically injected excess ammonia, that is, a higher ammonia to NOx molar ratio, into the flue gas to ensure achieving the appropriate NOx reduction reaction. The excess ammonia that does not react with the NOx passes or "slips" through the reactor vessel and is released into the atmosphere.

The proposed project will slightly increase the use of aqueous ammonia at the Refinery 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 for both the new SCR unit using the SCAQMD Rule 1401 Risk Assessment Procedures (Version 6.0), assuming that there are no ammonia emissions before the SCR installation. In fact, ammonia is currently injected upstream of the ESP to improve particulate removal in the ESP, so the risk assessment is overly conservative.

The ammonia emission estimates for the new SCR unit of the proposed project were calculated using the SCAQMD permit limit for ammonia slip of ten ppm (see Appendix A). The annual

estimated emissions of 49,596 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 project is expected to be less than 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 (5.66 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 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.

3.e) Proposed project construction and operation are not expected to cause objectionable odorous emissions that would noticeably change the nature and intensity of odors emitted at the Refinery. Sulfur compounds (e.g., hydrogen sulfide) are the most noticeable odor source in Refinery operations. The proposed project would not alter the methods or equipment for handling sulfur and sulfur-bearing compounds at the Refinery.

Most heavy construction equipment uses diesel fuel to operate. Diesel exhaust is a potential odor source in the areas adjacent to where the construction equipment is operated. However, the construction activities will be located in the center of the Refinery and the closest receptors are about 2,400 feet away. Therefore, any odors from diesel exhaust are expected to dissipate before reaching the Refinery boundaries and, thus, no significant adverse odor impacts are expected.

Operation of the proposed project is not expected to result in an increase in odors. Ammonia can have a strong odor; however, the proposed project is not expected to generate substantial ammonia emissions, since the project will use aqueous ammonia, and the ammonia will be stored in existing tanks with controls to reduce ammonia emissions and transported in enclosed piping to the SCR unit. Ammonia emissions from the SCR unit stack (also referred to as ammonia slip) will be limited to 10 ppm as emitted from the stack. Since exhaust emissions are bouyant as a result of being heated, ammonia will disperse and ultimate ground level concentrations will be substantially lower than ten ppm. Ten ppm is below the odor threshold for ammonia of 20 ppm (OSHA, 2005). The Refinery maintains a 24-hour environmental surveillance effort, which helps to minimize the frequency and magnitude of odor events. No odors are expected from the new equipment. Potential odor impacts from the proposed project are not expected to be significant. Therefore, no significantly adverse incremental odor impacts are expected due to the proposed NOx Reduction project.

3.3 Conclusion

No significant adverse impacts on air quality are expected from the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
4. BIOLOGICAL RESOURCES. Would the project:			
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☑
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☑
c) Have a substantial adverse effect on federally protected wetlands as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☑
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☑
e) Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☑
f) Conflict with the provisions of an adopted Habitat Conservation plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☑

4.1 Significance Criteria

The impacts on biological resources will be considered significant if any of the following criteria apply:

The project results in a loss of plant communities or animal habitat considered to be rare, threatened or endangered by federal, state or local agencies.

The project interferes substantially with the movement of any resident or migratory wildlife species.

The project adversely affects aquatic communities through construction or operation of the project.

4.2 Environmental Setting and Impacts

4.a), b), c), d & f) The proposed project would be located within existing boundaries of the Chevron Refinery, which is zoned and has been used for heavy industrial purposes since 1911, and has already been disturbed. The Refinery site does do not support riparian habitat, federally protected wetlands (as defined by § 404 of the Clean Water Act), or migratory corridors. With the exception of some decorative landscaping, plants are removed from operating areas of the Refinery for safety reasons. There are three special-status species that have been reported in the immediate vicinity of the Refinery: two animal species (the El Segundo blue butterfly and the Pacific pocket mouse) and one plant species (the beach spectaclepod).

The El Segundo Blue Butterfly (*Euphilotes battoides allyni*) is a small (wing span of less than one inch), brightly colored butterfly that historically has been found in the El Segundo sand dunes of Los Angeles County. Because of extensive habitat loss, degradation, and fragmentation due to urban development, the butterfly's habitat has been reduced to two areas: sand dunes near the Los Angeles International Airport, which contains the largest population of the butterfly, and two acres at the butterfly sanctuary that was created within the property of the Chevron El Segundo Refinery.

The El Segundo blue butterfly was listed as an endangered species by the federal government in 1976. The butterfly was discovered on an undeveloped portion of the Refinery property in 1975, and, shortly thereafter, the area where the butterfly was found in the northwest portion of the Refinery property was voluntarily fenced by Chevron to protect the butterfly's habitat and the coastal buckwheat plant (*Eriogonum parvifolium*), upon which the butterfly feeds during all stages of its life cycle.

Because the buckwheat plant at the Refinery's butterfly sanctuary has been threatened by various invasive species and annual grasses (e.g., tumbleweeds, rye grass, and ice plant), efforts have been made on an ongoing basis since the early 1980s to inhibit weed growth and stimulate buckwheat growth. Approximately 5,000 buckwheat plants have been transplanted at the Refinery since 1983 (Chevron 2005). In the mid 1980s, there were only about 400 of these butterflies at the Chevron butterfly sanctuary; at present there are approximately 10,000 (Chevron 2005b). The butterfly population on Los Angeles International Airport property also has increased, from a population of approximately 500 in 1985 to between 40,000 and 50,000 in 2001 (City of Los Angeles, 2001).

The Pacific pocket mouse (*Perognathus longimembris pacificus*) is a small brownish rodent that lives in fine-grained sandy areas (coastal strand, coastal dunes, coastal sage scrub, and river alluvium) in the immediate vicinity of the Pacific Ocean in southwestern California (SCAQMD, 2001). Historically, the mouse's range extended from Los Angeles County south to the Mexican border, including portions of the Chevron Refinery property. Only a few known populations remain, and they are in Orange County (Dana Point) and San Diego County (Camp Pendleton).

The Pacific pocket mouse was last reported in the area of the Chevron Refinery in 1938, and, thus, is not expected to exist at the Refinery at present.

The beach spectaclepod (*Dithyrea maritime*) is a small low-growing perennial herb. The species is native to California and occurs in foredunes, active sand, and dune scrub from San Luis Obispo south to Baja California. The beach spectaclepod is considered extremely rare by the California Native Plant Society; it is listed as threatened by the State of California and as a Species of Concern by the federal government. The only reported occurrence for this plant at the Refinery site was in 1884, and the species is not expected to exist at the Refinery at present (SCAQMD, 2001).

The proposed project activities will take place at an existing Refinery, whose active areas (including the locations where Refinery equipment will be modified and constructed) have been highly disturbed and contain no significant biological resources. No impacts are expected to special status species. The Pacific pocket mouse and beach spectaclepod have not been sighted at the Refinery in decades (since 1938 for the mouse and since the late 19th century for the spectaclepod).

The Refinery area population of the federally endangered El Segundo blue butterfly has increased substantially over the past 20 years, due to the existence of and habitat improvements at the Refinery butterfly sanctuary. These increases in blue butterfly population have occurred while Refinery operations have continued nearby. The distance between the project construction site and the blue butterfly sanctuary is over 3,000 feet, with other Refinery equipment located in closer proximity. The proposed project would not be expected to have significant adverse impacts on the El Segundo blue butterfly.

In summary, the proposed project would have no significant impacts on special-status animal or plant species.

4.e) Because modifications to implement the proposed project will occur entirely within the boundaries of the existing Refinery, the project will not conflict with local policies or ordinances protecting biological resources nor local, regional, or state conservation plans of any type.

4.3 Conclusion

The proposed project is not expected to adversely affect special-status animal and plant species or other biological resources (riparian habitats, wetlands, or migratory corridors); or conflict with ordinances or conservation plans. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
5. CULTURAL RESOURCES. Would the project:			
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☑
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☑
d)	Disturb any human remains, including those interred outside formal cemeteries?	☐	☐	☑

5.1 Significance Criteria

Impacts to cultural resources will be considered significant if:

The project results in the disturbance of a significant prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group.

Unique paleontological resources are present that could be disturbed by construction of the proposed project.

The project would disturb human remains

5.2 Environmental Setting and Impacts

5.a) CEQA Guidelines §15064.5 states that resources listed in the California Register of Historical Resources or in a local register of historical resources are considered "historical resources." A records search was conducted at the South Central Coastal Information Center (SCCIC) in August 2005 of all recorded archaeological sites and survey reports within a 0.5 mile radius of the El Segundo Refinery (SCAQMD, 2006). Federal state and local historic listings were reviewed along with historic maps. In addition, this background research was supplemented by an internet search for relevant historical information. The research revealed that the listings of the National Register of Historic Places, California Historical Landmarks, California State Historic Resources Inventory, California Points of Historical Interest, and Los Angeles County Landmarks include no properties within the Refinery. One historic site, P-186856, (that could include buildings, structures, objects, districts, and landscapes, the details of which are kept confidential to protect the resource) is recorded at the outer edge of the 0.5-mile radius and outside of the Refinery boundary (SCAQMD, 2006, Appendix A). Because the proposed project activities will occur entirely within the existing Refinery boundaries, site P-186856 would not be directly or indirectly impacted by the proposed project. Based on the results of these records searches, the proposed project will not cause an adverse change in the significance of a resource listed in the California Register of Historical Resources or in a local register of historical resources.

Additionally, CEQA Guidelines §15064.5(a)(3) states that "generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing in the California Register of Historical Resources including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values;

(D) Has yielded or may be likely to yield information important in prehistory or history".

The California Register eligibility criteria are modeled on those of the eligibility criteria of the National Register of Historic Places. Generally, resources (buildings, structures, equipment) that are less than 50 years old are excluded from listing in the National Register of Historic Places unless they can be shown to be exceptionally important (SCVTA/FTA, 2004). The proposed project will not affect any structures that are more than 50 years old

Therefore, the proposed project will not cause an adverse change in the significance of a resource potentially eligible for listing in the California Register of Historical Resources.

5.b), c) & d) The August 2005 records search indicated that 14 archaeological investigations have been performed within a 0.5-mile radius of the Refinery, including three surveys of small linear areas within the Refinery boundaries (SCAQMD, 2006). No prehistoric sites or Native American sacred lands are recorded within the Refinery boundaries or within a 0.5-mile radius of the facility. No paleontological resources are known to exist at the facility.

The 90+ years of operations at the El Segundo Refinery have included extensive ground disturbance associated with the construction and operation of Refinery facilities and equipment. Proposed project activities will take place in areas where the ground surface has been previously disturbed. The extent of previous earth disturbance has reduced the likelihood that previously unknown archaeological or paleontological resources will be encountered during project construction. However, it is possible that intact prehistoric deposits may occur below the disturbed horizon, although the proposed project will not involve extensive subsurface construction activities.

While the likelihood of encountering cultural resources is low, if such resources were to be encountered unexpectedly during ground disturbance associated with construction of the proposed project, there would be the potential for significant adverse impacts. To minimize the risk of adverse impacts occurring, project construction will incorporate a number of standard protective measures during earth-disturbing activities:

- If cultural resources are exposed, a professional archaeologist and a Gabrielino/Tongva representative will be retained to monitor the subsurface work;

- The archaeological monitor will have the authority to temporarily halt or redirect earth disturbance work in the vicinity of the exposed cultural resources, so the find can be evaluated and mitigated as appropriate; and

- As required by State law, if human remains are unearthed, no further disturbance will occur until the County Coroner has made the necessary findings concerning the origin and disposition of these remains. The Native American Heritage Commission will be notified if the remains are determined to be of Native American descent.

5.3 Conclusion

The proposed project is not expected to have significant adverse impacts on historic or prehistoric cultural resources or paleontological resources. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
6. ENERGY. Would the project:			
a) Conflict with adopted energy conservation plans?	☐	☐	☑
b) Result in the need for new or substantially altered power or natural gas utility systems?	☐	☑	☐
c) Create any significant effects on local or regional energy supplies and on requirements for additional energy?	☐	☑	☐
d) Create any significant effects on peak and base period demands for electricity and other forms of energy?	☐	☑	☐
e) Comply with existing energy standards?	☐	☐	☑

6.1 Significance Criteria

The impacts to energy and mineral resources will be considered significant if any of the following criteria are met:

The project conflicts with adopted energy conservation plans or standards.

The project results in substantial depletion of existing energy resource supplies.

An increase in demand for utilities impacts the current capacities of the electric and natural gas utilities.

The project uses non-renewable resources in a wasteful and/or inefficient manner.

6.2 Environmental Setting and Impacts

6.a) The proposed project is not expected to conflict with energy conservation plans or energy standards. The new SCR for the FCCU will include the installation of one new, electric air blower. It is in the interest of Chevron to conserve energy and comply with existing energy standards in order to minimize operating costs. New equipment installed as part of the proposed modifications is expected to be as energy efficient as possible. Further, energy used to operate the new air blower is not considered a wasteful use of energy that will interfere or conflict with existing energy conservation plans. The proposed project is not expected to conflict with an adopted energy conservation plan because there is no known energy conservation plan that would apply to this proposed project. The proposed project is not expected to substantially increase the Refinery's energy demand.

6 b), c), d), and e). The Chevron Refinery is currently served by an existing Cogeneration Unit and supplemented by Southern California Edison (SCE) for electricity supply.

Construction: Electrically powered welding machines and other construction equipment may be used during construction, but the increase in electrical demand will be within the capacity of the Refinery's existing Cogeneration unit. Construction activities are not expected to require natural gas-fired equipment or vehicles, so no impacts on natural gas utility systems are expected during construction activities. Therefore, no significant impacts on energy are expected during the construction period.

Operation: The new SCR unit requires a minimal amount of energy to operate. The only equipment requiring additional energy will be an air blower that will require about 1500 horsepower (hp) of electricity. The electrical increase associated with the new blower requirement can be met by the Refinery's existing Cogeneration Unit. No increase in electricity is expected to be required from a public utility.

The proposed project will not result in the need for new or substantially altered power or natural gas utility systems during operation, because the power and natural gas needed to operate the proposed new and modified equipment are available from the existing Refinery utility system. No increase in the use of natural gas is expected due to the installation of the SCR Unit.

6.3 Conclusion

The impacts of project energy consumption are not considered to be a wasteful use of energy and are expected to be no greater than the existing situation. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
7. GEOLOGY AND SOILS. Would the project:			
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☑	☐
• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☑
• Strong seismic ground shaking?	☐	☑	☐
• Seismic–related ground failure, including liquefaction?	☐	☐	☑
• Landslides?	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☑
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☑
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☑
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☑

7.1 Significance Criteria

The impacts on the geological environment will be considered significant if any of the following criteria apply:

Topographic alterations would result in significant changes, disruptions, displacement, excavation, compaction or over covering of large amounts of soil.

Unique geological resources (paleontological resources or unique outcrops) are present that could be disturbed by the construction of the proposed project.

Exposure of people or structures to major geologic hazards such as earthquake surface rupture, ground shaking, liquefaction or landslides.

Secondary seismic effects could occur which could damage facility structures, e.g., liquefaction.

Other geological hazards exist which could adversely affect the facility, e.g., landslides and mudslides.

7.2 Environmental Setting and Impacts

7.a), c) and d) Geological Hazards

The proposed project will be constructed in an area of known seismic activity. Approximately 35 active faults are known to exist within a 50-mile radius of the Refinery. Of primary concern are two active faults: the Newport-Inglewood Fault , approximately five miles north of the Refinery, and the Palos Verdes Fault, approximately 3.8 miles south of the site.

The Newport-Inglewood Fault Zone represents the most significant source of strong seismic ground shaking at the Refinery. The Newport-Inglewood Fault Zone extends more than 40 miles from Newport Bay to Beverly Hills and trends to the northwest. The greatest concentration of seismic events on the Newport-Inglewood Fault Zone is related to the 1933 Long Beach earthquake and its aftershocks. The fault is considered capable of generating a 6.9 magnitude earthquake.

Another significant fault in the immediate Refinery vicinity is the Palos Verdes Fault Zone. This fault extends approximately 72 miles from Santa Monica Bay south to Lausen Knoll in the southern San Pedro Channel. The Palos Verdes fault is considered capable of a 7.1 magnitude earthquake. As cited in the Final EIR for the Chevron-El Segundo Refinery CARB Phase 3 Clean Fuels Project, evaluations by the California Division of Mines and Geology (CDMG) indicate that there is a 10 percent probability of earthquake ground motion exceeding 0.45g at the Refinery site over a 50-year period (CDMG, 1998).

Although within a seismically active area, according to the Alquist-Priolo Earthquake Fault Zoning Maps and Fault Activity Map of California (1994), the El Segundo Refinery is not located on a fault trace that would define the site as a special seismic study zone under the Alquist-Priolo Act. Thus, the risk of earthquake-induced ground rupture is considered less than significant.

Based on the historical record, it is highly probable that earthquakes will affect the Los Angeles region in the future. Research shows that damaging earthquakes will occur on or near recognized

faults which show evidence of recent geologic activity. The proximity of major faults to the Refinery increases the probability that an earthquake may impact the Refinery. There is the potential for damage in the event of an earthquake. Impacts of an earthquake could include structural failure, spill, etc. The hazards of a release during an earthquake are addressed in the "8. Hazards and Hazardous Materials" section below.

New structures must be designed to comply with the Uniform Building Code Zone 4 requirements since the proposed project is located in a seismically active area. The City of El Segundo is responsible for assuring that the proposed project complies with the Uniform Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major earthquakes without collapse, but with some structural and non-structural damage. The Uniform Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The Uniform Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

The Chevron Refinery will be required to obtain building permits, as applicable, for all new structures at the site. The Refinery shall submit building plans to the City of El Segundo for review. The Chevron Refinery must receive approval of all building plans and building permits to assure compliance with the latest Building Code adopted by the City prior to commencing construction activities. The issuance of building permits from the local agency will assure compliance with the Uniform Building Code requirements, which include requirements for building within seismic hazard zones. No significant impacts from seismic hazards are expected since the project will be required to comply with the Uniform Building Codes.

The proposed project site is not subject to landslide or mudflow since the site is flat. Therefore, no significant impacts due to landslides or mudflows are expected.

Liquefaction is a mechanism of seismic ground failure in which earthquake-caused ground motion causes loose, water-saturated, cohesionless soils to be transformed to a liquid state. The Refinery site has not been identified as an area where liquefaction is considered a significant potential risk (CDMG, 1998 and SCAQMD, 2001). The site also is not considered to be an area with the potential for permanent ground displacement due to earthquake-induced landslides or due to heavy precipitation events (CDMG, 1998 and SCAQMD, 2001).

7.b) Topography and Soils

The proposed project is located within the confines of the existing Chevron Refinery. Concrete pavement presently supports Refinery structures and equipment. Most of the Refinery roads, including all high traffic roads have been paved. Some portions of the site have also been landscaped. The operating portions of the Refinery are relatively flat. No unstable earth

conditions, changes in topography or changes in geologic substructures are anticipated to occur with the proposed project because of the limited grading and excavation involved. No significant impacts on topography and soils are expected.

The proposed project involves adding new air pollution control equipment to existing facilities so construction activities are limited to minor foundation work and minor trenching for piping. The new SCR will be located in an area that was previously occupied by a fired boiler. At most, ground disturbance will be limited to installing foundations for new ductwork supports and trenching related to the SCR. Since the proposed project will occur within already developed facilities, no significant impacts related to soil erosion are expected. No significant change in topography is expected because little grading/trenching is required that could substantially increase wind erosion or runoff from affected sites.

The proposed project will be required to comply with SCAQMD Rule 403 – Fugitive Dust, which imposes requirements to minimize dust emissions associated with wind erosion. Relative to operation, no change in surface runoff is expected because surface conditions will remain relatively unchanged. Further, surface runoff is minimized because surface runoff at all facilities is typically captured, treated, and released to the public sewerage system or storm drain system.

7.e) Waste Discharge

The proposed project is not expected to generate any additional wastewater discharged by the Refinery. The Chevron Refinery discharges wastewater to the local sewer system under an Industrial Wastewater Discharge Permit. Neither the Refinery nor the proposed project will use septic tanks or alternative wastewater disposal systems, therefore, no significant impacts on soils from alternative wastewater disposal systems are expected.

7.3 Conclusion

No significant adverse impacts on geology and soils are expected from the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
8. HAZARDS AND HAZARDOUS MATERIALS. Would the project:			
a) Create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials?	☐	☑	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☑	☐

		Potentially Significant Impact	Less Than Significant Impact	No Impact
c)	Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☑
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would create a significant hazard to the public or the environment?	☐	☑	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☑
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☑
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☑
i)	Significantly increased fire hazard in areas with flammable materials?	☐	☑	☐

8.1 Significance Criteria

The impacts associated with hazards will be considered significant if any of the following occur:

Non-compliance with any applicable design code or regulation.

Non-conformance to National Fire Protection Association standards.

Non-conformance to regulations or generally accepted industry practices related to operating policy and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.

Exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.

8.2 Environmental Setting and Impacts

8.a) & b) The Chevron Refinery uses a number of hazardous materials at the site to manufacture petroleum products. The major types of public safety risks that could occur would consist of impacts from toxic substance releases, fires, and explosions. Toxic substances handled by the Chevron Refinery include hydrogen sulfide, ammonia, regulated flammables like propane and butane, and petroleum products like gasoline, fuel oils, and diesel. Shipping, handling, storing, and disposing of hazardous materials inherently poses a certain risk of a release to the environment.

Exposure to a toxic gas cloud, such as ammonia, is the potential hazard associated with the proposed project. Toxic gas clouds are formed by accidental releases of volatile chemicals (e.g., ammonia, chlorine, and hydrogen sulfide) that could form a cloud and migrate off-site, thus, exposing individuals. "Worst-case" conditions tend to arise when very low wind speeds coincide with an accidental release, which can allow the chemicals to accumulate as a dense cloud rather than disperse.

Aqueous ammonia is produced within the Refinery and is currently injected into the FCC exhaust gas upstream of the ESP. The proposed new SCR system will use aqueous ammonia to react with NOx emissions in the exhaust gases to reduce the NOx emissions. Ammonia for the new SCR will be supplied by the existing ammonia system. There will be no increase in daily ammonia storage at the Refinery, so there will not be an incremental increase in the potential for off-site exposures or impacts from an accidental release from the existing ammonia storage tanks. The proposed project will require the installation of additional piping to transfer aqueous ammonia from existing tanks to the new SCR unit. The installation of additional piping (with a diameter of two inches or less) will not increase the hazards at the Refinery. Existing piping that transports ammonia to various units is already present at the Refinery and currently transports aqueous ammonia to the adjacent FCCU. Therefore, an additional 100-200 feet of piping for ammonia transport is expected to be required.

The hazards related to the release of aqueous ammonia from a two inch pipeline were previously evaluated in the Final Negative Declaration for the Chevron Products Company Refinery Proposed Hydrogen Plant (SCAQMD, 2003c). Modeling was used to calculate release conditions, initial dilution of the vapor (dependent on the release characteristics), and the subsequent dispersion of the vapor introduced into the atmosphere (see SCAQMD 2003c, Appendix C). The models contain algorithms that account for thermodynamics, mixture behavior, transient release rates, gas-cloud density relative to air, initial velocity of the released gas, and heat transfer effects from the surrounding atmosphere and the substrate. Note that the aqueous ammonia piping for the Hydrogen Plant was about 750 feet, i.e., much longer than proposed for the new SCR unit.

Dispersion calculations were performed until a specific ammonia concentration was reached in the downwind direction. The gas concentration chosen was Emergency Response Planning Guideline (ERPG) Level 2 for ammonia, which is 200 ppm. This level is the maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair their ability to take protective action. A release from a two-inch aqueous ammonia pipeline was expected to travel about 65 feet to the ERPG2 level and remain on-site. The same is true for a release from new piping to deliver aqueous ammonia to the SCR Unit, i.e., the maximum hazard distance to the ERPG2 level would be 65 feet or less and remain on-site. The new SCR Unit will be located within the center of the Refinery and about 2,000 feet from the closest Refinery boundary (about 2,400 feet from the closest sensitive population). It should be noted that there are other existing aqueous and anhydrous ammonia piping at the Refinery, including piping to supply the existing FCCU and the new SCR Unit will be located adjacent to the existing FCCU. A release from the new piping would not be any greater than the release from the existing piping. Therefore, no new hazards are associated with the proposed project and the proposed project will not change (or increase) the hazards associated with the storage or use of ammonia at the Refinery.

The proposed project will not result in an increase in the transport and handling of aqueous ammonia because ammonia is produced at the Chevron Refinery. Aqueous ammonia will be supplied to the new SCR unit from the existing ammonia plant and no increase in the transport or storage of aqueous ammonia is expected at any given time. Chevron currently sells excess ammonia. The hazards associated with the use of ammonia are reduced through design, operations, maintenance, regulatory, and administrative controls. Design standards are developed through industry groups, various independent institutes, and government agencies. Operational controls include automatic devices to control and monitor process variables and documented procedures for manual operations. Routine preventative maintenance and inspections of critical equipment help to prevent unscheduled process shutdowns and potential equipment failures. Administrative controls include operator training, documentation of equipment inspection and maintenance history, and procurement prequalification controls over contractors and vendors such as specifying delivery truck routes.

The Chevron Refinery adheres to and will continue to adhere to the following safety design and process standards in the operations of the equipment for the existing facility:

- The California Code of Regulations, Title 8 – contains minimum requirements for equipment design.

- Industry Standards and Practices – codes for design of various equipment, including the American National Standards Institute (ANSI), American Society of Mechanical Engineers (ASME), and National Fire Protection Association (NFPA).

The standards noted above and other applicable design standards will govern the design of mechanical equipment such as pressure vessels, tanks, pumps, piping, and compressors. No further analysis of these standards is needed in this project hazard analysis. Adherence to codes will be verified by the City's building inspector before the proposed project's new or modified

facilities and equipment become operational. Based on the above, no significant adverse hazard impacts are expected from the proposed project.

8.c) No existing or proposed schools are located within one-quarter mile of the proposed project site. Therefore, the proposed project will not create hazardous emissions, or handle hazardous or acutely hazardous materials, substances or waste within one-quarter of a mile of an existing or proposed school.

8.d) The existing Refinery is listed as a hazardous materials site compiled pursuant to Government Code §65962.5; however, the proposed project equipment and activities are similar to the existing equipment and activities related to refining crude oil. The proposed project will be constructed within the confines of the existing Chevron Refinery. In 1985, the Regional Water Quality Control Board (RWQCB) adopted Order 85.17 requiring the Chevron Refinery (and other local refineries and terminals) to conduct subsurface investigations of soil and ground water. CEQA Section 21092.6 requires the lead agency to consult the lists compiled pursuant to Section 65962.5 of the Government Code to determine whether the project and any alternatives are located on a site which is included on such list. The Refinery is included on the list because it is on a list of Cleanup and Abatement Orders prepared by the State Water Resources Control Board (Order No. 85-17). For sites which are listed pursuant to Government Code Section 65962.5, the following information is requested:

Applicant:	Chevron Products El Segundo Refinery
Address:	324 West El Segundo Boulevard, El Segundo, California 90245
Phone:	(310) 615-5267
Address of Site:	324 West El Segundo Boulevard, El Segundo, California 90245
Local Agency:	City of El Segundo
Assessor's Book:	4138-016-005
List:	Cleanup and Abatement Order
Regulatory ID No:	008336901.
Date of List:	February 14, 1985

The proposed project is not expected to adversely affect the Refinery's Cleanup and Abatement Order. The Order will remain in effect and continue to establish requirements for site monitoring and clean up of existing contamination. Currently, there is no evidence that soil contamination is located within the areas proposed for grading, trenching or excavation. Construction activities could uncover contaminated soils, given the heavily industrialized nature of the Refinery and the fact that refining activities, petroleum storage, and distribution have been conducted at the site for a number of years.

Excavated soils that contain concentrations of certain substances, including heavy metals and hydrocarbons, generally are regulated under California hazardous waste regulations. Any required soil remediation will be handled under the approved SCAQMD Rule 1166 plan by using an organic vapor analyzer and visual inspection for detection of VOC and other hydrocarbons. Soil which demonstrates a VOC reading in excess of 50 ppm or greater at a distance of up to three inches from the surface or which otherwise appears contaminated will be segregated and stockpiled for further analysis. Soils, which exceed the standards specified in the permit, will be segregated and managed as contaminated soil with treatment or disposal managed in accordance with state

hazardous waste regulations. No significant impacts are expected from the construction-related potential for encountering contaminated soils during excavation since there are numerous local, state (Title 22 of the California Code of Regulations) and federal rules which regulate the handling, transportation, and ultimate disposition of contaminated soils, including SCAQMD Rule 1166. Title 22 of the California Code of Regulations establishes many requirements for hazardous waste handling, transport and disposal, including requirements to use approved disposal/treatment facilities, use certified hazardous waste transporters, and use manifests to track hazardous materials, among many other requirements. Soil sampling will be conducted in the event excavation is necessary and the Refinery will comply with all applicable rules and regulations.

8.e) & f) The Refinery is located within two miles of Los Angeles International Airport. However, the modifications to the facilities required for the proposed project are comparable to existing facilities and would not increase safety hazards for people residing or working in the proposed project area. The height of the proposed new SCR will not exceed the 200-foot height threshold that would require Federal Aviation Administration notification, as specified in 14 CFR §17.13(a) and Federal Aviation Regulation Part 77. Therefore, no safety hazards are expected from the proposed project on any airports in the region.

8.g) The proposed project is not expected to interfere with adopted emergency response plans or emergency evacuation plans. The proposed project will result in modifications to the existing Refinery. All construction activities will occur within the confines of the existing Refinery so that no emergency response plans should be impacted. Chevron has implemented emergency response plans at its facility, but no modifications to the plans are expected as a result of the proposed project because there will be no change in the materials or quantities stored on site or the manner in which those materials are handled. The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evaluation plan. Procedures for emergency response are provided to employees along with training guidelines and the use of personal protective equipment. All construction and operation personnel will be safety-trained in accordance with Chevron's procedures. The proposed project is not expected to alter the route that employees would take to evacuate the site, as the evacuation routes generally direct employees outside of the main operating portions of the Refinery. The proposed project is not expected to impact any emergency response plans.

8. h & i) The proposed project will not increase the existing risk of fire hazards in areas with flammable brush, grass, or trees and will not expose people or structures to wildland fires because the Refinery is not located near any forested wildlands. The Refinery will continue to use and produce flammable materials. The proposed project will not increase the use of flammable materials at the site. The proposed project will not increase production of flammable materials. No substantial wildland or native vegetation exists within the Refinery. Only landscape vegetation is present near the Administration building. Therefore, no significant increase in fire hazards is expected at the Refinery associated with the proposed project.

8.3 Conclusion

No significant adverse impacts to hazards or hazardous materials are expected to occur as a result of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
9. HYDROLOGY AND WATER QUALITY. Would the project:			
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☑
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☑
c) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☑	☐
d) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☑
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☑	☐
f) Otherwise substantially degrade water quality?	☐	☐	☑
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☑
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☑
j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☑
k)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☑
l)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☑
m)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☑	☐
n)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☑
o)	Require a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☑

9.1 Significance Criteria

Potential impacts on water resources will be considered significant if any of the following criteria apply:

Water Quality:

The project will cause degradation or depletion of ground water resources substantially affecting current or future uses.

The project will cause the degradation of surface water substantially affecting current or future uses.

The project will result in a violation of National Pollutant Discharge Elimination System (NPDES) permit requirements.

The capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system are not sufficient to meet the needs of the project.

The project results in substantial increases in the area of impervious surfaces, such that interference with groundwater recharge efforts occurs.

The project results in alterations to the course or flow of floodwaters.

Water Demand:

The existing water supply does not have the capacity to meet the increased demands of the project, or the project would use a substantial amount of potable water.

The project increases demand for water by more than five million gallons per day.

9.2 Environmental Setting and Impacts

9.a), f), k), l) & o) Wastewater Generation

Refinery wastewater is currently collected and treated in two separate drain and treatment systems: a segregated system and an unsegregated system. The unsegregated system, which consists of an API separator and induced air flotation (IAF) units, is normally used for non-process wastewater, including cooling tower blowdown, steam condensate, a portion of the water pumped from groundwater recovery wells, and other wastewater streams containing free oil recovered with primary (physical) treatment only. Primary treatment consists of the separation of oil, water, and solids in two stages. During the first stage (API separator), wastewater moves very slowly through the separator allowing free oil to float to the surface and be skimmed off and solids to settle to the bottom. Periodically, the separator is shut down and the sludge is collected for disposal. The second stage utilizes an IAF unit, which bubbles air through the wastewater, and both oil and suspended solids are skimmed off the top. The unsegregated system is also used to collect and treat stormwater. Both structural (impoundments, berms, and curbs) and non-structural (inspections and training) controls are used to keep contaminants from entering the unsegregated system.

The segregated system is normally used to treat process wastewater containing emulsified oil, organic chemicals, and a portion of the water pumped from groundwater recovery wells. This system consists of gravity separators, a dissolved air flotation (DAF) unit, and activated sludge units for secondary (biological) treatment. In secondary treatment, dissolved oil and other organic pollutants may be consumed biologically by microorganisms. Effluent that does not meet the discharge limits may receive additional solids removal from an auxiliary off-specification DAF unit or be routed to two auxiliary effluent diversion tanks for additional IAF treatment. The biosolids from the biological treatment are disposed to the sanitary sewer for treatment by the Hyperion Treatment Plant under an Industrial Waste Discharge Permit.

The SCR unit does not use water as part of the NOx control process. As a result, no significant adverse impacts associated with wastewater discharges are expected. Additional steam is required to clean the soot blowers (see 9 b and n below). The steam is injected into the stack by the soot blowers, the water remains in the vapor phase, traveling in the flue gas into the ESP, and out of the stack. No wastewater is generated due to the operation of the SCR.

9. b) and n) The Refinery currently consumes approximately 10 million gallons of water per day. Approximately 2.6 million gallons per day of fresh/potable water, which is purchased from the West Basin Municipal Water District (WBMWD), is used. In addition, approximately 7.5 million gallons per day of reclaimed water, which is also purchased from the WBMWD, is consumed. The WBMWD applies tertiary treatment to the secondary-treated effluent from the City of Los Angeles Hyperion Treatment Plant. Approximately 200,000 gallons of reclaimed water per day are used for irrigation of Refinery landscaping, approximately 3.5 million gallons per day of nitrified reclaimed water are used for the cooling towers, and approximately 3.8 million gallons per day of reclaimed water are used for boiler feed water.

The proposed project will increase the amount of water used for steam generation due to the operation of the soot blowers on the SCR (an estimated 3,600 gallons per day). However, that increase is less than the SCAQMD's significance threshold of five millions gallons per day and much less than the routine water use throughout the Refinery. Therefore, no significant adverse impacts associated with water demand are expected.

9.c), d), e) & m) Surface Water

The proposed project would be constructed at an existing Refinery and involves the construction of a new structures related to the new SCR. The Refinery is mostly paved, and the proposed project primarily consists of modifications to the existing Refinery, so no grading will be required. Ground disturbance will be limited to activities require to install foundations and trenching. The proposed project is not expected to increase the stormwater runoff from the Chevron Refinery. No new storm drainage facilities, expansion of existing storm facilities, changes to drainage facilities, or changes in the drainage patterns are expected as part of the proposed project. Since stormwater discharge or runoff is not expected to change in either volume or water quality, no significant stormwater quality or stormwater drainage impacts are expected to result from the operation of the proposed project.

9.g), h) & i) Flood Hazards

The proposed project would be constructed at an existing Refinery and does not include the construction of any housing, nor would it require placing housing within a 100-year flood hazard area. The Refinery is not located within a 100-year flood hazard area so the proposed project would not impede or redirect 100-year flood flows. The proposed project is not located within a flood zone and would not expose people or property to any known flood-related hazards. Thus, no significant adverse impacts associated with flood hazards are expected.

9.j) Other Hydrology Impacts

The Refinery is located approximately 900 feet from the ocean at elevations from 45 feet to 196 feet above sea level. Based on the Refinery's distance and elevation in relation to the ocean, the proposed project is not expected to result in increased risk of seiche or tsunami. The proposed project site is located in a flat area with no hills or mountains nearby so the potential for significant impacts from mudflows is considered less than significant. Thus, no significant adverse impacts associated with seiches, tsunamis, or mud flows are expected.

9.3 Conclusion

The proposed project does not have the potential for significant adverse impacts in terms of water supply and water quality. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
10. LAND USE AND PLANNING. Would the project:			
a) Physically divide an established community?	☐	☐	☑
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☑
c) Conflict with any applicable habitat conservation or natural community conservation plan?	☐	☐	☑

10.1 Significance Criteria

Land use and planning impacts will be considered significant if the project conflicts with the land use and zoning designations established by the City of El Segundo.

10.2 Environmental Setting and Impacts

10.a) The proposed project includes improvements and modifications within an existing industrial facility that is zoned and used for heavy manufacturing. No established communities are located on the Refinery property, and consequently, the proposed project will not physically divide an established community.

10.b) The Refinery is located in the City of El Segundo within Los Angeles County in a generally urbanized area which includes a substantial amount of industrial and port-related development, due to the proximity of the Ports of Los Angeles and Long Beach. The areas surrounding the Refinery can generally be characterized as a blend of heavy and light industrial, commercial, medium- and high-density residential, and industrial/ manufacturing.

Land use at the Refinery and in the surrounding vicinity is consistent with the City of El Segundo General Plan land use designations for the area. The Land Use element of the General Plan currently in force was adopted in December 1992, and no revisions have occurred since that time (City of El Segundo Planning Department 2005). The strip of development on the north side of El Segundo Boulevard between Main Street and Richmond Boulevard, northeast of the Refinery's main office visitor parking lot and approximately one-half mile west of the No. 4 Crude Unit, is part of the Downtown Specific Plan, adopted in August 2000. The Refinery site is zoned by the City of El Segundo as Heavy Industrial (M-2) (City of El Segundo Planning Department 2005).

The overall activities and products produced at the Refinery will remain the same. The proposed modifications would not conflict with the City of El Segundo General Plan land use designation for the Refinery site nor would they conflict with the Downtown Specific Plan for the area north of the Refinery site. The proposed project would not require zoning or land use changes. The modifications and additions proposed at the Refinery as part of the proposed project would be subject to plan check review by the City of El Segundo during the building permit approval process. Since the proposed project is consistent with all zoning ordinances and General and Specific Plan policies and goals, no significant adverse land use impacts are expected from the proposed project.

10.c) Because the location of the proposed project is in an industrialized area for which no habitat or natural community conservation plans exist, the proposed project will not conflict with local habitat conservation plans or natural community conservation plans.

10.3 Conclusion

The proposed project would not physically divide an established community and it would not conflict with the applicable land use plans, policies, and regulations of the City of El Segundo or create any significant adverse land use impacts. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	**Less Than Significant Impact**	**No Impact**
11. MINERAL RESOURCES. Would the project:			
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☑

	Potentially Significant Impact	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☑

11.1 Significance Criteria

Project-related impacts on mineral resources will be considered significant if any of the following conditions are met:

The project would result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

The proposed project results in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

11.2 Environmental Setting and Impacts

11.a) & b) The proposed project will be constructed on land within an existing industrial site. There are no known mineral resources on the Refinery site. Any potential loss of mineral resources from the extraction of the crude oil processed takes place off-site and will continue regardless of the proposed project. Therefore, the proposed project will not result in the loss of a known mineral resource that would be of value to the region and residents of the state. Similarly, because there are no known mineral resources on the project site, the project will not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

11.3 Conclusion

No significant adverse impacts to mineral resources are expected from the construction and operation of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
12. NOISE. Would the project result in:			
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☑	☐

		Potentially Significant Impact	Less Than Significant Impact	No Impact
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☑	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☑	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☑	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☑
f)	For a project within the vicinity of a private airship, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☑

12.1 Significance Criteria

Impacts on noise will be considered significant if:

Construction noise levels exceed the City of El Segundo's noise ordinance or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three decibels (dBA) at the site boundary. Construction noise levels will be considered significant if they exceed federal Occupational Safety and Health Administration (OSHA) noise standards for workers.

The proposed project operational noise levels exceed any of the local noise ordinances at the site boundary or, if the noise threshold is currently exceeded, project noise sources increase ambient noise levels by more than three dBA at the site boundary.

12.2 Environmental Setting and Impacts

12.a), b), c) and d) The Refinery is located in the City of El Segundo and adjacent to the City of Manhattan Beach. The local noise guidelines and ordinances are summarized in Table 2-3. The Refinery is located within the City of El Segundo. El Segundo's Municipal Code limits

construction noise to 65 dBA in the daytime (7:00 am to 6:00 pm). In addition, construction occurring between 6:00 pm and 7:00 am, or on Sundays or holidays may not cause a disturbance.

El Segundo's municipal code also limits operational noise to specific statistical sound levels, Lx, where L is the A-weighted sound level that may not be exceeded over "X" percent of the measured time period. El Segundo bases its noise limits on a 60 minute period and specifies L_{50} (30 minutes of every hour) limits for two zone types: residential and commercial/industrial. El Segundo limits are summarized for residential and commercial/industrial zones in Table 2-3 and limit the L_{50} to five dBA above ambient (existing) sound level for residential zones and eight dBA above ambient for commercial or industrial zones.

The City of Manhattan Beach is located adjacent to the southern boundary of the Refinery. The City of Manhattan Beach Noise Ordinance limits noise from construction to Monday through Friday from 7:30 am to 6:00 pm, Saturday 9:00 am to 6:00 pm and Sunday from 10:00 am to 4:00 pm. The City of Manhattan Beach noise ordinance limits operational noise according to zone designation to a 60-minute L_{50}, L_{25}, $L_{8.3}$, $L_{1.7}$, and L_{max}. The Refinery and adjoining properties are located in a mix of residential, commercial, and industrial zones. Noise limits for these zones are summarized in Table 2-4.

TABLE 2-4
LOCAL NOISE GUIDELINES AND ORDINANCES

City	Construction Limit	Operations Limit (exterior dBA)
El Segundo	L_{50} = 65 dBA No construction noise from 6:00 pm to 7:00 am or Sundays/holidays	Residential: L_{50} = 5 dBA over ambient noise level; Commercial/Industrial L_{50} = 8 dBA over ambient noise level
Manhattan Beach	Construction allowed: Monday through Friday 7:30 am to 6:00 pm, Saturday 9:00 am to 6:00 pm and Sunday 10:00 am to 4:00 pm	Residential: L_{50} = 50 dBA (daytime); Commercial: Residential limits +15 dBA Industrial: Residential limits + 20 dBA

The Refinery land use is designated commercial and residential to the north, industrial, open, and public land to the east, residential to the south, and industrial to the west. The ambient noise environment in the project vicinity is composed of contributions from equipment and operations within these commercial and industrial areas and from traffic on roads along or near each of its property boundaries (El Segundo Boulevard, Sepulveda Boulevard, Rosecrans Avenue, and Vista Del Mar).

The nearest sensitive receptors to Refinery noise are residences located in the City of Manhattan Beach, approximately 200 to 400 feet south of the Refinery along Rosecrans Avenue. The next sensitive receptors are residences approximately 660 feet north of the Refinery. A noise survey was done between December 2000 – January 2001 to the north and south of the Refinery. The

existing Community Noise Equivalent Level (CNEL) for both north and south ranged from 59 to 63 dBA, which falls within the "normally acceptable" range for both commercial and residential land use (SCAQMD, 2006). The existing CNEL noise environment in the vicinity of commercial and park receptors to the west and east of the Refinery are estimated to be 60 to 65 dBA based on CNEL noise contours in the El Segundo General Plan. These values are in the "normally acceptable" range for their respective land use categories.

Construction Noise: Construction activity for the proposed project will produce noise as a result of operation of construction equipment. The construction equipment associated with the new SCR includes an air compressor, backhoe, plate compactor, crane, dump truck and forklifts. Typical sound levels for construction equipment are presented in Table 2-5.

TABLE 2-5

Construction Noise Sources

EQUIPMENT	TYPICAL RANGE (decibels)(1)	ANALYSIS VALUE (decibels)(2)
Truck	82-92	82
Air compressor	85-91	85
Flatbed Truck	84-87	85
Pickup	70-85	70
Tractor Trailer	75-92	85
Cranes	85-90	85
Pumps	68-72	70
Welding Machines	72-77	72

1. City of Los Angeles, 1998. Levels are in dBA at 50-foot reference distance. These values are based on a range of equipment and operating conditions.
2. Analysis values are intended to reflect noise levels from equipment in good conditions, with appropriate mufflers, air intake silencers, etc. In addition, these values assume averaging of sound level over all directions from the listed piece of equipment.

The estimated noise level during equipment installation is expected to be an average of about 80 dBA at 50 feet from the center of construction activity. The new SCR unit is located near the center of the Refinery, adjacent to the FCCU. Using an estimated six dBA reduction for every doubling distance, the noise levels would drop off to about 62 dBA or less at about 400 feet from the sources for the proposed project. The closest residential area would be about 2,400 feet from construction activities. Noise from construction equipment at the closest residential area is expected to be about 47 dBA, or less than existing ambient noise levels. Most of the construction noise sources will be located near ground level, so the noise levels are expected to attenuate further than analyzed herein. Noise attenuation due to existing structures and equipment has not been included in the analysis.

The construction activities that generate noise will be carried out during daytime hours, or as permitted by the local city. Chevron limits noise-generating activities such as demolition and sandblasting to the daytime shift. All nighttime activities are limited to non-noise generating

work such as welding equipment to ensure that the noise ordinance limits for industrial areas are met and, thus, will not cause a disturbance in accordance with the City of El Segundo's noise codes. Because of the nature of the construction activities, the types, number, operation time and loudness of construction equipment will vary throughout the construction period. As a result, the sound level associated with construction will change as construction progresses. Construction noise sources will be temporary and will cease following construction activities. Based on the above evaluation of attenuation of noise from construction equipment, noise levels at the closest residential area are not expected to increase during construction activities, i.e., background noise levels in residential areas generally are in the range of 55-65 dBA. The noise levels from the construction equipment are expected to be within the allowable noise levels established by the local noise ordinance for industrial areas, which is 70 dBA. As calculated above, construction noise at 2,400 feet from the construction site is expected to be 47 dBA. Noise impacts associated with the proposed project construction activities are expected to be less than the noise ordinance of 70 dBA and less than significant.

Workers exposed to noise sources in excess of 85 dBA are required to participate in a hearing conservation program, which includes, among other things, noise monitoring of workplace noise levels, routine hearing exams, hearing protection, employee training, and recordkeeping. Workers exposed to noise sources in excess of 90 dBA for an eight-hour period are required to wear hearing protection devices that conform to Occupational Safety and Health Administration/National Institute for Occupational Safety and Health (NIOSH) standards. Noise levels under 85 dBA are considered protective of worker health and safety. Since the maximum noise levels during construction activities are expected to be 85 decibels or less, no significant impacts to workers during construction activities are expected.

Operational Noise: The new SCR Unit being installed as part of the proposed project will not generate noise beyond what currently exists at the facility. No significant increase in noise is expected from this source. The soot blowers in the SCR are expected to have a noise rating of 85 decibels (dBA) or less at three feet. The new SCR unit is located near the center of the Refinery, adjacent to the FCCU. Using an estimated six dBA reduction for every doubling distance, the noise levels would drop off to about 62 dBA or less at about 400 feet from the sources for the proposed project. The closest residential area would be about 2,400 feet from construction activities. Based on the above evaluation of attenuation of noise, noise from new equipment (i.e., soot blowers) at the closest residential area is expected to be about 47 dBA, or less than existing ambient noise levels.

The new equipment will be located within existing industrial areas where noise is generated by adjacent operational equipment. Further, the location of the new SCR Unit will be in the center of the Refinery adjacent to the FCCU, where significant noise is already generated, so no increase in noise levels in the general area is expected. Further, the FCCU is located in a slight depression, which will tend to shield the surrounding communities from any increases in noise. Therefore, significant noise impacts from the proposed project are not expected.

12 e) and f) The proposed project site is not located within an airport land use plan or within the vicinity of a private airstrip. The proposed project is located within two miles of the Los Angeles International Airport (LAX). The proposed project would not add residential units to

the area. The types of noise expected from the proposed project would be unlikely to significantly interact with noise generated from the airport, since the new equipment would be located about two miles south of the airport. Further, the Refinery is not located within the normal flight pattern of the airport. Thus, the proposed project would not increase the noise levels to people residing or working in the area, relative to existing noise levels from LAX.

12.3 Conclusion

No significant adverse noise impacts are expected to occur as a result of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
13. POPULATION AND HOUSING. Would the project:			
a) Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	☐	☐	☑
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☑
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☑

13.1 Significance Criteria

The impacts of the proposed project on population and housing will be considered significant if the following criteria are exceeded:

The demand for temporary or permanent housing exceeds the existing supply.

The proposed project produces additional population, housing or employment inconsistent with adopted plans either in terms of overall amount or location.

13.2 Environmental Setting and Impacts

13.a), b) & c) Construction of the proposed project will take place over a period of approximately 12 months at an existing Refinery located in a highly urbanized and populous area of southern California. At the peak of construction, approximately 440 temporary construction jobs (see Table 1-1) will be created by the proposed project. Because of the large size of the construction work

force available in the southern California area, all 440 temporary construction jobs are expected to be filled from the existing regional labor pool. Once construction is completed, no additional staff is expected to be needed at the Refinery for long-term operation of the proposed project. Thus, the proposed project will not induce substantial growth either directly or indirectly.

Because the proposed project will occur within an existing facility located in a highly urbanized area, no additional housing will be necessary to accommodate the labor force needed during construction and, further, no existing housing will be displaced. Substantial housing growth in the area will not occur as a result of the proposed project. Therefore, no significant adverse population or housing impacts are expected to result from the proposed project.

13.3 Conclusion

No significant adverse impacts on population size, population distribution, or housing are expected to result from proposed project construction and operation. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
14. PUBLIC SERVICES. Would the proposal result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:			
a) Fire protection?	☐	☐	☑
b) Police protection?	☐	☐	☑
c) Schools?	☐	☐	☑
d) Parks?	☐	☐	☑
e) Other public facilities?	☐	☐	☑

14.1 Significance Criteria

Impacts on public services will be considered significant if the project results in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response time or other performance objectives.

14.2 Environmental Setting and Impacts

14.a) To respond to emergency situations, the Chevron El Segundo Refinery maintains an on-site fire department. The Refinery fire department adheres to National Fire Protection Association standards and is recognized as a professional functioning fire department by the California State Fire Marshal's office. The department is staffed with trained and certified fire fighters and emergency medical technicians. The Refinery fire department is capable of responding to petroleum and structure fires, hazardous materials releases, and confined-space rescues.

The on-site fire department holds regular training sessions and drills in conjunction with local fire departments (e.g., City of El Segundo). The Refinery also is active in the Beach Cities Community Awareness and Emergency Response (CAER) organization, where industry and local government agencies coordinate emergency response activities, and is a sponsor of the Community Alert Network (CAN) telephone call-out system.

The Chevron fire department includes a full-time staff of approximately 18, with a three-person crew on duty at the Refinery at all times. In addition, a Fire Prevention Officer, a Training Officer, a Relief Battalion Chief, a Special Assignment Fire Inspector and the Fire Chief are on duty Monday through Friday during the day shift. To supplement the Fire Department an Emergency Response Team consisting of personnel from the Operations Department are trained and available to assist with any fire emergencies.

The Refinery is also served by the City of El Segundo Fire Department, which maintains two fire stations within the city and, as mentioned above, cooperates in emergency response planning with industrial facilities in the community, such as the Chevron Refinery.

The Refinery notifies the City of El Segundo Fire Department when an incident occurs at the Refinery that might affect the environment or pose a life safety hazard to employees or the public. The Refinery also maintains a mutual aid agreement with other Los Angeles area refineries, under which Chevron can request the assistance of other refineries' resources to assist in managing and controlling a major incident.

The proposed project during both construction and operation will not substantially change the load on the Refinery's fire fighting and emergency response resources and would not be expected to create the need for additional fire protection services or resources by Chevron or the City of El Segundo. The proposed project involves the installation of a new SCR Unit at the Refinery and no new fire hazards will be added to the Refinery. Additionally, fire stations in the areas near the Refinery are equipped to handle emergency response incidents at industrial facilities. Close coordination with local fire departments and emergency services will be continued. No significant adverse impacts on fire protection are expected.

14.b) The Refinery is an existing facility with a 24-hour security force for people and property currently in place. Because the proposed project will not change Refinery staffing or substantially expand the existing facilities within the Refinery, there is expected to be no increased need for new or expanded police protection.

14.c), d) and e) The local workforce is more than adequate to fill the short-term construction positions required for this project. Therefore, there will be no increase in the local population, and thus no impacts are expected to schools, parks, or other public facilities.

14.3 Conclusion

No significant adverse impacts to public services are expected to occur as a result of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
15. RECREATION.			
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☑
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☑

15.1 Significance Criteria

The impacts to recreation will be considered significant if:

The project results in an increased demand for neighborhood or regional parks or other recreational facilities.

The project adversely effects existing recreational opportunities.

15.2 Environmental Setting and Impacts

15.a) & b) There will be no changes in population size or densities resulting from the proposed project and, thus, implementation of the proposed project will not cause an increase in the use of existing neighborhood and regional parks or other recreational facilities. Further, the proposed project will be located at an established industrial facility and will have no effect on existing nearby parks or other recreational facilities. The proposed project also will not require the construction or expansion of recreational facilities and, thus, will not have an adverse physical effect on the environment.

15.3 Conclusion

No significant adverse impacts to recreation are expected to occur as a result of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
16. SOLID/HAZARDOUS WASTE. Would the project:			
a) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☑	☐
b) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	☐	☐	☑

16.1 Significance Criteria

The proposed project impacts on solid/hazardous waste will be considered significant if the following occur:

> The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills or other appropriate disposal facilities.

16.2 Environmental Setting and Impacts

16 a) Solid/Hazardous Waste

Non-Hazardous Solid Waste: The Refinery generates non-hazardous solid or municipal wastes. Most of these wastes are generated in the administrative operations of the Refinery. The status of the landfills in Los Angeles County to which the Refinery may send municipal solid wastes is summarized in Table 2-6.

In 2005, the residents and businesses of Los Angeles County disposed of approximately 11.9 million tons of solid waste at existing permitted land disposal and transformation facilities located in and out of the County. Of this amount, approximately 9.9 million tons were disposed of in local Class III landfills, 535,225 tons were sent to transformation (waste-to-energy) facilities, and 1.4 million tons were disposed of at permitted unclassified landfills. The disposal quantities for solid waste generated in Los Angeles County translate into an average disposal rate of approximately 38,140 tons per day (six day week) countywide: 31,730 tons per day at Class III Landfills: 1,715 tons per day at waste-to-energy facilities: and 4,480 tons per day at permitted unclassified landfills (LACPW, 2005).

Demolition of the existing structures (expected about September/October 2007) would result in increased generation of non-hazardous (municipal) wastes at the Refinery. The demolition wastes are expected to consist of about 27 tons of concrete, 80 tons of asphalt, and 50 tons of steel. The steel is expected to be recycled.

TABLE 2-6

Los Angeles County Landfill Status

FACILITY NAME	Permitted (tons/day)	Remaining Permitted Capacity (tons)	Closure Date
Class III Landfills			
Antelope Valley I	1,400	11,550,016	Unknown
Bradley West	10,000	510,949	4/14/2007
Burbank (Burbank only)	240	5,740,000	1/1/2053
Calabasas (Calabasas only)	3,500	23,910,000	1/1/2028
Chiquita Canyon	6,000	22,421,485	11/24/2019
Lancaster	1,700	19,225,934	8/1/2012
Puente Hills 6	13,200	72,900,000	10/13/2013
Scholl Canyon	3,400	17,050,000	1/1/2024
Sunshine Canyon	6,600	8,442,032	1/1/2001
Savage Canyon	350	7,950,000	1/1/2025
Waste-to-Energy Facilities			
Commerce Refuse to Energy Facility	1,000	See Footnote	Not Applicable
Southeast Resource Recovery Facility	2,240	See Footnote	Not Applicable

Source: LACPW, 2005

Construction activities could uncover hydrocarbon-contaminated soils, given the fact that refining, storage and distribution of petroleum products have been conducted at the site over a number of years. Where appropriate, the soil will be recycled as a non-hazardous waste at the American Remedial Technologies facility in Lynwood, California, or a similar facility.

During operation, the proposed project is not expected to generate significant quantities of solid waste, which are primarily generated from administrative or office activities. The proposed project would not increase the number of employees on a permanent basis so no significant increase in solid waste is expected. The disposal of demolition waste and contaminated soils would contribute to the diminishing available landfill capacity. However, sufficient landfill capacity currently exists to handle these materials on a one-time basis. The construction impacts of the project on waste treatment/disposal facilities are expected to be less than significant.

The soot blower is expected to make sure that soot does not accumulate and fowl the SCR catalyst, keeping the soot moving along with steam into the ESP where it will be removed. The particulate

matter collected by the ESP is not expected to noticeably change because of the minute quantities of soot that will be handled by the system.

Hazardous Solid Waste: There are no Class I hazardous waste disposal sites within the southern California area. Hazardous waste generated by the Refinery is transported to a licensed hazardous waste disposal facility located either in-state or out-of-state. There are two hazardous waste facilities in California: 1) the Chemical Waste Management Inc. (CWMI) Kettleman Hills facility located in Kings County; and, 2) the Clean Harbors facility located in the city of Buttonwillow in Kern County. Currently the Kettleman Hills facility has an estimated available capacity of four million cubic yards. However, upon completion of a berm expansion, the capacity is projected to increase by five million cubic yards for a total of nine million cubic yards. The Kettleman Hills facility expects to continue receiving wastes for approximately nine years under its current permit. The facility is in the process of permitting a new landfill which would extend the life of the operation another 15 years (Personal Communication, Terry Yarbough, Chemical Waste Management Inc.). The Clean Harbors facility in Buttonwillow has a remaining capacity of approximately 9 million cubic yards. The expected life of the Clean Harbors Landfill is approximately 40 years (Personal Communication, Marianna Buoni, Safety-Kleen).

Hazardous waste also can be transported to permitted facilities outside of California. The nearest out-of-state landfills are U.S. Ecology, Inc., located in Beatty, Nevada; USPCI, Inc., in Murray, Utah; and Envirosafe Services of Idaho, Inc., in Mountain Home, Idaho. Incineration is provided at the following out-of-state facilities: Aptus, located in Aragonite, Utah and Coffeyville, Kansas; Rollins Environmental Services, Inc., located in Deer Park, Texas and Baton Rouge, Louisiana; Chemical Waste Management, Inc., in Port Arthur, Texas; and Waste Research & Reclamation Co., Eau Claire, Wisconsin.

Wastes generated by the operation of the project would be associated with SCR catalyst, which is expected to consist of approximately 63 tons of waste every 5 years. Chevron currently has agreements in place with vendors to mange spent catalyst from existing SCRs, either by sending it off-site for metals recovery or to waste management facilities, depending on the characteristics of the catalysts. Chevron will handle the catalyst from the FCCU SCR in a similar manner. Spent catalyst is typically sent to off-site metals recovery facilities and recycled, so no significant impacts are expected from the generation of hazardous or non-hazardous waste from the new SCR Unit.

16. b) The facility is expected to continue to comply with federal, state, and local statutes and regulations related to solid and hazardous wastes. No new waste streams are expected to be generated as a result of the proposed project. Chevron currently operates several SCR units and the operation of the new SCR unit is not expected to significantly change the disposal of solid or hazardous waste from the facility. Chevron is expected to continue to comply with solid and hazardous waste regulations.

16.3 Conclusion

No significant adverse solid or hazardous waste impacts are expected to occur as a result of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
17. TRANSPORTATION/TRAFFIC. Would the project:			
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☑	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☑	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☑
d) Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☑
e) Result in inadequate emergency access?	☐	☐	☑
f) Result in inadequate parking capacity?	☐	☑	☐
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	☐	☐	☑

17.1 Significance Criteria

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

Peak period levels on major arterials are disrupted to a point where level of service (LOS) is reduced to D or F for more than one month.

An intersection's volume to capacity ratio increase by 0.02 (two percent) or more when the LOS is already D, E or F.

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.

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

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

17.2 Environmental Setting and Impacts

17.a) and b) The operating characteristics of an intersection are defined in terms of the level of service (LOS), which describes the quality of traffic flow based on variations in traffic volume and other variables such as the number of signal phases. LOS A to C operate well. Level C normally is taken as the design level in urban areas outside a regional core. Level D typically is the level for which a metropolitan area street system is designed. Level E represents volumes at or near the capacity of the highway which will result in possible stoppages of momentary duration and fairly unstable traffic flow. Level F occurs when a facility is overloaded and is characterized by stop-and-go (forced flow) traffic with stoppages of long duration.

Peak hour LOS analyses were developed for intersections in the vicinity of the Refinery (see Table 2-7). The LOS analysis indicates typical urban traffic conditions in the area surrounding the Refinery, with all intersections, except two, operating at Levels A to D during morning peak hours (7 am – 9 am). As shown in Table 2-7, two intersections currently operate at LOS E during morning peak hours. The evening peak hour conditions (4 PM – 6 PM) show overloaded conditions (LOS F) at four intersections, with the remainder of the intersections operating at LOS A-B.

Construction of the proposed project will generate additional traffic from construction personnel commuting to and from the site, as well as the transportation of construction materials and equipment to the Refinery. Peak construction activities will be conducted over two shifts, five days per week, Monday through Friday, during the construction period. Shift #1 will be 10 1/2 hours per day from 6:00 p.m. to 4:30 a.m and consist of about 180 workers. Shift #2 will also be 10 1/2 hours per day, from 6:30 a.m. to 5:00 p.m and consist of about 260 workers. The morning peak hour of the adjacent street system surrounding the Refinery is 7:00 a.m. to 9:00 a.m. Because the daytime construction shift starts at 6:30 a.m., worker traffic attributable to project construction will not affect the morning peak hour. The evening peak period is 4:00 p.m. to 6:00 p.m. Shift #2 of the construction of the proposed project will end at 5:00 p.m., while Shift #1 will begin at 6:00 p.m., meaning construction workers will be leaving and arriving during the evening peak hour and potentially impacting traffic during the evening peak hour. Therefore, a traffic analysis was completed (see Appendix B).

TABLE 2-7

Existing Traffic Conditions

Intersection	Existing AM Peak Hour		Existing PM Peak Hour	
	V/C Ratio	LOS	V/C Ratio	LOS
1. Sepulveda (SR1) and El Segundo Blvd.	0.977	E	1.099	F
2. Sepulveda (SR1) and Rosecrans Ave.	0.890	D	1.064	F
3. Sepulveda (SR1) and Imperial Hwy.	0.753	C	1.014	F
4. Aviation Blvd. and El Segundo Blvd.	0.870	D	0.964	E
5. Aviation Blvd. and Rosecrans Ave.	0.944	E	1.068	F
6. La Cienega Blvd. and I-405 SB on/off	0.652	B	0.606	B
7. La Cienega Blvd. and El Segundo Blvd.	0.652	B	0.674	B
8. I-405 SB on and El Segundo Blvd.	0.871	D	0.632	B
9. I-405 NB on/off and El Segundo Blvd.	0.771	C	0.532	A
10. I-405 SB off and Rosecrans Ave.	0.636	B	0.625	B
11. I-405 NB on/off and Rosecrans Ave.	0.636	B	0.615	B
12. I-405 SB on/off and Hindry Ave.	0.320	A	0.539	A
13. California St. and Imperial Hwy.	0.450	A	0.484	A
14. Main St. and Imperial Hwy.	0.670	B	0.637	B

* Exceeds acceptable LOS (see V/C ratios and associated LOS definitions below)

V/C Ratio .00 - .60 = LOS A Free flow (very slight or no delay)
V/C Ratio .61 - .70 = LOS B Stable flow (slight delay)
V/C Ratio .71 - .80 = LOS C Stable flow (acceptable delay)
V/C Ratio .81 - .90 = LOS D Approaching unstable flow or operation (tolerable delay)
V/C Ratio .91 – 1.0 = LOS E Unstable flow (at maximum capacity; unacceptable delay)
V/C Ratio 1.0 or more = LOS F Forced flow (above maximum capacity; unacceptable delay)

It is expected that most of the construction personnel would commute to the site alone in private automobiles even though Chevron would encourage construction contractor's employees to organize carpools. The traffic analysis assumes that all construction workers will be shuttled to Chevron between the Dockweiler State Beach parking lot and the Refinery using a 40-passenger shuttle bus. To access this off-site parking facility, project construction employees would travel on the Glenn M. Anderson Freeway (I-105), to Imperial Highway (upon reaching the end of I-105 west of El Segundo Boulevard), and turn left on Vista del Mar. The I-105 freeway has an interchange with the San Diego Freeway (I-405), allowing connections to other freeways and locations north and south of the Refinery. At the conclusion of the work shift, project construction workers will be returned by shuttle buses to the off-site parking area. As a contractual requirement between Chevron and its project construction contractors, project construction workers will be directed to turn left onto Vista Del Mar upon exiting the parking lot, then turn right onto Imperial Highway and to continue onto Imperial Highway onto the I-105 Freeway. By utilizing the off-site parking area and the specified routes, construction worker commuting will avoid the intersections currently operating at an unacceptable level of service in the vicinity of the Refinery (SCAQMD 2006). The traffic impacts from the proposed project plus the existing traffic are summarized in Table 2-8.

TABLE 2-8

Existing-plus-Proposed Project Traffic Impacts

Intersection	Existing + Project AM Peak Hour			Existing + Project PM Peak Hour		
	V/C Ratio	LOS	Δ V/C Ratio	V/C Ratio	LOS	Δ V/C Ratio
1. Sepulveda (SR1) and El Segundo Blvd.	0.977	E	+0.000	1.099	F	+0.000
2. Sepulveda (SR1) and Rosecrans Ave.	0.890	D	+0.000	1.064	F	+0.000
3. Sepulveda (SR1) and Imperial Hwy.	0.753	C	+0.000	1.018	F	+0.004
4. Aviation Blvd. and El Segundo Blvd.	0.870	D	+0.000	0.964	E	+0.000
5. Aviation Blvd. and Rosecrans Ave.	0.944	E	+0.000	1.068	F	+0.000
6. La Cienega Blvd. and I-405 SB on/off	0.652	B	+0.000	0.606	B	+0.000
7. La Cienega Blvd. and El Segundo Blvd.	0.652	B	+0.000	0.674	B	+0.000
8. I-405 SB on and El Segundo Blvd.	0.871	D	+0.000	0.632	B	+0.000
9. I-405 NB on/off and El Segundo Blvd.	0.771	C	+0.000	0.532	A	+0.000
10. I-405 SB off and Rosecrans Ave.	0.636	B	+0.000	0.625	B	+0.000
11. I-405 NB on/off and Rosecrans Ave.	0.636	B	+0.000	0.615	B	+0.000
12. I-405 SB on/off and Hindry Ave.	0.320	A	+0.000	0.539	A	+0.000
13. California St. and Imperial Hwy.	0.450	A	+0.000	0.538	A	+0.053
14. Main St. and Imperial Hwy.	0.670	B	+0.000	0.690	B	+0.053

* Exceeds acceptable LOS (see V/C ratios and associated LOS definitions below)

V/C Ratio .00 - .60 = LOS A Free flow (very slight or no delay)
V/C Ratio .61 - .70 = LOS B Stable flow (slight delay)
V/C Ratio .71 - .80 = LOS C Stable flow (acceptable delay)
V/C Ratio .81 - .90 = LOS D Approaching unstable flow or operation (tolerable delay)
V/C Ratio .91 – 1.0 = LOS E Unstable flow (at maximum capacity; unacceptable delay)
V/C Ratio 1.0 or more = LOS F Forced flow (above maximum capacity; unacceptable delay)

Table 2-8 shows the predicted proposed project LOS analysis and volume to capacity ratios due to peak construction activities (see Appendix B for the complete traffic analysis). The only intersections in the vicinity of the Refinery that will be affected by construction worker commuter traffic from the proposed project are the intersections of Main Street and Imperial Highway, California Avenue and Imperial Highway and Sepulveda and Imperial Highway. After the intersection of California Avenue and Imperial Highway, construction worker commuter traffic will continue on Imperial Highway to the start of the I-105 freeway, which is west of El Segundo Boulevard. During the PM peak hour, project construction traffic will use the northbound free right turn lane at the intersection of Vista del Mar and Imperial Highway. Free movements at intersections are not included in the level of service or delay calculations for intersections. Thus, project traffic will not impact the level of service at this location. Therefore, construction worker traffic for the proposed project will only affect the level-of-service at the intersections of California Avenue/ Imperial Highway, Main Street/ Imperial Highway, and Sepulveda Boulevard/ Imperial Highway.

Table 2-8 indicates that no intersections are expected to show a change in the LOS due to the construction phase of the proposed project. The use of the off-site parking is expected to eliminate traffic in the existing heavily congested intersections. Therefore, no significant adverse traffic impacts at local intersections are expected.

To address potential impacts on the freeway system, four segments along the I-105 and I-405 freeways in the project vicinity were examined as the regional freeway segments most likely to be impacted. Traffic volumes attributable to construction worker commuting for the proposed project were analyzed as an incremental increase to the existing freeway conditions. The LOS values used for freeway segment analyses are estimated by calculating the demand-to-capacity (D/C) ratio and identified by the corresponding LOS definitions. The existing and existing-plus-project freeway conditions are summarized in Table 2-9.

As shown in Table 2-9, construction worker traffic for the proposed project will not cause the LOS on any of the four segments to degrade to level D or worse or cause an increase of 0.02 or more in the D/C ratio for a segment operating at LOS D, E, or F. Therefore, construction worker traffic for the proposed project is not expected to result in significant adverse impacts on freeways in the vicinity of the Refinery.

To ensure that project construction employees comply with the direction from Chevron regarding the travel routes to and from the off-site parking lot, as part of the proposed project Chevron will implement measures such as:

- Posting signs in the parking lot reminding project construction workers of the travel route requirement;
- Providing reminders to the construction workers by flyers or announcements by shuttle bus drivers; and
- Conducting periodic visual audits of worker compliance.

Therefore, construction worker commuter traffic for the proposed project will not cause significant adverse impacts on intersections in the vicinity of the Refinery, under the SCAQMD CEQA significance criteria, the Los Angeles County Congestion Management Program guidelines or the City of El Segundo criteria.

17.c) The proposed project includes modifications and additions to existing facilities. The new and modified Refinery equipment will be generally similar in height and appearance to existing Refinery structures. In fact, the new SCR and the associated ducting will all be below the elevation of existing equipment near the FCCU. Thus, the height of the proposed new equipment would not be expected to result in a change to air traffic patterns because of the distance between the Refinery and the nearest airport (Los Angeles International Airport), which is located approximately two miles north of the Refinery.

17.d) The proposed project would take place at an existing Refinery and does not include off-site roadway modifications. Therefore, the proposed project would not result in hazards due to road design or incompatible uses.

TABLE 2-9

Proposed Project Impact on Surrounding Freeways

No.	Freeway Segment	Dir.	Peak Hour	Freeway Capacity[a]	Existing Conditions		Existing + Project Conditions				
					D/C Ratio	LOS	Project Traffic	Peak Hour Volume	D/C Ratio	LOS	Project Impact
1	I-105 btwn Sepulveda Bl. and Douglas St.	EB	AM	8,000	0.443	B	0	3,540	0.443	B	0.000
		EB	PM	8,000	0.425	B	242	3,642	0.455	B	0.030
		WB	AM	8,000	0.420	B	0	3,360	0.420	B	0.000
		WB	PM	8,000	0.510	B	242	4,322	0.540	B	0.030
2	I-105 btwn Douglas St. and I-405 interchange	EB	AM	8,000	0.631	C	0	5,050	0.631	C	0.000
		EB	PM	8,000	0.610	C	242	5,122	0.640	C	0.030
		WB	AM	8,000	0.599	C	0	4,790	0.599	C	0.000
		WB	PM	8,000	0.729	C	242	6,072	0.759	C	0.030
3	I-405 btwn Rosecrans Av. and El Segundo Bl.	NB	AM	9,600	1.090	F(0)	0	10,460	1.090	F(0)	0.000
		NB	PM	9,600	1.051	F(0)	115	10,205	1.063	F(0)	0.012
		SB	AM	9,600	1.033	F(0)	0	9,920	1.033	F(0)	0.000
		SB	PM	9,600	1.258	F(1)	115	12,195	1.270	F(1)	0.012
4	I-405 btwn El Segundo Bl. and I-105 interchange	NB	AM	9,600	0.854	D	0	8,200	0.854	D	0.000
		NB	PM	9,600	0.824	D	115	8,025	0.836	D	0.012
		SB	AM	9,600	0.810	D	0	7,780	0.810	D	0.000
		SB	PM	9,600	0.986	E	115	9,585	0.998	E	0.012

D/C Ratio	LOS	D/C Ratio	LOS
.00 - .35	A	1.01 – 1.25	F(0)
.36 - .54	B	1.26 - .1.35	F(1)
.55 - .77	C	1.36 – 1.45	F(2)
.78 - .93	D	Above 1.45	F(3)
.94 – 1.00	E		

LOS F(1) through F(3) represent severe congestion (travel speeds less than 25 mph for more than one hour).

[a] Includes High Occupancy Vehicle (HOV) lane
[b] D/C Ratio = Demand to Capacity Ratio
Source: See Appendix B for details on the traffic analysis.

17.e) The project would take place at an existing facility, and no changes are expected to the existing emergency access at the Refinery. Therefore, the proposed project is not expected to adversely affect emergency access.

17.f) Additional parking will be required for the additional construction employees. Arrangements have been made to allow parking at the Dockweiler State Beach parking lot and shuttling construction workers to the Refinery via shuttle buses to avoid existing congested intersections. Sufficient parking is expected to be available to handle the proposed project so no significant adverse impacts on parking capacity are expected.

17.g) The proposed project will be constructed within the confines of an existing Refinery and is not expected to conflict with adopted policies, plans, or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks).

17.3 Conclusion

No significant adverse impacts to traffic are expected to occur as a result of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
18. MANDATORY FINDINGS OF SIGNIFICANCE.			
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☑
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☐	☑	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☑	☐

18.1 Mandatory Findings of Significance

18.a) Based on the responses in the environmental checklist, it can be seen that the proposed project does not have the potential to adversely affect the environment, reduce or eliminate any plant or animal species or destroy prehistoric records of the past. The proposed project is located at a site that is part of an existing industrial facility, which has been previously disturbed, graded and developed, so this project will not extend into environmentally sensitive areas, but will remain within the confines of an existing, operating Refinery. For additional information, see Section 4.0 – Biological Resources and Section 5.0 – Cultural Resources.

18.b and c) The proposed project is not expected to generate adverse impacts to any environmental topic areas evaluated herein, including impacts to humans. The proposed project is not expected to result in cumulative adverse environmental impacts. The proposed project will result in a decrease in operational NOx emissions due to the installation of the new SCR unit on the FCCU, providing a local and regional environmental benefit to air quality. Therefore, no significant adverse air quality impacts are expected, either individually or cumulatively. As a result, impacts from the proposed project are not considered to be cumulatively considerable (CEQA Guidelines §15064 (h)). Therefore, the proposed project is not expected to result in significant adverse cumulative impacts pursuant to CEQA Guidelines §15130(a)(2).

REFERENCES

California Department of Conservation - Division of Mining and Geology (CDMG), 1998. Official Map of Seismic Hazard Zones (ground motion, liquefaction and landslides), Los Angeles Quadrangle, http://www.conserv.ca.gov/dmg.

Chevron Products Company. 2005. Butterfly Facts, downloaded from http://www.chevron.com/products on July 1.

Chevron Products Company. 2005b. Environmental Performance, El Segundo Refinery, Natural Resources, downloaded from http://www.chevron.com/products on July 1.

City of Los Angeles. 2001. City of Los Angeles Conservation Element. September.

LACDPW, 2005. County of Los Angeles Jurisdiction, Annual Disposal Summary Reports, Facilities Monthly Disposal Report, Reporting Period: Year 2005. http://dpwprod3.co.la.ca.us/swims/download/rpt_2006418_152320__14.pdf

Santa Clara Valley Transportation Authority/Federal Transit Administration. 2004. Draft EIS/EIR Silicon Valley Transit Corridor Project. April 2004.

South Coast Air Quality Management District, 2001. Final Environmental Impact Report, Chevron –El Segundo California Resources Boards (CARB) Phase 3 Clean Fuels Project. November 2001.

South Coast Air Quality Management District. 2003. Final 2003 Air Quality Management Plan.

SCAQMD, 2003b. Final Localized Significance Threshold Methodology. June 2003.

SCAQMD, 2003c. Final Negative Declaration, Chevron Products Company Refinery Proposed Hydrogen Plant Project, SCH SCH#2003051116, July, 2003

SCAQMD, 2006. Final Environmental Impact Report, Chevron Products Company – El Segundo Refinery Heavy Crude Project, SCH No. 2005091152, August 2006.

SCAQMD, 2006b. Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 CEQA Significance Thresholds, SCAQMD, October 2006.

ACRONYMS

ABBREVIATION	DESCRIPTION
API	American Petroleum Institute
AFCU	Ammonia Flow Control Unit
AIG	Ammonia Injection Grid
ANSI	American National Standards Institute
AQMP	Air Quality Management Plan
ASME	American Society of Mechanical Engineers
BARCT	Best Available Retrofit Control Technology
CalARP	California Accidental Release Prevention Program
CEQA	California Environmental Quality Act
CO	Carbon monoxide
CWMI	Chemical Waste Management Inc.
DAF	Dissolved Air Flotation
dBA	A-weighted noise level measurement in decibels
DWP	Department of Water and Power
ERPG	Emergency Response Planning Guideline
G	acceleration of gravity
FCCU	Fluid Catalytic Cracking Unit
hp	Horsepower
IAF	Induced Air Flotation
LACSD	Los Angeles County Sanitation Districts
LOS	Level of Service
mmBtu/hr	Million British Thermal Units per hour
NIOSH	National Institute of Occupational Safety and Health
NOx	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PM10	particulate matter less than 10 microns in diameter
ppm	parts per million
PSM	Process Safety Management Program
RMP	Risk Management Program
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison Company
SCR	Selective Catalytic Reduction
SOx	sulfur oxide
TACs	toxic air contaminants
UPRR	Union Pacific railroad
U.S. EPA	United States Environmental Protection Agency
VOC	volatile organic compounds

GLOSSARY

TERM	DEFINITION
Ambient Noise	The background sound of an environment in relation to which all additional sounds are heard
Anhydrous	Free from water.
Aqueous	Formed from water, having a water base.
Aromatics	Hydrocarbons which contain one or more benzene rings.
Barrel	42 gallons.
Blending	One of the final operations in refining, in which two or more different components are mixed together to obtain the desired range of properties in the finished product.
Catalyst	A substance that promotes a chemical reaction to take place but which is not itself chemically changed.
Condensate	Steam that has been condensed back into water by either raising its pressure or lowering its temperature
Cogeneration	A cogeneration unit is a unit that produces electricity.
Cracking	The process of breaking down higher molecular weight hydrocarbons to components with smaller molecular weights by the application of heat; cracking in the presence of a suitable catalyst produces an improvement in product yield and quality over simple thermal cracking.
Crude Oil	Crude oil is "unprocessed" oil, which has been extracted from the subsurface. It is also known as petroleum and varies in color, from clear to tar-black, and in viscosity, from water to almost solid.
dBA	The decibel (dDB) is one tenth of a *bel* where one bel represents a difference in noise level between two intensities I_1, I_0 where one is ten times greater than the other. (A) indicates the measurement is weighted to the human ear.
Distillation	The process of heating a liquid to its boiling point and condensing and collecting the vapor.
Feedstock	Material used as a stream in the refining process.

Flares	Emergency equipment used to incinerate refinery gases during upset, startup, or shutdown conditions
Flue Gas	Gases produced by burning fuels in a furnace, heater or boiler.
Heat exchanger	Process equipment used to transfer heat from one medium to another.
Heater	Process equipment used to raise the temperature of refinery streams processing.
Hydrocarbon	Organic compound containing hydrogen and carbon, commonly occurring in petroleum, natural gas, and coal.
L_{50}	Sound level exceeded 50 percent of the time (average or mean level)
Liquefied Petroleum Gas (LPG)	Liquefied light end gases often used for home heating and cooking; this gas is usually 95 percent propane, the remainder being split between ethane and butane.
Naphtha	A crude distillation unit cut in the range of C_7-420^o; naphthas are subdivided – according to the actual crude distillation cuts - into light, intermediate, heavy, and very heavy virgin naphthas; a typical crude distillation operation would be: C_7-160^o - light naphtha 160-280^o - intermediate naphtha 280-330^o - heavy naphtha 330-420^o - very heavy naphtha
Natural Gas	A mixture of hydrocarbon gases that occurs with petroleum deposits, principally methane together with varying quantities of ethane, propane, butane, and other gases.
Octane	Measurement of the burning quality of the gasoline; reflects the suitability of gasoline to perform in internal combustion engines smoothly without letting the engine knock or ping.
Olefins	Hydrocarbons that contain at least two carbons joined by double bonds; olefins do not naturally occur in crude oils but are formed during the processing.
Paleontological	Prehistoric life.

Peak Hour	This typically refers to the hour during the morning (typically 7 AM to 9 AM) or the evening (typically 4 PM to 6 PM) in which the greatest number of vehicles trips are generated by a given land use or are traveling on a given roadway.
Pentane	Colorless, flammable isomeric hydrocarbon, derived from petroleum and used as a solvent.
Reactor	Vessels in which desired reactions take place.
Refinery gas	Gas produced from refinery operations used primarily for fuel gas combustion in refinery heaters and boilers.
Reformate	One of the products from a reformer; a reformed naptha; the naptha is then upgraded in octane by means of catalytic or thermal reforming process.
Reformulated Gasoline	New gasoline required under the federal Clean Air Act and California Air Resources Board to reduce emissions.
Reid Vapor Pressure	The vapor pressure of a product determined in a volume of air four times greater than the liquid volume at 100^{o}F; Reid vapor pressure (RVP) is an indication of the vapor-lock tendency of a motor gasoline, as well as explosion and evaporation hazards.
Seiches	A vibration of the surface of a lake or landlocked sea that varies in period from a few minutes to several hours and which many change in intensity.
Selective Catalyst Reduction	An air pollution control technology that uses a catalyst to remove nitrogen oxides from the flue gas.
Stripper or Splitter	Refinery equipment used to separate two components in a feed stream; examples include sour water strippers and naphtha splitters.