

## **SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

### **FINAL NEGATIVE DECLARATION FOR: PHILLIPS 66 LOS ANGELES REFINERY CARSON PLANT - CRUDE OIL STORAGE CAPACITY PROJECT**

**SCH No. 2013091029**

**December 2014**

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## **CHAPTER 1**

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### **PROJECT DESCRIPTION**

Introduction  
Agency Authority  
Project Location  
Overview of Current Operations  
Proposed Project Description  
Construction Schedule  
Required Permits and Approvals



## 1.1 INTRODUCTION

The Phillips 66 Los Angeles Refinery (Refinery) has two plants, one located in Wilmington, a community under the jurisdiction of the City of Los Angeles, and the other located in the City of Carson (see Figure 1-1). These two plants operate as one refinery and the Carson Plant is referred to herein as the LARC. The LARC operates bulk crude oil supply storage facilities to handle incoming crude oil supplies from domestic sources primarily via onshore pipelines, and various vessels arriving at the Port of Long Beach at Berth 121. LARC currently has four existing 320,000 barrel<sup>1</sup> (bbl) (nominal capacity<sup>2</sup>) receiving tanks for crude oil. Crude oils from up to three different sources are segregated using the four existing 320,000 bbl tanks. The current capacity of the existing storage tanks limits vessel delivery volumes to Panamax vessels (400,000 bbl capacity), which are the size limits of vessels that can travel through the Panama Canal. For larger vessels, such as Aframax (720,000 bbl capacity) or Suezmax (1,000,000 bbl capacity), the current capacities of the existing storage tanks require two ship calls to unload the entire volume of a larger vessel, resulting in seven to 10 days when the ship remains in the port area. When a ship larger than Panamax calls, LARC accepts delivery of the first portion of the crude oil into the existing tanks then processes the crude oil through LARC to make room in the receiving tanks to accommodate the second discharge from the larger vessel. In order to avoid the extra wait time, which increases costs and creates additional vessel hoteling emissions, LARC needs more crude oil tankage storage capacity to accommodate the larger vessels so the entire volume of crude oil can be unloaded in one ship call.

Phillips 66 is proposing to increase crude oil storage capacity at the LARC by installing one new domed, 615,000 bbl crude oil tank<sup>3</sup> (Tank 2640) and associated support facilities at the LARC. In addition, the throughput (i.e., the frequency of filling and emptying of the tank) of two existing 320,000 bbl nominal capacity storage tanks (Tanks 510 and 511) would be increased. The proposed project also includes the construction of geodesic domes on the same two existing crude oil (Tanks 510 and 511) to control fugitive emissions. The proposed project also includes the construction of one 14,000 bbl water draw surge tank (Tank 2643). In addition, to provide power to the western boundary of the LARC, one new electrical substation will be installed. The proposed project would comply with the South Coast Air Quality Management District's (SCAQMD) best available control technology (BACT) requirements, as applicable, for control of volatile organic compounds (VOCs) emissions from refinery storage tanks.

Crude oil storage capacity is not a limiting factor for the throughput and production at the LARC. LARC operations fluctuate and are controlled by many factors, including but not limited to, equipment design parameters, market demand, equipment maintenance schedules, equipment permit limit conditions, and crude oil characteristics (e.g., sulfur content, acidity, specific gravity, etc.). LARC refining processes have operated at maximum capacity in the past and are expected to continue to operate at maximum capacity in the future due to constraints. No changes to refining processes are included in the proposed project and the current refining

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<sup>1</sup> One barrel equals 42 gallons.

<sup>2</sup> Nominal capacity is the physical maximum capacity of the storage tank. Working capacity is less than the physical capacity.

<sup>3</sup> The new crude oil tank would have a nominal (maximum) capacity of 614,656 barrels and a working capacity of 500,141 barrels. Herein the new crude oil storage tank will be referred to as 615,000 barrel capacity storage tanks.

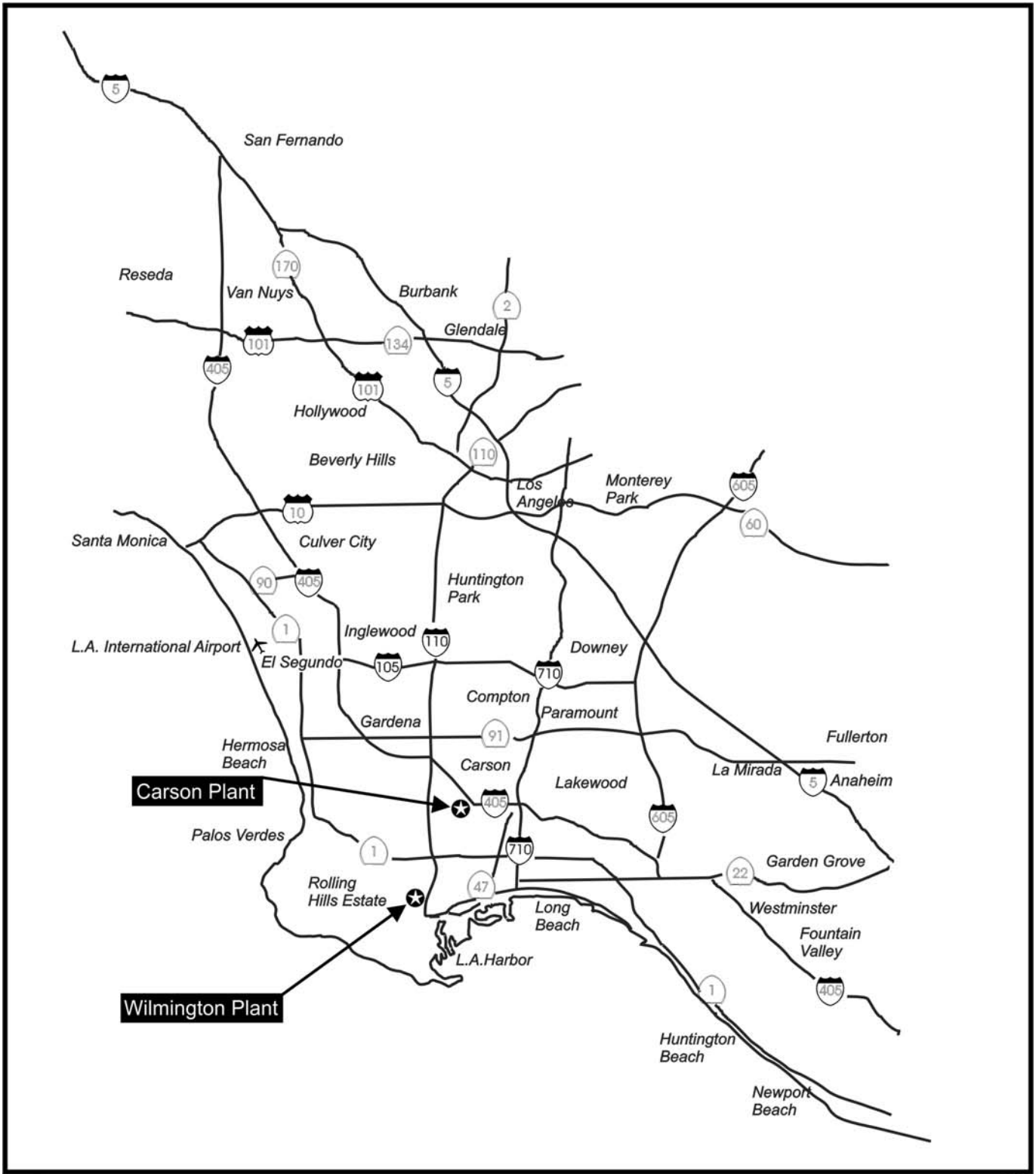


FIGURE 1-1  
REGIONAL MAP  
Phillips 66 Los Angeles Refinery





processes are limited by permit conditions that would not be modified as part of the proposed project. Therefore, the baseline crude throughput rate and output of the LARC would not change as a result of implementing the proposed project.

The proposal to increase crude oil storage capacity would streamline the movement of ships' future deliveries of crude oil to the LARC storage facilities without changing the overall volume of crude oil processed by the LARC. The increase in permitted throughput of the two existing storage tanks would provide flexibility for LARC to be able to blend multiple types of crude oil in order to obtain the optimal crude oil properties for refining. Therefore, the proposed project would only increase the crude oil storage capacity and the frequency of filling and emptying of the tanks at the LARC.

## **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 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.

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). 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, the SCAQMD has been determined to 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 the lead agency determines, as supported by an environmental analysis of the project, that there is no substantial evidence that the project may have a significant effect on the environment (CEQA Guidelines §15064(f)(3) and §15070). As discussed in Chapter 2, the proposed project is not expected to result in any significant adverse environmental impacts; therefore, a Negative Declaration is the appropriate document.

## **1.3 PROJECT LOCATION**

The Refinery is located in the South Coast Air Basin (Basin), within the jurisdiction of the SCAQMD. The LARC is located at 1520 East Sepulveda Boulevard, Carson, Los Angeles County, California and consists of about 224 acres of real property (see Figure 1-2). Land use at the LARC is designated by the City of Carson as heavy industrial zoning. The LARC is bounded on the north by Sepulveda Boulevard, on the west by Wilmington Avenue, on the south by a branch of the Burlington Northern and Santa Fe Railroad, and on the east by the Alameda rail

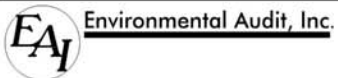
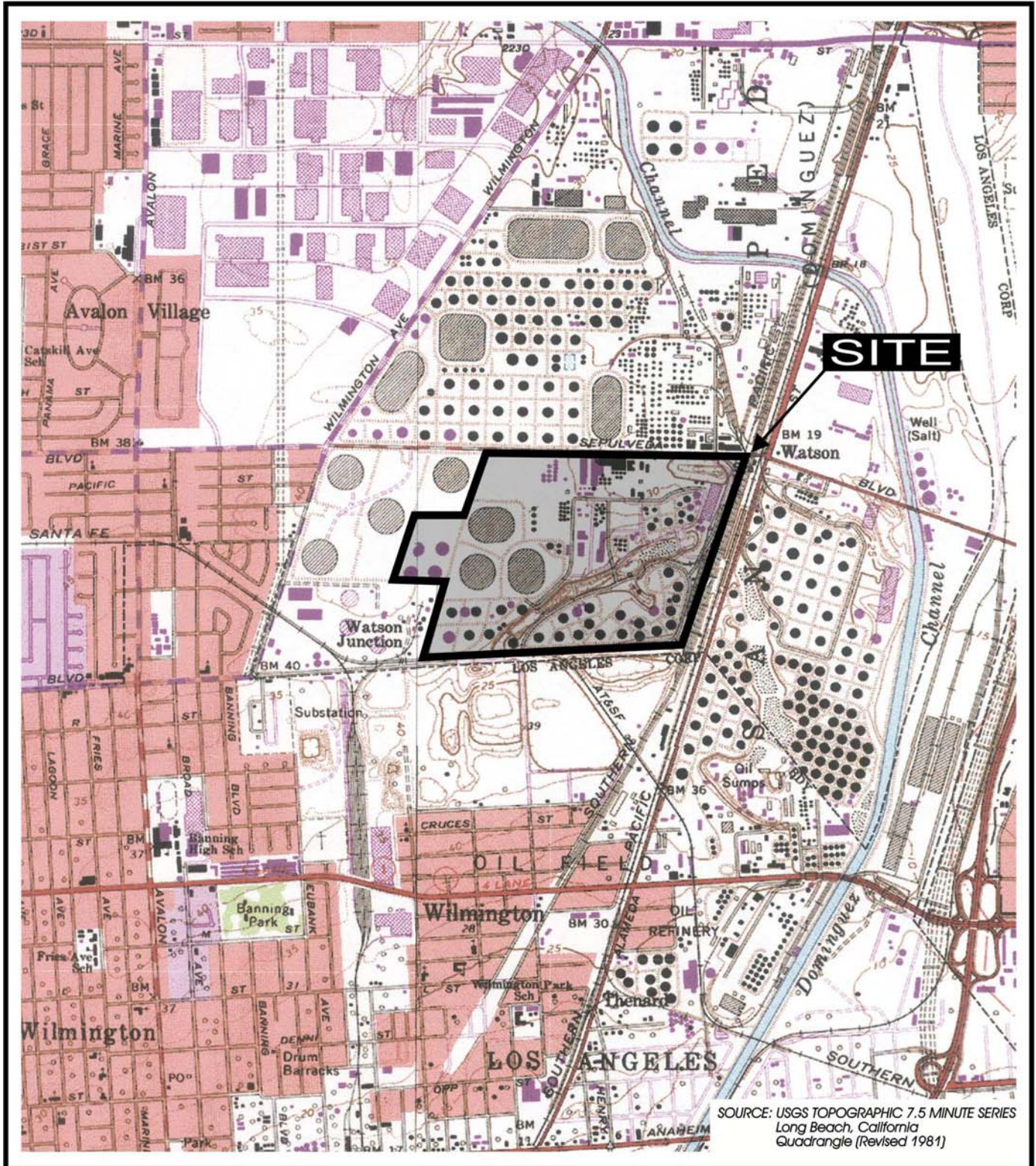


FIGURE 1-2  
SITE LOCATION MAP  
Phillips 66 Los Angeles Refinery  
Carson Plant

corridor and Alameda Boulevard. Property to the north of the LARC is occupied by the Tesoro Los Angeles Refinery-Carson Operations (formerly BP Los Angeles Refinery). The western boundary of the LARC property borders the Container Transportation Services shipping and container storage facility. Property across Wilmington Avenue includes a residential neighborhood to the northwest and commercial uses to the southwest. Land uses to the south of the LARC are used as heavy industrial. Land to the south of Lomita Avenue is dominated by port-related activities. Land to the east of Alameda Street is occupied by the Kinder Morgan storage tank farm and the Tesoro Los Angeles Refinery – Wilmington Operations (formerly Shell/Equilon/Texaco Refinery).

#### **1.4 OVERVIEW OF CURRENT OPERATIONS**

Crude oil is a mixture of hydrocarbon compounds and relatively small amounts of other materials, such as oxygen, nitrogen, sulfur, salt, and water. Petroleum refining is a coordinated arrangement of manufacturing processes designed to produce physical and chemical changes in the crude oil to remove most of the non-hydrocarbon substances, separate the crude oil into its various components, and blend them into various useful products. The overall refining process uses four kinds of techniques: (1) separation, including distilling hydrocarbon liquids into gases, gasoline, diesel fuel, fuel oil, and heavier residual materials; (2) cracking or breaking large hydrocarbon molecules into smaller ones by thermal or catalytic processes; (3) reforming using heat and catalysts to rearrange the chemical structure of a particular oil stream to improve its quality; and (4) combining by chemically combining two or more hydrocarbons to produce high-grade gasoline.

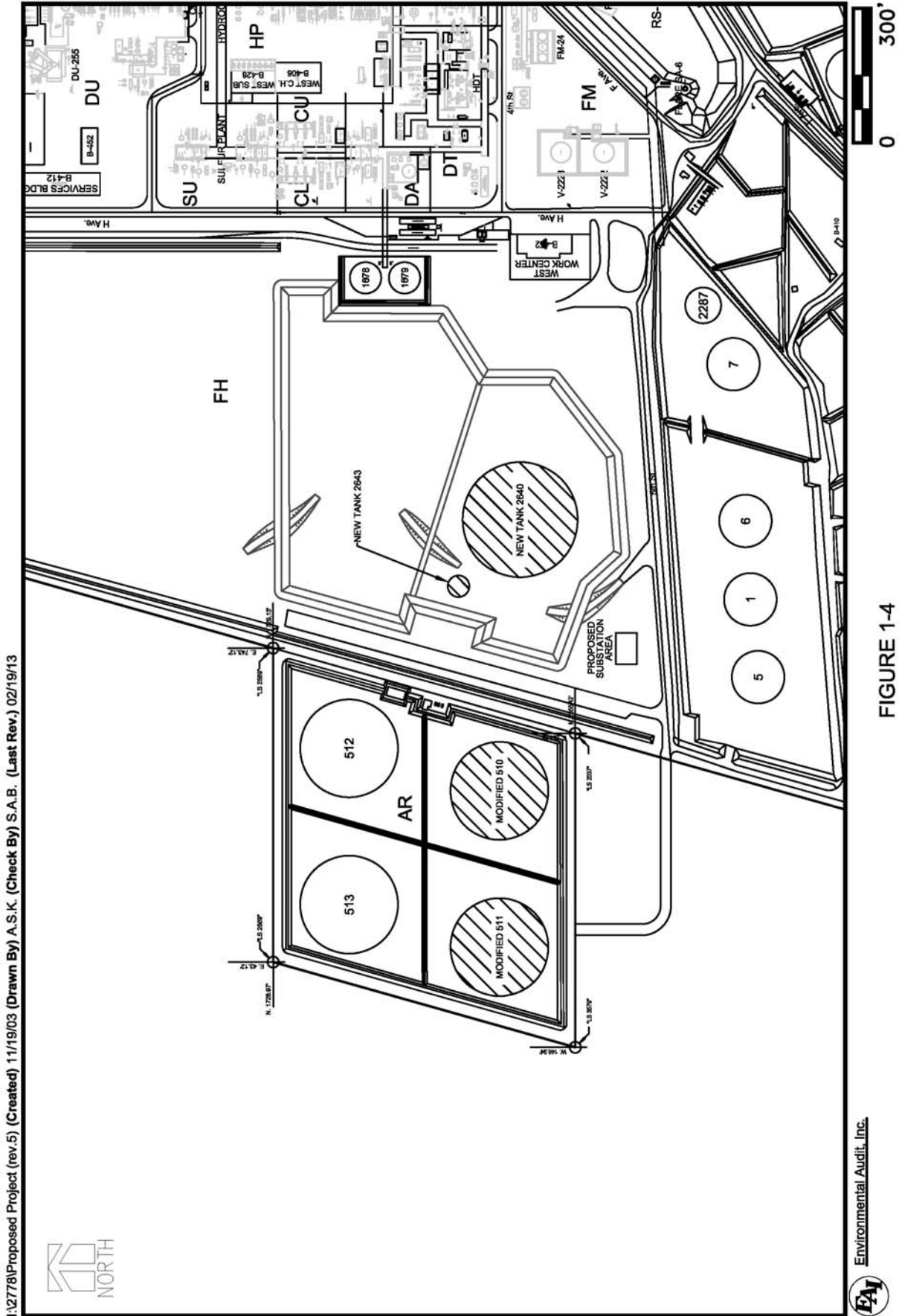
Crude oil and distillates and other raw materials are delivered to the Refinery by pipelines, ships, and trains. Crude oil is processed in the crude oil unit where it is heated and distilled into various hydrocarbon components (at the LARC), which are further processed in downstream Refinery units (primarily located at the Wilmington Plant). The Refinery produces a variety of products including unleaded gasoline, jet fuel, diesel fuel, petroleum gases, sulfuric acid, and sulfur at the Wilmington Plant. Elemental sulfur and petroleum coke are produced as co-products of the refining process at the LARC. Major processing units at the Refinery include the crude oil unit, vacuum flasher, coker unit, hydrotreating units, reforming units, fluid catalytic cracking unit, alkylation unit, sulfur recovery units, hydrogen plant, acid plant, and the cogeneration unit. No changes are proposed at the Wilmington Plant.

#### **1.5 PROPOSED PROJECT DESCRIPTION**

The Refinery is proposing to increase the crude oil storage capacity at the LARC and throughput (i.e., frequency of filling and emptying) of two existing tanks. The proposed project consists of the following activities that will occur within the LARC near the western boundary (see Figure 1-3 and Figure 1-4):

- One new, 615,000 bbl nominal capacity (500,000 bbl working capacity) crude oil storage tank (Tank 2640) with a geodesic dome would be installed.
- The permitted throughput limit of two 320,000 bbl nominal capacity existing external floating roof crude oil storage tanks, Tanks 510 and 511, would be increased from 4.562





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FIGURE 1-4  
 PROPOSED PROJECT PLAN  
 Phillips 66 Los Angeles Refinery  
 Carson Plant



Project No. 2778

million bbl per year to 18 million bbl per year for each tank and geodesic domes would be installed on each tank to control fugitive emissions.

- Two new, 2,100 gallons per minute (gpm) crude oil feed/transfer pumps would be installed to transfer crude oil into and out of the new tank (Tank 2640). One new, 14,000 bbl nominal capacity (10,000 bbl working capacity) water draw surge tank (Tank 2643), including geodesic dome, pumps, and pipelines would be installed.
- Three new heat exchangers and one steam trap to assist in water treatment would be installed.
- Tie-ins to the manifold of the Pier "T" crude oil delivery pipeline from Berth 121 would be installed.
- One new electrical power substation would be installed.

Table 1-1 shows the specifications of the existing and proposed storage tanks associated with the proposed project.

**TABLE 1-1**  
Tank Specifications

Tank Number	Roof Type	Commodity Type	Working Volume (bbl)	Nominal Volume (bbl)	Diameter (ft)	Height w/o Dome (ft)	Additional Dome Height(ft)
Existing 510	FPR	Crude Oil	285,000	320,000	218	50	N/A
Existing 511	FPR	Crude Oil	285,000	320,000	218	50	N/A
Modified 510	Domed FPR	Crude Oil RVP 11	285,000	320,000	218	50	42
Modified 511	Domed FPR	Crude Oil RVP 11	285,000	320,000	218	50	42
New Tank 2640	Domed FPR	Crude Oil RVP 11	500,000	615,000	260	65	53
New Tank 2643	Domed FDR	Water/Crude	10,000	14,000	44	52	7

FPR = Floating Pontoon Roof; FDR = Floating Double-Deck Roof

Crude oil received at the LARC contains small amounts of water, which are separated from the crude oil and accumulate in the bottom of the crude oil storage tanks. The accumulated water, referred to as water draw, is transferred from the crude oil storage tanks into a smaller water draw surge tank for processing prior to disposal. Currently, the water draw from all existing crude oil tanks is processed in the Sour Water Stripper, which mostly operates at maximum capacity. In order to consolidate and more efficiently manage water draw from crude oil tanks, the water draw from all existing crude oil tanks and new crude oil Tank 2640 is proposed to be routed to the new water draw surge Tank 2643. The new 14,000 bbl water draw surge tank would allow LARC to treat the water in the Brine Stripper, which performs the same function as the Sour Water Stripper but has excess capacity. No modifications are required to the Brine Stripper, but new equipment would be added to adjust the temperature of the water from Tank 2643 prior to entering the Brine Stripper. The new equipment would consist of three new heat exchangers designed to raise the temperature of the water before entering the Brine Stripper, and a steam trap to remove condensed steam after the heat exchangers. The water draw surge tank

would contain water with minute amounts of crude oil that get carried over from the crude oil storage tanks during transfer. Over time, a thin layer of crude oil is expected to form in the water draw surge tank. Accumulated crude oil from the water draw surge tank would be collected and transferred back to the new crude oil storage tank.

Most of the new equipment will be installed in an area near the western boundary of the LARC that is presently vacant, but formerly the site of two below ground level crude oil storage reservoirs. These reservoirs were closed in 1995 under authorization from the California Regional Water Quality Control Board, Los Angeles Region (RWQCB) and are currently capped with a one-foot thick impermeable clay layer. During construction, the clay cap would be partially removed, replaced, and recompacted to support the concrete foundations for the new storage tanks (Tanks 2640 and 2643). The impermeable clay would be reused during the recompaction along with imported clean fill as needed. These ground disturbing activities will take place during the site preparation phase of the proposed project. The integrity and function of the clay cap would be maintained following completion of the proposed project. Because the proposed project site has been identified as having soil containing VOC materials, excavation at this location is subject to the requirements of SCAQMD Rule 1166 - Volatile Organic Compound Emissions From Decontamination of Soil, which requires the Refinery to obtain a SCAQMD-approved Rule 1166 Mitigation Plan to assure the control of fugitive emissions prior to the start of excavation activities. As a result, operators of the LARC have submitted an application to the SCAQMD for approval of a site-specific Rule 1166 Mitigation Plan as part of the proposed project. In addition, the clay cap removal will be subject to approval by the RWQCB, which is a responsible agency for this proposed project.

While onsite storage capacity and tank throughputs (i.e., frequency of filling and emptying the tanks) would increase as a result of implementing the proposed project, the baseline refining capacity of the LARC will not change as explained below. The refining capacity of the LARC is constrained by a number of factors including equipment design parameters, market demand, equipment maintenance schedules, equipment permit limit conditions, and crude oil characteristics (e.g., sulfur content, acidity, specific gravity, etc.). The Refinery (both Carson and Wilmington Plants combined) has a nominal refining capacity of 139,000 bbl per day (CEC, 2013). The refining capacity is based on the overall design of the refining processes within the Refinery. The heat required to first separate crude oil into various intermediate products, which are later refined further, dictates the amount of crude oil that can be processed overall by the Refinery. Specifically, the Crude Unit, the first step in the refining process, receives the crude oil directly from storage (e.g. from both the existing and proposed storage tanks), *and* has operating crude throughput limits on the heater. The Crude Unit operations fluctuate based on conditions of other process units within the Refinery, market demand, and crude oil characteristics. The Crude Unit heater routinely operates at various firing rates and normally operates at or near the permit limit. The current operations of the Crude Unit, including the heater firing rate at or near the permit limit, is considered to be the baseline at the Refinery and the proposed project does not include modifications to the Crude Unit throughput or heater firing rate. Therefore, current operations of the Crude Unit would not be expected to change as a result of the proposed project. Additionally, for the same reasons, the proposed project will not modify operations of process units located downstream of the Crude Unit. Therefore, the proposed

project would not change the baseline operations of the refining processes or capacity at the LARC or the crude throughput of the Refinery.

## **1.6 CONSTRUCTION SCHEDULE**

The preliminary construction schedule is provided in Figure 1-5. Construction activities are expected to take place over one and a half years. Early construction activities would include site preparation for the new crude oil tank including the removal and replacement of the clay cap in the existing reservoirs, and construction of the domes on the two existing crude oil storage Tanks 510 and 511. The crude oil storage tank 2640, along with the water draw surge tank 2643, would be constructed after the geodesic domes are installed on Tanks 510 and 511. Tie-in to the manifold from Pier B would occur toward the end of construction of Tank 2640. Heat exchangers and the steam trap would be installed during completion of Tank 2643 (Months 17 and 18). The electrical power substation would be installed concurrently with the tank construction. Peak construction activities are expected to occur during site preparation in Months 4, and 5, and would require approximately 100 to 115 construction workers.



**Figure 1-5  
Phillips 66 Los Angeles Refinery Carson Plant  
Crude Storage Capacity Project  
Construction Schedule**

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<b>Construction</b>																		
Site Preparation	█	█	█															
Install Dome on Tank 511																		
Install Dome on Tank 510																		
Foundations																		
Install Tanks 2640 & 2643																		
Install Heat Exchangers and Steam Trap																		
Install Substation																		

**1.7 REQUIRED PERMITS AND APPROVALS**

The proposed project would require permits to construct/operate from the SCAQMD, building permits from the City of Carson, and U.S. EPA approval of Title V air permit. Once these permits are issued, the removal, refilling, and recompaction of the clay cap to ensure soil stability of the former reservoir sites will be subject to RWQCB approval. Table 1-2 contains a summary of the various permits and approvals that will be required in order to implement the proposed project.

**TABLE 1-2**  
Required Federal, State and Local Agency Permits and Approvals

Agency Permit or Approval	Requirement	Applicability to Project
<b>Federal</b>		
Environmental Protection Agency (U.S. EPA)	Title V of the 1990 Clean Air Act, 40 CFR Part 70	Permit revision required to contain air quality requirements for new and modified major stationary sources in attainment areas (SCAQMD to implement and U.S. EPA to approve).
	Resource Conservation and Recovery Act (RCRA), 40 CFR Parts 260 – 279	Requires proper handling of hazardous waste material.
California Department of Transportation (Caltrans)	<u>Transportation permit</u>	<u>Permit required to transport overweight, oversize, and wide loads on highways.</u>
<b>Regional</b>		
Regional Water Quality Control Board, Los Angeles Region (RWQCB)	Soil Management Plan Approval	Requires Soil Management Plan to be approved for oil reservoir cap activities.
	General Construction Stormwater Permit	Construction sites larger than one-acre are required to comply with the Statewide General Construction Permit
South Coast Air Quality Management District (SCAQMD)	SCAQMD Rule 201: Permit to Construct	Applications are required to construct or modify stationary emissions sources.
	SCAQMD Rule 203: Permit to Operate	Applications are required to operate stationary source emissions.
	SCAQMD Rule 212: Standards for Approving Permits	Requires public notification for a “significant project.”
	SCAQMD Rule 219: Equipment Not Requiring a Written Permit Pursuant to Regulation II	Equipment with minimal emissions does not need to be permitted.
	SCAQMD Rule 301 : Permitting and Associated Fees	Requires fees to be paid for new or modified sources and evaluation of projects.
	SCAQMD Rule 401: Visible Emissions	Prohibits visible emissions from single emission sources.
	SCAQMD Rule 402: Nuisance	Discharges which cause a nuisance to the public are prohibited.
	SCAQMD Rule 403: Fugitive Dust	Contains best available control measure requirements for operations or activities that cause or allow emissions of fugitive dust.
	SCAQMD Rule 463: Organic Liquid Storage	Establishes vapor control requirements for storage tanks.
SCAQMD Rule 466: Pumps and Compressors	Establish leak monitoring and repair requirements for fugitive VOC emission components.	

**TABLE 1-2 (Concluded)**

Required Federal, State and Local Agency Permits and Approvals

Agency Permit or Approval	Requirement	Applicability to Project
SCAQMD (concluded)	SCAQMD Rule 466.1: Valves and Flanges	Establish leak monitoring and repair requirements for fugitive VOC emission components.
	SCAQMD Rule 467: Pressure Relief Devices	Establish leak monitoring and repair requirements for fugitive VOC emission components.
	SCAQMD Regulation IX: Standards of Performance for New Stationary Sources	Incorporates Federal regulations by reference.
	SCAQMD Rule 1166: Volatile Organic Compound Emissions From Decontamination of Soil	Application for a plan is required when soils to be excavated are impacted by hydrocarbons.
	SCAQMD Rule 1173: Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants	Contains requirements for inspection and maintenance of fugitive VOC emitting components.
	SCAQMD Rule 1176: VOC Emissions from Wastewater Systems	Contains requirements for inspection and maintenance of fugitive VOC emitting components.
	SCAQMD Rule 1178: Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities	Establishes equipment requirements for storage tanks.
	SCAQMD Regulation XIII: New Source Review (NSR) including key rules Rule 1303: Requirements Rule 1304: Exemptions Rule 1306: Emission Calculations Rule 1309: Emission Reduction Credits	New source review requirements for non-RECLAIM pollutant emissions sources, including need for best available control technology (BACT), modeling for significant impacts, and providing offsets for emission increases.
	SCAQMD Rule 1401: New Source Review of Toxic Air Contaminants	New sources emitting toxic air contaminants must limit emissions to the extent that the health risks to the maximum exposed individual are within allowable limits. Best Available Control Technology for Toxics (T-BACT) is generally required when cancer risk is greater than one in one million ( $1 \times 10^{-6}$ ).
SCAQMD Regulations XXX: Title V Permits	Application for permit revision is required to construct, operate, or modify air emission sources. (SCAQMD to implement and U.S. EPA to approve).	
<b>Local</b>		
City of Carson	Building permit	Required for foundations, building, etc.
	Grading permit	Required prior to grading land.
	Plumbing and electrical permits	General construction permit.

## **CHAPTER 2**

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### **ENVIRONMENTAL CHECKLIST**

- Introduction
- General Information
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- Determination
- Environmental Checklist and Discussion
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  - Agriculture and Forestry Resources
  - Air Quality and Greenhouse Gas Emissions
  - Biological Resources
  - Cultural Resources
  - Energy
  - Geology and Soils
  - Hazards and Hazardous Materials
  - Hydrology and Water Quality
  - Land Use and Planning
  - Mineral Resources
  - Noise
  - Population and Housing
  - Public Services
  - Recreation
  - Solid and Hazardous Waste
  - Transportation and Traffic
  - Mandatory Findings of Significance
- References
- Acronyms



## 2.1 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.

## 2.2 GENERAL INFORMATION

Project Title:	Phillips 66 Los Angeles Refinery Carson Plant – Crude Oil Storage Capacity Project
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive, Diamond Bar, CA 91765
Lead Agency Contact Person and Phone Number:	Barbara Radlein, Air Quality Specialist (909) 396-2716
Project Sponsor's Name:	Phillips 66 Los Angeles Refinery Carson Plant (LARC)
Project Sponsor's Address:	1520 East Sepulveda Boulevard, Carson, CA 90745
Project Sponsor's Contact Person and Phone Number:	Marshall Waller, Environmental Manager, (310) 952-6210
General Plan Designation:	Heavy Industrial
Zoning:	MH
Description of Project:	Phillips 66 is proposing to increase crude oil storage capacity at its Los Angeles Refinery Carson Plant by installing one new 615,000 bbl crude oil storage tank with a geodesic dome, increasing the annual permit throughput limit of two existing 320,000 bbl crude oil storage tanks, and installing geodesic domes on the same two existing 320,000 bbl crude oil storage tanks. Two new feed/transfer pumps and one 14,000 bbl water draw surge tank with associated pumps and pipelines would also be installed. Tie-ins to the Pier "T" crude oil delivery pipeline from Berth 121 would be installed and one new electrical power substation would be constructed. The following environmental topic areas were identified as having the potential to be affected by the proposed project: air quality and greenhouse gas emissions; energy; geology and soils; hazards and hazardous materials; hydrology and water quality; noise; solid and hazardous waste; and, transportation and traffic. However, the analysis of these environmental topic areas in the <i>Final Draft</i> ND concluded that the proposed project would not generate any significant adverse environmental impacts.
Surrounding Land Uses and Setting:	The LARC is bounded on the north by Sepulveda Boulevard, on the west by Wilmington Avenue, on the south by a branch of the Burlington Northern and Santa Fe Railroad, and on the east by Alameda Boulevard. Property to the north of the LARC is occupied by the BP Los Angeles Refinery (as of June 1, 2013 is

	<p>owned by Tesoro). The western boundary of the LARC borders a shipping and container storage facility. Property across Wilmington Avenue includes a residential neighborhood to the northwest and commercial uses to the southwest. Land uses to the south of the LARC are heavy industrial. Land south of Lomita Avenue is dominated by port-related activities. Land east of Alameda Street is occupied by a storage tank farm and the Tesoro Refinery.</p>
<p>Other Public Agencies Whose Approval is Required:</p>	<p>City of Carson RWQCB</p>

### 2.3 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed project. As indicated by the checklist on the following pages, environmental topics marked with a "✓" 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.

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Aesthetics                               | <input type="checkbox"/> Geology and Soils               | <input type="checkbox"/> Population and Housing             |
| <input type="checkbox"/> Agriculture and Forestry Resources       | <input type="checkbox"/> Hazards and Hazardous Materials | <input type="checkbox"/> Public Services                    |
| <input type="checkbox"/> Air Quality and Greenhouse Gas Emissions | <input type="checkbox"/> Hydrology and Water Quality     | <input type="checkbox"/> Recreation                         |
| <input type="checkbox"/> Biological Resources                     | <input type="checkbox"/> Land Use and Planning           | <input type="checkbox"/> Solid and Hazardous Waste          |
| <input type="checkbox"/> Cultural Resources                       | <input type="checkbox"/> Mineral Resources               | <input type="checkbox"/> Transportation and Traffic         |
| <input type="checkbox"/> Energy                                   | <input type="checkbox"/> Noise                           | <input type="checkbox"/> Mandatory Findings of Significance |



## 2.4 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 (EIR) is required.
- 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:** September 6, 2013

**Signature:**



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Michael Krause  
Program Supervisor, CEQA  
Planning, Rules, and Area Sources

**Telephone:** (909) 396-2706

**2.5 ENVIRONMENTAL CHECKLIST AND DISCUSSION**

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

**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.

**Discussion**

**I. a), b), and c)** The nearest officially designated Scenic Highway to the LARC would be Route 2 (Angeles Crest Scenic Byway) near La Canada/Flintridge, in the northeastern portion of Los Angeles County. It is approximately 24 miles north from the LARC to the most southern portion of Route 2. Therefore, the City of Carson is not visible from Route 2 due to the distance as well as the presence of numerous large buildings of downtown Los Angeles, and the intervening topography (hills and mountains) between downtown Los Angeles and the beginning of Route 2 near La Canada/Flintridge (Caltrans, 2012).

The nearest roadway, which is eligible for State Scenic Highway Designation, to the LARC is Route 1 (Pacific Coast Highway at State Route 19 – Lakewood Boulevard, in Long Beach) in the southernmost portion of Los Angeles County. At approximately five miles from the LARC to the intersection of State Route 19, Route 1 becomes eligible to become a State Scenic Highway.

The LARC is not visible to Route 1 at State Route 19 due to the numerous structures and topography between the two locations. There are no officially designated Scenic Highways or highways eligible for State Scenic Highway Designation in the vicinity of the LARC. Because of the substantial distance between the proposed project and the aforementioned scenic highways, no significant adverse impacts to scenic highways are expected.

The proposed project includes installing one new 615,000 barrel crude oil tank (with a net working capacity of 500,000 barrels) with a geodesic dome; installing geodesic domes on two existing crude oil storage tanks (Tanks 510 and 511); installing one new electrical power substation; installing new piping and two transfer pumps; and installing one new 14,000 barrel water draw surge tank. The two existing crude oil storage (Tanks 510 and 511) are each 320,000 barrel tanks that are 218 feet in diameter and with the addition of new 42 foot domes, a total of 92 feet high. The new 615,000 barrel crude oil storage tank would be 260 feet in diameter and 118 feet high. Thus, with the installation of the geodesic domes on the two existing storage tanks, the new heights would vary between about 92 feet (existing Tanks 510 and 511) to about 118 feet for the new crude oil tank. However, other existing equipment within the boundary of the LARC, e.g., vessels and flares, are at heights of up to 250 feet high and exceed the highest height of the new tank to be installed as part of the proposed project.

The LARC is surrounded by other industrial land uses with similar aesthetic qualities. Land uses adjacent to the LARC are all heavy industrial and include the Alameda rail corridor and the related rail activity, Kinder Morgan Terminal, and Tesoro Los Angeles Refinery- Wilmington Operations to the east; the Tesoro Los Angeles Refinery – Carson Operations to the north; Container Transportation Services shipping and container storage facility to the west; and other heavy industrial uses (e.g., container storage yards) to the south.

The views of the LARC from adjacent properties are not expected to significantly change because the proposed project facilities would blend in with the existing site facilities and operations. The closest residential areas are located one-third of a mile to the west of the western boundary of the LARC with other heavy industrial facilities between the site and residential properties. The new tanks and the domes on the existing tanks would be visible from Sepulveda Boulevard, which is located in an industrial area, and the views of the new/modified tanks would be consistent with the other industrial facilities. No significant change in visual characteristics and no damage to scenic resources in the vicinity of the LARC are expected to occur from implementing the proposed project.

**I. d)** In general, construction activities are not anticipated to require additional lighting because they are scheduled to take place during daylight hours. However, when daylight hours are limited (i.e., winter months), temporary lighting may be required. Since the proposed project would be located within the boundaries of the existing LARC facility, additional temporary lighting, if needed, is not expected to be discernible from the existing permanent night lighting already associated with the LARC. Any temporary lighting would be required to point toward the interior of the LARC to limit the potential for offsite glare in accordance with the City of Carson Municipal Code §9147.1. The closest residential areas are located over one-third of mile to the west of western boundary of the LARC with other heavy industrial facilities between the construction site and residential properties; therefore, no significant adverse light and glare impacts to residential properties would be expected.

If additional permanent light sources are necessary for operation of the new storage tank and water draw surge tank, they would be installed on the new equipment to provide illumination for operations personnel at night in accordance with applicable safety standards including the Cal-OSHA (Title 8, California Code of Regulations (CCR), §3317). These additional light sources, if needed, are not expected to create an offsite glare impact because the proposed project components would be located within existing industrial facilities, which are already lighted at night for nighttime operations. Further, adjacent industrial facilities are also brightly lit and residential areas are located about one-third of a mile away from the LARC, so additional lighting at the site is not expected to be noticeable in residential areas. Therefore, no significant adverse light and glare impacts, either during construction or operation, are anticipated from implementing the proposed project.

Based upon these considerations, significant adverse aesthetics impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse aesthetic impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>II. AGRICULTURE AND FORESTRY RESOURCES.</b> 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined by Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104 (g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Significance Criteria**

Project-related impacts on agricultural and forestry 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 conflicts with existing zoning for, or causes rezoning of, forest land (as defined in Public Resources Code §12220(g)), timberland (as defined in Public Resources Code §4526), or timberland zoned Timberland Production (as defined by Government Code §51104(g)).

- 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 use or conversion of forest land to non-forest use.

### **Discussion**

**II. a), b), c), and d)** The proposed project would not involve construction outside of the existing boundaries of the LARC. The proposed project would be consistent with the heavy industrial zoning requirements for the LARC and there are no agriculture or forestry resources or operations on or near the LARC. No agricultural resources including Williamson Act contracts are located within or would be impacted by construction activities at the LARC because the new tanks are being installed on existing established property. Therefore, the proposed project would not result in any new construction of buildings or other structures that would convert farmland to non-agricultural use or conflict with zoning for agricultural use or a Williamson Act contract.

Since the proposed project would not substantially change any facility or process at the LARC, there are no provisions in the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements relative to agricultural resources would be altered by the proposed project. For these same reasons, the proposed project would not result in the loss of forest land or conversion of forest land to non-forest uses.

Based upon these considerations, significant adverse agricultural and forestry resources impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse agriculture and forestry resources impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>III. AIR QUALITY AND GREENHOUSE GAS EMISSIONS.</b>				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Significance Criteria**

To determine whether or not air quality and greenhouse gas (GHG) emission impacts from implementing the proposed project are significant, impacts will be evaluated and compared to the criteria in Table 2-1. The proposed project will be considered to have significant adverse impacts if any one of the thresholds in Table 2-1 are equaled or exceeded.

**TABLE 2-1**  
Air Quality and Greenhouse Gas (GHG) Significance Thresholds

<b>Mass Daily Thresholds<sup>(a)</sup></b>		
<b>Pollutant</b>	<b>Construction<sup>(b)</sup></b>	<b>Operation<sup>(c)</sup></b>
<b>NO<sub>x</sub></b>	100 lbs/day	55 lbs/day
<b>VOC</b>	75 lbs/day	55 lbs/day
<b>PM10</b>	150 lbs/day	150 lbs/day
<b>PM2.5</b>	55 lbs/day	55 lbs/day
<b>SO<sub>x</sub></b>	150 lbs/day	150 lbs/day
<b>CO</b>	550 lbs/day	550 lbs/day
<b>Lead</b>	3 lbs/day	3 lbs/day
<b>Toxic Air Contaminants, Odor, and GHG Thresholds</b>		
<b>TACs</b> (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million Chronic and Acute Hazard Index $\geq$ 1.0 (project increment) Cancer Burden $\geq$ 0.5 excess cancer cases (in areas $\geq$ 1 in 1 million)	
<b>Odor</b>	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
<b>GHG</b>	10,000MT/yr CO <sub>2</sub> eq for industrial facilities	
<b>Ambient Air Quality for Criteria Pollutants<sup>(d)</sup></b>		
<b>NO<sub>2</sub></b>  1-hour average annual average	In attainment; significant if project causes or contributes to an exceedance of any standard: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
<b>PM10</b> 24-hour annual average	10.4 $\mu\text{g}/\text{m}^3$ (construction) <sup>(e)</sup> and 2.5 $\mu\text{g}/\text{m}^3$ (operation) 1.0 $\mu\text{g}/\text{m}^3$	
<b>PM2.5</b> 24-hour average	10.4 $\mu\text{g}/\text{m}^3$ (construction) <sup>(e)</sup> and 2.5 $\mu\text{g}/\text{m}^3$ (operation)	
<b>SO<sub>2</sub></b> 1-hour average 24-hour average	0.255 ppm (state) and 0.075 ppm (federal – 99 <sup>th</sup> percentile) 0.04 ppm (state)	
<b>Sulfate</b> 24-hour average	25 $\mu\text{g}/\text{m}^3$ (state)	
<b>CO</b>  1-hour average 8-hour average	In attainment; significant if project causes or contributes to an exceedance of any standard: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
<b>Lead</b> 30-day average Rolling 3-month average Quarterly average	1.5 $\mu\text{g}/\text{m}^3$ (state) 0.15 $\mu\text{g}/\text{m}^3$ (federal) 1.5 $\mu\text{g}/\text{m}^3$ (federal)	

- a) Source: SCAQMD Air Quality Significance Thresholds, [www.aqmd.gov/ceqa/handbook/signthres.pdf](http://www.aqmd.gov/ceqa/handbook/signthres.pdf).
- b) Construction thresholds apply to both the SCAB and Coachella Valley (Salton Sea and Mojave Desert Air Basin)
- c) For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.
- d) Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
- e) Ambient air quality threshold based on SCAQMD Rule 403.

KEY: ppm = parts per million;  $\mu\text{g}/\text{m}^3$  = microgram per cubic meter; lbs/day = pounds per day; MT/yr CO<sub>2</sub>eq = metric tons per year of CO<sub>2</sub> equivalents,  $\geq$  greater than or equal to,  $>$  greater than



## Discussion

**III. a)** The 2012 Air Quality Management Plan (AQMP) demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the Southern California Association of Governments (SCAG), the agency that develops regional growth forecasts. These forecasts were then used to develop future air quality emissions inventory forecasts for the 2012 AQMP. Development consistent with the growth projections in the City of Carson General Plan is considered to be consistent with the 2012 AQMP. The General Plan designates the LARC as heavy industrial so the proposed project is consistent with this land use. Since the proposed project does not change that designation and would be consistent with the City of Carson General Plan, it would be consistent with the 2012 AQMP. The proposed project would be consistent with the Carson General Plan for the following reasons:

- As indicated in the Population and Housing and Transportation/Traffic sections, the estimated 100 to 115 construction workers are expected to be drawn from the existing labor pool in the southern California area.
- As indicated in the Population and Housing and Transportation and Traffic sections, the proposed project is not expected to require additional Refinery employees during operations, so no additional worker-related traffic during operation would be generated.
- Because the proposed project would not require additional workers during operations, it would not increase the demand for additional housing, and thus, would not require changes to local use designations.

Therefore, because the proposed project is consistent with existing zoning and would not exceed the growth projections in the City of Carson General Plan that would require a General Plan amendment, the proposed project is considered to be consistent with the Carson General Plan.

Additionally, the proposed project would be required to comply with applicable SCAQMD requirements for new stationary sources. Compliance with established rules ensures the integrity of the emission inventories in the 2012 AQMP. For example, new and modified emission sources associated with the proposed project would be subject to SCAQMD Regulation XIII - New Source Review, would be required to be equipped with Best Available Control Technology (BACT), and would require emission reduction credits to offset any emission increases greater than one pound per day. The proposed project would also be required to comply with prohibitory rules, such as SCAQMD Rule 403 - Fugitive Dust and SCAQMD Rule 1173 - Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants.

**III. b), c) and f)** For a discussion of these items, refer to the following analysis.

### **Construction Air Quality Impacts**

The SCAQMD makes significance determinations for construction impacts based on the maximum or peak daily emissions during the construction period, which provides a “worst-case” analysis of the construction emissions. Construction activities will not all occur at the same time but rather over time as depicted in Figure 1-5. Construction emissions are expected from the following equipment and processes:

- Onsite Construction Equipment (dump trucks, backhoes, graders, etc.);
- Onsite and Offsite Vehicle Emissions, including Delivery Trucks and Worker Vehicles;
- Onsite Fugitive Dust Associated with Site Construction Activities; and,
- Onsite and Offsite Fugitive Dust Associated with Travel on Unpaved and Paved Roads.

Construction activities are expected to occur near the western boundary of the LARC (see Figure 1-3) and would be focused in an area of approximately 12 acres. Construction emissions were calculated for peak daily construction activities in each month construction is expected to occur and are presented in Table 2-2. Peak daily emissions are the sum of the highest daily emissions for each criteria pollutant from employee vehicles, fugitive dust sources, construction equipment, and transport activities occurring during the particular construction phase. Total peak construction emissions occur in Month 1 for nitrogen oxides (NO<sub>x</sub>); in Month 4 for carbon monoxide (CO), sulfur oxides (SO<sub>x</sub>), and particulate matter less than 2.5 micron (PM<sub>2.5</sub>); in Month 5 for particulate matter less than 10 micron (PM<sub>10</sub>); and in Month 17 for volatile organic compounds (VOC). Detailed construction emissions calculations are provided in Appendix A.

#### **Construction Equipment**

Onsite construction equipment would be one source of combustion emissions. Construction equipment may include backhoes, compressors, cranes, excavators, loaders, generators, graders, roll-off trucks, scrappers, trenchers, water truck, and welding machines necessary to accomplish the particular tasks from the construction phase. The equipment is assumed to be operational for no more than ten hours per day. Construction workers are expected to be at the site for longer than eight hours per day, including time for lunch and breaks, organization meetings, and other administrative tasks. A conservative estimate of actual construction activities is ten hours per day. Emission factors for construction equipment were taken from the CEQA Air Quality Handbook Construction Equipment Emissions tables available on the SCAQMD webpage (<http://www.aqmd.gov/ceqa/hdbk.html>) and are based on CARB EMFAC. Estimated peak daily emissions from construction equipment used during the different construction phases are included in Table 2-2. Thus, these peak daily values are occurring during different months of different construction phases.

**TABLE 2-2**  
Peak Daily Construction Emissions<sup>(a)</sup>

<b>PEAK CONSTRUCTION ACTIVITY</b>	<b>VOC (lbs/day)</b>	<b>CO (lbs/day)</b>	<b>NOx (lbs/day)</b>	<b>SOx (lbs/day)</b>	<b>PM10 (lbs/day)</b>	<b>PM2.5<sup>(b)</sup> (lbs/day)</b>
Construction Equipment	2.57	55.64	83.06	0.13	3.65	4.02
Vehicle Emissions	0.77	15.42	2.69	0.03	11.22	1.96
Fugitive Dust From Construction <sup>(c)</sup>	--	--	--	--	20.32	11.79
Fugitive Road Dust <sup>(c)</sup>	--	--	--	--	11.36	2.39
Architectural Coating	62.25	--	--	--	--	--
<b>Total Emissions<sup>(d)</sup></b>	<b>65.30</b>	<b>71.06</b>	<b>85.75</b>	<b>0.16</b>	<b>46.56</b>	<b>20.15</b>
Significance Threshold	75	550	100	150	150	55
<b>Significant?</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>

- (a) Peak emissions for VOC predicted to occur in Month 17. Peak emissions for CO, SOx and PM2.5 predicted to occur during Month 4. Peak emissions for NOx predicted to occur during Month 1. Peak emissions for PM10 predicted to occur in Month 5.
- (b) PM2.5 is determined using SCAQMD, 2006. Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 CEQA Significance Thresholds, SCAQMD, October 2006, [https://www.aqmd.gov/ceqa/handbook/PM2\\_5/finalAppA.doc](https://www.aqmd.gov/ceqa/handbook/PM2_5/finalAppA.doc)
- (c) Application of water three times per day to comply with SCAQMD Rule 402 (d)(2).
- (d) The total emissions in this table may differ slightly from those in Appendix A due to rounding.

### Vehicle Emissions

Vehicle emissions include construction worker commute vehicles, pick-up trucks, flatbed trucks dump trucks, water trucks, semi-tractors, concrete trucks, and delivery trucks. Primary emissions generated would include combustion emissions from engines during idling and while operating. Emissions are based on the estimated number of trips per day and the round trip travel distances.

Construction emissions include emissions from construction worker vehicles traveling to and from the work site. The peak manpower needed during the construction period is expected to be 115 workers. Each worker commute vehicle is assumed to travel 14.7 miles (CalEEMod, 2011) to and from work each day, making two one-way trips per day. Emissions from employee vehicles are presented in Table 2-2. Emissions from employee vehicles were calculated using the EMFAC2011 Emission Inventory model.

Cars and pickup trucks used for short trips within and near the LARC are assumed to travel five miles or less per trip.

Medium-duty and heavy-duty diesel trucks used during construction include dump trucks, haul trucks, water trucks, and delivery trucks. Heavy heavy-duty semi-trucks and concrete trucks were also included in the project construction analysis. Primary emissions generated would include exhaust emissions from diesel engines while operating. Emissions from trucks (both

medium-duty and heavy-duty) are calculated using the CARB EMFAC2011 model. Estimated emissions for all trucks are included in Table 2-2.

### **Fugitive Dust Associated with Site Construction Activities**

Activities that may generate fugitive dust at the site include grading, trenching, wind erosion, and truck filling/dumping, which occur primarily during site preparation and when constructing necessary foundations. During construction activities, water used as a dust suppressant would be applied in the construction area during grading, trenching, and earth-moving activities to control or reduce fugitive dust emissions pursuant to SCAQMD Rule 403 (d)(2). Application of water reduces PM emissions by a factor of up to 61 percent (SCAQMD, 2011). It is assumed that one water application per day reduces PM emissions by 34 percent, two applications per day reduce emissions by 50 percent, and three applications per day reduce emissions by 61 percent (SCAQMD, 2011). Fugitive dust suppression, often using water, is a standard operating practice and is one method of complying with SCAQMD Rule 403. Estimated peak controlled PM10 and PM2.5 emissions during peak construction activities for fugitive dust sources are 20.32 pounds per day and 11.79 pounds per day using the PM10 to PM2.5 fraction ratio of 0.58 (Profile 391), respectively, which assumes watering three times per day (see Table 2-2) to comply with SCAQMD Rule 402 (d)(2). The detailed emission calculations are provided in Appendix A.

### **Fugitive Dust Associated with Travel on Paved and Unpaved Roads**

Vehicles and trucks traveling on paved and unpaved roads including public roads and onsite roads are also a source of fugitive emissions during the construction period. Fugitive road dust emissions were calculated for vehicles traveling to the LARC, onsite cars, light-duty trucks, and buses. The fugitive emissions for trucks assume delivery trucks would travel on paved roads (both public and onsite) and water trucks and off-road construction equipment would travel on unpaved roads. Emissions of dust caused by travel on paved roads were calculated using the U.S. EPA's, AP-42, Section 13.2.1 emission factor for travel on paved roads. Emissions of dust caused by travel on unpaved roads were calculated using the U.S. EPA's, AP-42, Section 13.2.2 emission factor for travel on unpaved roads. CARB's Methodology 7.9 was used to determine the appropriate silt loading for calculating fugitive dust emissions. The estimated fugitive PM10 and PM2.5 emissions on paved roads during peak construction activities (Month 5 and Month 4 respectively) from vehicles for fugitive dust on paved roads are 10.88 pounds per day and 1.65 pounds per day, respectively (see Table 2-2 and Appendix A). The estimated fugitive PM10 and PM2.5 emissions during peak construction activities (Month 5 and Month 4 respectively) from vehicles for fugitive dust on unpaved roads are 11.36 pounds per day and 2.39 pounds per day, respectively (see Table 2-2 and Appendix A).

### **Architectural Coatings**

The proposed project would include the application of some architectural coating. An estimated 75 gallons of industrial maintenance coating are expected to be applied on the peak day. The proposed project would use coatings that comply with SCAQMD Rule 1113 - Architectural Coatings, which limits the VOC emissions of the industrial maintenance coating to 100 grams per liter (0.83 pounds per gallon). The estimated architectural coating VOC emissions during

peak construction activities (Months 17 and 18) are 62 pounds per day (see Table 2-2 and Appendix A).

### **Miscellaneous Emissions**

The proposed project would be constructed in the area of the former crude oil reservoir, which has a clay cap. During construction the clay cap would be removed, replaced, and recompact to support the concrete foundations for the new Tanks 2640 and 2643. Pre-project soil sampling and analysis have identified hydrocarbon concentrations that may be encountered during construction. Therefore, in addition to the construction-related emissions already identified, the proposed project could generate emissions of VOC if contaminated soil is found and soil remediation activities are necessary. Since the proposed project site has been identified as having soil containing VOC materials, excavation at this site is subject to the requirements of SCAQMD Rule 1166. The facility must obtain a SCAQMD-approved Rule 1166 Mitigation Plan to assure the control of fugitive emissions prior to the start of excavation activities. Rule 1166 includes requirements for SCAQMD notification at least 24 hours prior of the start of excavation, monitoring (at least once every 15 minutes, within 3 inches of the excavated soil surface), as well as implementation of a mitigation plan when VOC-contaminated soil is detected. Rule 1166 defines VOC contaminated soil as soil which registers a concentration of 50 ppmv or greater of VOC. An approved mitigation plan generally includes covering contaminated soil piles with heavy plastic sheeting and watering activities to assure the soil remains moist. In addition, VOC-contaminated soils shall be treated or removed within 30 days from the time of excavation. The facility has submitted an application for a site-specific SCAQMD Rule 1166 Mitigation Plan, and it is anticipated approval of the plan will be issued along with the permit to construct for the project. Soil remediation activities are also under the jurisdiction of the RWQCB. Following SCAQMD approval of the proposed project, a Soil Management Plan will be submitted to the RWQCB for approval. The RWQCB, when considering the Soil Management Plan, relies on the analysis in this Negative Declaration and the SCAQMD Rule 1166 Mitigation Plan. The quantification of VOC emissions from soil contamination are estimated to be 3.26 pounds per day (see Appendix A for detailed calculations).

### **CO Hot Spots During Construction**

The potential for high concentration of CO emissions associated with truck/vehicle traffic was considered and evaluated per the requirements of the SCAQMD CEQA Air Quality Handbook (SCAQMD, 1993). The Handbook indicates that any project that could negatively impact levels of service at local intersections may create a CO hot spot and should be evaluated. As discussed in Section XVII – Transportation and Traffic, no changes in level of service are expected from the proposed project during construction.

### **Construction Emission Summary**

Construction activities associated with the modifications to the LARC would result in emissions of CO, VOC, NO<sub>x</sub>, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Construction emissions for the proposed project are summarized in Table 2-2, together with the SCAQMD's daily construction significance

thresholds. Emissions generated during the construction phase of the proposed project are expected to be below the significance thresholds for criteria pollutants. Therefore, less than significant potential adverse construction air quality impacts are expected to occur as a result of implementing the proposed project.

### Localized Construction Impacts

The SCAQMD has developed a Localized Significance Threshold (LST) Methodology to evaluate the potential localized impacts of criteria pollutants from construction activities (SCAQMD, 2008). The LST Methodology requires that the emissions of CO, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> associated with the proposed project be evaluated for impacts on ambient air quality standards at the local receptor. Impacts from other criteria pollutants are regional in nature and, therefore, are not included as part of the localized air quality analysis. Only onsite construction emissions sources were included in the LST analysis. The closest sensitive receptor is located in the residential area, which is about one-third mile west of the LARC.

The LST Methodology includes lookup tables for screening emission rates for significance for projects with an area of five acres or less. The total construction area for the proposed project is approximately 12 acres; however, because of the phased nature of the construction schedule, no more than one acre is expected to be disturbed at any time. Therefore, the lookup tables were used for a one-acre area.

If the calculated construction emissions are less than the emission levels found in the LST lookup tables, localized air quality impacts from the construction activities are not considered significant. The screening tables were developed using conservative assumptions, including the worst-case meteorological conditions. If localized emissions exceed the values in the lookup tables dispersion modeling, which is more precise, may be performed. The CO, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from the construction activities for the proposed project are less than the LST emission levels found in the LST lookup tables and, therefore, are expected to be less than significant (see Table 2-3).

**TABLE 2-3**

#### LST Evaluation for Construction Emissions

<b>Criteria Pollutant</b>	<b>CO (lbs/day)</b>	<b>NO<sub>x</sub> (lbs/day)</b>	<b>PM<sub>10</sub> (lbs/day)</b>	<b>PM<sub>2.5</sub> (lbs/day)</b>
Peak Construction Emissions	55.64	83.06	46.56	20.15
Screening Value <sup>(a)</sup>	7,558	142	158	93
Significant?	No	No	No	No

(a) Appendix B of the SCAQMD Final LST Methodology (Oct. 2009). 1 acre site in SRA #4 at 500 meters.

Federal ambient air quality standards were not analyzed because the federal standards are based on a three-year period and the proposed project construction period would be less than three years.

Based on the above analysis, the proposed project would not be expected to create any localized significant impacts on air quality during construction.

### **Operational Air Quality Impacts**

#### **Stationary Sources**

The proposed project would add one new crude tank, one new water draw surge tank, and modify two existing tanks in the LARC. Operation of the new storage tank and water draw surge tank would increase fugitive VOC emissions at the LARC. No other criteria pollutants would be affected.

#### **Combustion Sources**

The proposed project would not require new combustion sources or increase emissions of any existing combustion sources. Crude oil processing is constrained by many factors including equipment design capacity, permit conditions, such as firing rates for combustion sources, and maintenance schedules of various operating units within the LARC. The processing rates are not influenced by storage capacity. The refining processes rates fluctuate and have achieved maximum capacity periodically in the past and are expected periodically in the future. However, no changes are being proposed for the operating refining units that would affect the maximum capacity of the refining units including combustion sources.

#### **Fugitive Emissions**

Fugitive emissions are emissions released directly into the atmosphere that do not pass through a stack, vent etc., and are not typically permitted (e.g. valves, flanges, and pumps). The new and existing storage tanks would be sources of fugitive VOC emissions during the filling and emptying operation and they would need new and modified permits to operate. The proposed project would also increase fugitive VOC emissions from fugitive components associated with the piping to the new tanks, and these emissions would be monitored in accordance with the requirements in SCAQMD Rule 1173. The VOC emission estimates for the proposed new tanks and tank modifications are based on U.S. EPA TANKS 4.0.9d. VOC emissions from the new water draw surge tank have been calculated assuming a thin crude oil layer is present in the tank, using crude oil properties to determine the emissions. All peak daily tank emissions are based on June emissions, which show the highest daily fugitive VOC tank emissions in the TANKS model. All speciated tank emissions for the health risk analysis are based on annualized emission rates from the TANKS model. Fugitive emissions from components are based on the Method 2 of the *SCAQMD Guide for Fugitive Emissions Calculations* (SCAQMD, 2003). The fugitive VOC emissions from the proposed project are summarized in Table 2-4 (see also Appendix A for more detailed emission calculations).

**TABLE 2-4**  
Operational Emissions Summary

<b>Sources</b>	<b>VOC (lbs/day)</b>	<b>CO (lbs/day)</b>	<b>NOx (lbs/day)</b>	<b>SOx (lbs/day)</b>	<b>PM10 (lbs/day)</b>	<b>PM2.5 (lbs/day)</b>
<b>Baseline Emissions<sup>(a)</sup></b>	<b>16.74</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Proposed Project Emissions<sup>(b)</sup></b>						
Modified Crude Tank 510	17.04	0	0	0	0	0
Modified Crude Tank 511	17.04	0	0	0	0	0
New Crude Tank 2640	19.54	0	0	0	0	0
New Water Tank 2643	4.27	0	0	0	0	0
New Fugitive Component Emissions	9.67	0	0	0	0	0
<b>Total Proposed Project Emissions</b>	<b>67.57</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Overall Project Emissions<sup>(c)</sup></b>	<b>50.83</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Significance Thresholds</b>	<b>55</b>	<b>550</b>	<b>55</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Significant?</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>

(a) Based on TANKS 4.0 model of 2010 throughputs for Tanks 510 and 511.

(b) See Appendix A for detailed emission calculations.

(c) Overall Project Emissions = Proposed Project Emissions – Baseline Emissions

(d) The emissions in the table may differ slightly from those in Appendix A due to rounding.

### Ship Emissions

The current capacity of the existing storage tanks at the LARC limits vessel delivery volumes to Panamax vessels (400,000 bbl capacity), which are the size limits of vessels that can travel through the Panama Canal. For larger vessels, such as Aframax (720,000 bbl capacity) or Suezmax (1,000,000 bbl capacity), the current capacities of the existing storage tanks at the LARC require two ship calls to unload the full volume of the vessels, resulting in seven to 10 days when the ship remains in the port area. When a ship larger than Panamax calls, the LARC can only accept a delivery of the first portion of the crude oil to be stored in the existing storage tanks until such time when the LARC processes enough crude oil such that there is enough available storage capacity to accommodate a second delivery of the remaining crude oil from the same, larger vessel. This results in the large ships leaving berth and going out to anchorage to wait until the LARC has enough available capacity to store the remaining product. While at anchorage, ships continue to produce emissions as the ship engines need to operate in order to hotel the ship workers and to maneuver the ship to and from the berth. The proposed project is designed to reduce or eliminate the need for large ships to go out to anchorage, which would reduce the time ships remain in the port and the associated ship emissions for each large ship visit.

Under the proposed project, ship emissions would not change for any small ship visits (less than 400,000 bbl) since the ships can complete their delivery during one visit. Emissions for various



larger-sized ships would decrease with the elimination of the anchorage and additional maneuvering to and from the berth. A comparison of ship emissions per 100,000 bbl delivered has been calculated (see Table 2-5). The analysis compares the emissions from delivery activities associated with the various size ships that currently deliver crude oil with the emissions from delivery activities following implementation of the proposed project. For most pollutants, emissions reductions from the current ship activities to post-project ship activities are expected (see Table 2-5 and Appendix A for more detailed calculations). The potential increase in CO<sub>2</sub>e emissions for two scenarios are analyzed in the GHG discussion (Section III g. and h).

**TABLE 2-5**  
Comparison of Current and Post-Project Ship Emissions  
(lbs/100,000 bbl delivered)

Comparison (Existing/Post- Project) <sup>(a)</sup>	Emissions Difference (lbs/100,00 bbl delivered)						Emissions Difference (MT/100,000 bbl delivered)
	VOC	CO	NOx	SOx	PM10	PM2.5	CO <sub>2</sub> e
Panamax/Panamax	NC	NC	NC	NC	NC	NC	NC
Aframax/Panamax	-0.5	-1.2	-13.2	-0.3	-0.2	-0.2	0.1
Aframax/Aframax	-0.2	-0.5	-5.2	-0.3	-0.1	-0.1	-0.1
Aframax/Suezmax	-0.1	-0.4	-4.3	-0.2	-0.1	-0.1	-0.2
Suezmax/Panamax	-0.5	-1.2	-13.4	-0.3	-0.2	-0.2	0.1
Suezmax/Aframax	-0.2	-0.5	-5.4	-0.3	-0.1	-0.1	-0.1
Suezmax/Suezmax	-0.2	-0.4	-4.5	-0.2	-0.1	-0.1	-0.2

Negative numbers represent emission reductions.

MT = metric tons; NC = no change.

(a) Existing/Post Project is the difference in the ship emissions for the specified size from current activities compared to the expected emissions from ship activities once the proposed project is implemented.

### Operational Emissions Summary

Daily operational emissions would be generated by stationary sources only, so no change in daily emissions from mobile sources other than ships would be expected from implementing the proposed project. Stationary source emissions include only fugitive VOCs. The primary source of fugitive VOC emissions from the proposed project would be from the operation (e.g., filling and emptying) of the crude oil storage tanks, and secondary sources of fugitive emissions would be from the piping and supporting connections to the crude tanks. Since the existing tanks (Tanks 510 and 511) would each require a permit modification and the new tanks (Tanks 2640 and 2643) would each require a new SCAQMD Permit to Operate, any increase in VOC emissions would require offsets to comply with SCAQMD Regulation XIII - New Source Review, specifically SCAQMD Rule 1303 - Requirements. The peak daily operational emissions from the new crude oil storage tank, water draw surge tank, and two modified storage tanks are expected to remain below the CEQA significance threshold during operations of 55 pounds of VOC emissions per day as demonstrated in Table 2-4, which summarizes the expected

peak daily operational emissions for the proposed project. Detailed operational emission calculations are also provided in Appendix A.

Equipment potentially impacted by the proposed project (upstream or downstream) were evaluated to determine if the proposed project would result in an emissions increase, even though the equipment is operating within permit limits and no permit modification would be required. Due to the nature of Refinery operations, all equipment fluctuates in activity levels. However, no other units, beyond the crude oil storage tanks, water draw surge tank, and the associated piping evaluated in this Negative Declaration, were identified that would result in an increase in emissions.

The two new tanks and the modifications to the two existing tanks would be subject to the requirements in SCAQMD Rule 1303; therefore, all VOC emissions increases from the proposed project are required to be offset. Peak daily operational emissions are summarized in Table 2-4, together with the SCAQMD daily operational threshold levels. The operation of the proposed project is not expected to exceed any significance thresholds. Therefore, the air quality impacts associated with operational emissions from the proposed project are considered less than significant.

### **Operational Impacts to Localized Ambient Air Quality**

The proposed project would only affect regional VOC emissions, which are not chemicals of concern for localized air quality. Therefore, no significant adverse localized air quality impacts are anticipated to occur from the proposed project. VOCs that may be toxic air contaminants are discussed below.

### **CO Hot Spots During Operation**

As mentioned earlier, the operation of proposed project would be expected to only increase fugitive VOC emissions from the new crude oil storage tank, water draw surge tank, the two modified storage tanks, and associated piping. In addition, no additional permanent employees are necessary, so traffic level of service will not change from existing levels. Thus, there is no potential for a high concentration of CO emissions to occur, so the proposed project would not contribute to CO Hot Spots.

### **Cumulative Impacts**

In general, the preceding analysis concluded that air quality impacts from the construction and operational activities associated with implementing the proposed project would result in less than significant air quality impacts because the analysis demonstrates that the SCAQMD's significance thresholds for construction and operation would not be exceeded for any pollutant. For this reason, air quality impacts are not considered to be cumulatively considerable pursuant to CEQA Guidelines §15064 (h)(1) and therefore, no significant adverse cumulative construction and operational air quality impacts are expected to occur.

The analysis also indicates that the proposed project would result in a less than significant increase in overall fugitive VOC emissions during the operational phase of the proposed project. Also, the proposed project is not considered to result in a significant increase in daily VOC emission during operation because the emission increases from the new crude oil storage tank, water draw surge tank, and two modified storage tanks would be offset in compliance with SCAQMD Rule 1303 prior to the issuance of the permits to construct. Because anticipated operational emissions would not exceed the project-specific air quality significance thresholds, which also serve as the cumulative significance threshold, they are not considered to be cumulatively considerable (CEQA Guidelines §15064 (h)(1)).

Therefore, the construction and operational emissions from the proposed project are not considered to contribute to the cumulative construction and operational impacts. This conclusion is consistent with CEQA Guidelines §15064 (h)(4), which states, “The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable.”

### **Toxic Air Contaminants**

A health risk assessment (HRA) was performed to determine if emissions of toxic air contaminants (TACs) generated by the proposed project would exceed the SCAQMD thresholds of significance for cancer risk and non-cancer health risks. The following discussion outlines the risk associated with emissions increases from the new crude oil storage tank, water draw surge tank, storage tank modifications, and associated fugitive emissions.

### **HRA Methodology**

The HRA for the proposed project has been prepared in accordance with the August 2003 Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments (OEHHA, 2003) and the October 2003 Air Resources Board Recommended Interim Risk Management Policy for Inhalation-based Residential Cancer Risk memo (CARB/OEHHA, 2003). The HRA includes a comprehensive analysis of the dispersion of certain AB2588-listed compounds into the environment, the potential for human exposure, and a quantitative assessment of individual health risks associated with the predicted levels of exposure. CARB Hotspots Analysis Reporting Program (HARP) model is the most appropriate model for determining the air quality impacts from the proposed project (CARB, 2008) because it is well suited for refinery modeling since it can accommodate multiple sources and receptors. The HARP model combines the U.S. EPA Industrial Source Complex dispersion model with a risk calculation model based on the Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA, 2003). The model default values were modified to conform to the SCAQMD Supplemental Guidelines for Preparing Risk Assessment for AB2588 (SCAQMD, 2011a).

### **Hazard Identification**

The operation of the proposed project is expected to generate various TACs. Some of these chemical compounds are potentially carcinogenic, toxic, or hazardous, depending on

concentration or duration of exposure. Numerous federal, state, and local regulatory agencies have developed lists of TACs. The list of potentially-emitted substances considered in the preparation of the HRA for the proposed project is identified in Appendix A-I of the CARB AB2588 requirements and by OEHHA in the consolidated list of TACs. The AB2588 TACs emitted from the proposed project are identified in Appendix B of this Negative Declaration. While health effects data are not available for all compounds, a total of nine TACs expected to be emitted by the proposed project were included in the air dispersion modeling (see Appendix B). For carcinogens, slope factors were used to compute cancer risk through inhalation. If the carcinogen is a multi-pathway pollutant, a potency slope was used for estimating risk from non-inhalation pathways. For non-cancer health effects, reference exposure levels (REL) and acceptable oral doses (for multi-pathway pollutants) were used. The non-carcinogenic hazard indices were computed for chronic and acute exposures with their respective toxicological endpoints shown.

### **TAC Emission Estimates and Sources**

The emission estimates of TACs for the proposed new crude oil storage tank, water draw surge tank, and storage tank modifications are based on U.S. EPA TANKS 4.0.9d with a hybrid liquid speciation of crude oils at the Refinery. The hybrid liquid speciation was created by selecting the maximum TAC present in each speciation of crude oil at the LARC and combining them into one speciation. This combination assures that the speciation is conservative when estimating TAC emissions from any type of crude oil. All tank emission rates are based on annualized emission rates from the TANKS model. Fugitive emissions are based on the Method 2 of the *SCAQMD Guide for Fugitive Emissions Calculations* (SCAQMD, 2003) with the hybrid speciation. The calculated emissions are presented in Appendix B.

### **Cancer Risk Analysis**

The maximum cancer risk for an exposed individual resident (MEIR) located 650 meters south of the LARC boundary was analyzed for the proposed project. The incremental cancer risk is  $1.25 \times 10^{-7}$  or 0.1 in one million at the MEIR. Benzene contributes approximately 90.4 percent of the calculated cancer risk at the MEIR. The inhalation pathway accounts for 99.2 percent of the cancer risk. The cancer risk at the MEIR is less than the significance threshold of ten cancer cases in one million. Therefore, the cancer risk at the MEIR is less than significant. Detailed cancer risk contributions by pathway and pollutants are presented in Appendix B.

The maximum exposed incremental cancer risk at an occupational exposure (MEIW) is at a location approximately 50 meters west of the LARC boundary. The incremental cancer risk is  $1.33 \times 10^{-7}$  or 0.1 in one million at the MEIW. Benzene contributes approximately 85.7 percent of the calculated cancer risk at the MEIW. The inhalation pathway accounts for 98.5 percent of the cancer risk. The cancer risk at the MEIW is less than the significance threshold of ten cancer cases in one million. Therefore, the cancer risk at the MEIW is less than significant. Detailed cancer risk contributions by pathway and pollutants are presented in Appendix B.

### **Non-Cancer Risk Analysis**

The maximum chronic hazard index (MCHI) total for the proposed project for the central nervous system, located at the same receptor as the MEIW, was calculated to be 0.0005. Benzene contributes approximately 72.4 percent of the calculated MCHI. Because the MCHI is less than the significance threshold of 1.0, the MCHI is less than significant. Detailed contribution by pollutant to the chronic hazard index for the maximum receptor location is presented in Appendix B.

The maximum acute hazard index (MAHI) total for the developmental and reproductive systems, located on the northwestern boundary of the LARC, was calculated to be 0.0015. Benzene contributes approximately 98.0 percent of the calculated MAHI. Because the MAHI is less than the significance threshold of 1.0, the MAHI is less than significant. Detailed contribution by pollutant to the acute hazard index for the maximum receptor location is presented in Appendix B.

### **Summary of Health Impacts**

The health impacts as related to air quality impacts have been evaluated in several ways. First, the short-term air quality impacts from construction emissions were evaluated by comparing the peak day construction emissions to the SCAQMD mass daily significance thresholds for construction. In the short-term, the construction air quality emissions would not exceed the SCAQMD significance thresholds for all criteria and VOC pollutants analyzed and, as such, are considered to have a less than significant air quality impact. In order to evaluate the localized air quality impacts from construction emissions to nearby sensitive receptors, a LST analysis was also completed. The results of the LST analysis indicated that the short-term construction emissions would be below the applicable LST significance criteria. The LST significance criteria are based on the most stringent ambient air quality standard for NO<sub>2</sub> and CO, which are based on health effects. The LSTs for PM<sub>10</sub> and PM<sub>2.5</sub> are based on requirements in SCAQMD Rule 403, which are indirectly based on the state PM<sub>10</sub> standard. Since construction of the proposed project is short-term and would not exceed the LST significance criteria for local air quality, no significant adverse health impacts associated with construction emissions are expected. The impacts from operation would not exceed the SCAQMD significance thresholds for all criteria and VOC pollutants analyzed and are considered to have a less than significant air quality impact. The primary health effects associated with exposure to NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> are respiratory impacts including decreased lung function, aggravation of chronic respiratory condition, and aggravation of heart disease conditions. No such significant adverse health impacts are expected during the construction or operation of the proposed project.

Epidemiological analyses have consistently linked air pollution, especially TACs, with excess mortality and morbidity. Health studies have shown both short-term and long-term exposures of ambient concentrations are directly associated with increased mortality and morbidity. To estimate potential air quality impacts from a particular facility, the AERMOD air dispersion model can be used to provide PM<sub>10</sub> concentration levels at a set of receptor points. A concentration-response equation can be calculated on the modeled air quality impacts and changes in mortality to determine the relative change in mortality associated with the estimated

changes in annual PM levels and estimate the potential for health impacts. For this calculation, it is assumed that all the PM<sub>10</sub> is PM<sub>2.5</sub>. The log-linear form of the concentration response equation is:

$$\Delta \text{Mortality} = y_0 (e^{\beta \Delta \text{PM}} - 1) * \text{population}$$

where

$y_0$  = county level all cause annual death rate per person for ages 30 and older,

$\beta$  = PM<sub>2.5</sub> coefficient from health study,

$\Delta \text{PM}$  = change in annual mean PM<sub>2.5</sub> concentration, and

Population = population of ages 30 and older.

The resulting change in cases of mortality in a population age group living in a specific location with a given change in PM can then be calculated. By applying the census tract level for all census tracts within the modeling domain, the overall estimate in the change in mortality from PM emission of the facility is determined. However, since the air quality analysis shows that the onsite PM emissions during construction of the proposed project do not have offsite consequences (i.e., no concentrations above the ambient air quality standards), the aforementioned modeling procedure is not required or necessary. For these reasons, no increase in morbidity or mortality rates or related health effects are anticipated.

No additional PM emissions would be generated from operation of the proposed project. Therefore, no significant air quality or related health impacts are expected due to the proposed project.

The long-term air quality impacts from exposure to toxics were evaluated through the preparation of an HRA. The HRA evaluated the emissions associated with the operation of the proposed project and compared them to carcinogenic and non-carcinogenic significance thresholds to determine potential health impacts. As demonstrated in the HRA, the carcinogenic and non-carcinogenic impacts for all receptors are expected to be less than the significance thresholds. Therefore, no significant adverse carcinogenic or non-carcinogenic health impacts associated with the operation of the proposed project are expected.

**III. d)** The proposed project is not expected to increase exposure to substantial pollutant concentrations by sensitive receptors for the following reasons: 1) the LARC is an existing facility located in an industrial area; 2) the closest sensitive receptors are more than one-third mile away; 3) the limited construction activities would be short-term and the emission increases of criteria pollutants during construction are less than significant; 3) the operational emission increases of fugitive VOC emissions associated with the proposed installation of the new crude oil storage tank, water draw surge tank, two existing storage tank modifications, and associated piping are expected to be offset in compliance with SCAQMD Rule 1303. Therefore, no significant adverse air quality impacts to sensitive receptors are expected from implementing the proposed project.

**III. e)** The proposed project is not expected to create new significant objectionable odors, either during construction or during operation. Sulfur compounds (e.g., hydrogen sulfide) are the primary sources of odors at a refinery. While crude oil contains trace amounts of sulfur compounds such as hydrogen sulfide, significant new objectionable odors are not expected from the new crude oil storage tank, water draw surge tank, existing storage tank modifications, and associated piping because they are to be designed and constructed in accordance with BACT requirements, which controls emissions and related odors to the maximum extent feasible. The new equipment will be state-of-the-art and more efficient than older equipment. Thus, no new odors are expected from the new crude oil storage tank, water draw surge tank, existing storage tank modifications, and associated piping. In addition, no increase in odors is expected because the proposed project would not increase the crude throughput of the Refinery. Furthermore, the LARC is located in an industrial area with residences located at least one-third of a mile away, so odors are not anticipated to be noticeable in residential areas. The Refinery also follows a process that would deal with any odor issue, including a 24-hour environmental surveillance system where operators are trained to identify and report the source of odors so that the odors can be remedied promptly, and the frequency and magnitude of odor events can be minimized. Lastly, all new or modified components would be required to comply with existing SCAQMD rules and regulations, including SCAQMD Rule 402 - Prohibition of Nuisances. Therefore, no significant odor impacts are expected from constructing and operating the proposed project.

**III. g and h)** Changes in global climate patterns have been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, recently attributed to accumulation of GHG emissions in the atmosphere. GHGs trap heat in the atmosphere, which in turn heats the surface of the Earth. Some GHGs occur naturally and are emitted solely through human activities. The emission of GHGs through the combustion of fossil fuels (i.e., fuels containing carbon) in conjunction with other human activities, appears to be closely associated with global warming (Solomon et al., 2007). State law defines GHG to include the following: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>) (HSC §38505 (g)). The most common GHG that results from human activity is CO<sub>2</sub>, followed by CH<sub>4</sub> and N<sub>2</sub>O.

GHGs and other global warming pollutants are perceived as global in their impacts and that increasing emissions anywhere in the world contributes to climate change anywhere in the world. However, a study conducted on the health impacts of CO<sub>2</sub> "domes" that form over urban areas concludes that they can cause increases in local temperatures and local criteria pollutants, which have adverse health effects (Jacobson, 2010).

The analysis of GHG emissions is a different analysis than for criteria pollutants for the following reasons. For criteria pollutant, significance thresholds are based on daily emissions because attainment or non-attainment is primarily based on daily exceedances of applicable ambient air quality standards. Further, several ambient air quality standards are based on relatively short-term exposure effects to human health (one-hour and eight-hour standards). Since the half-life of CO<sub>2</sub> is approximately 100 years, for example, the effects of GHGs occur over a longer timeframe than a single day (e.g., annual emissions). GHG emissions are typically considered to be cumulative impacts because they contribute to global climate change.

On December 5, 2008, the SCAQMD adopted an interim CEQA GHG Significance Threshold for project where the SCAQMD is the lead agency (SCAQMD, 2008). This interim threshold is set at 10,000 metric tons of CO<sub>2</sub> equivalent emissions (MTCO<sub>2</sub>eq) per year. Projects with incremental increases below this threshold will not be cumulatively considerable.

GHG emissions impacts from implementing the proposed project were calculated at the project-specific level for construction and operation as explained in the following paragraphs.

Sources of GHG emissions from construction equipment were assumed to include backhoes, compressors, cranes, front-end loaders, graders, trenchers, and water trucks. In addition, the equipment is assumed to be operational up to ten hours per day during most of the construction period. Construction workers are expected to be at the site for longer than eight hours per day, but including time for lunch and breaks, organization meetings, and other administrative tasks, a conservative estimate of actual construction activities is ten hours per day, five days per week. Emissions for construction equipment were calculated based on fuel use derived from the CARB Off-Road 2011 model and CARB default GHG emission factors for diesel fuel. The SCAQMD significance threshold for GHG emissions amortized over 30 years with operational emissions.

The total GHG construction emissions associated with the proposed project are estimated to be 1,264 metric tons over the entire construction period, or 43 metric tons per year amortized over 30 years. The operation of the proposed project includes the installation of one new substation to deliver more reliable energy from Southern California Edison (SCE). An additional 25 kW is expected to be needed to provide the power required to operate the new substation. The operational GHG emissions associated with the new substation is 63 metric tons per year. The estimated GHG emissions from proposed project are shown in Table 2-6 with more detailed calculations in Appendix A.

**TABLE 2-6**

Estimated GHG Emissions for the Proposed Project  
(metric tons/year)

<b>Source</b>	<b>CO<sub>2</sub>e</b>
Third-Party Power <sup>(1)</sup>	63
30-Year Amortized Construction	43
<b>Total GHG w/ Construction</b>	<b>106</b>
<b>Significance Threshold</b>	<b>10,000</b>
<b>Significant?</b>	<b>No</b>

(1) Anticipate less than 25 kW increase in purchased power from SCE.

SF<sub>6</sub> has historically been used as an insulator and interrupter in gas insulated switchgear and circuit breakers. Because of the high global warming potential, (23,900 times that of CO<sub>2</sub>), in February 2010, CARB adopted regulations to reduce SF<sub>6</sub> emissions from gas insulated switchgear (17 CCR §95350 through 95359). Therefore, the proposed project has been designed



to use electrical switchgear and circuit breakers in the proposed new substation that do not use SF<sub>6</sub>.

The operation of the new tanks, as noted earlier, generates potential fugitive VOC emissions and no GHG emissions.

Thus, the total GHG emissions associated with the proposed project, including the 30-year amortized construction GHG emission, is 106 metric tons per year, which is below the significance threshold. Therefore, the GHG impacts associated with the proposed project are considered less than significant.

The Refinery is subject to GHG emission reductions pursuant to AB32, the state-wide GHG reduction plan. In December 2010, CARB adopted regulations establishing a cap and trade program for the largest sources of GHG emissions in the state that altogether are responsible for about 85 percent of California's GHGs. Among these are fossil-fuel fired power plants, including both plants that generate power within California's borders, and those located outside of California that generate power imported to the state. GHG emissions from this universe of sources were capped for 2013 at a level approximately two percent below the emissions level forecast for 2012, and the cap will steadily decrease at a rate of two to three percent annually from now to 2020. Sources regulated by the cap must reduce their GHG emissions or buy credits from others who have done so. This means that the additional power utilized at the LARC as a result of the proposed project cannot result in an increase in GHG emissions from the increased use of third-party power, compared to GHG emissions at the time of issuance of the NOP. The proposed project does not affect compliance with the requirements of AB32, since no change in GHG emissions at LARC from operation of the proposed project are expected. Therefore, the proposed project would not conflict with AB32, the applicable GHG reduction plan, policy, and regulations that have been adopted to implement AB32.

Thus, the SCAQMD's GHG significance threshold for industrial sources would not be exceeded. Based on the preceding analysis, implementing the proposed project is not expected to generate significant adverse cumulative GHG air quality impacts.

In summation, based on the preceding analysis, implementing the proposed project is not expected to generate significant adverse air quality and GHG emission impacts, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse air quality and GHG emission impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>IV. BIOLOGICAL RESOURCES.</b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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.

### Discussion

**IV. a), b), c), and d)** The proposed project would be located in a heavy industrial area, entirely within the existing boundaries of the LARC. The LARC has been fully developed for over 90 years and is essentially void of vegetation with the exception of some decorative landscape vegetation near the administration building. Landscape plants and growth of vegetation onsite are limited for fire prevention purposes.

A review of the California Natural Diversity Data Base Map for the Long Beach Quadrangle available online did not reveal records of special status species at or in the near vicinity of the LARC. Based on the disturbed nature of the site, the industrial nature of the proposed and existing activities at the LARC, the industrial nature of the surrounding property, and the absence of records of special status species, no specific wildlife surveys were considered necessary and none were conducted. No native vegetation is located at the proposed location of the new storage tank and water draw surge tank and this area was used historically for refinery uses. For these reasons, the proposed project is not expected to have a significant adverse effect, either directly or through habitat modifications, on any species identified as a special status species. Further, the proposed project would not have an adverse effect, either directly or indirectly or through habitat modifications, on any sensitive biological species, riparian habitat, or other sensitive natural habitat since no such habitat exists at the LARC due to the developed and industrial nature of the site.

The proposed project would not result in the addition or elimination of water ponds that could be used by animals or migratory fowl. Further, the proposed project would not adversely affect federally protected wetlands as defined in §404 of the Clean Water Act as no such wetlands are located at or adjacent to the LARC. As discussed in Section IX – Hydrology and Water Quality herein, no increase in wastewater or storm water discharge to the Dominguez Channel is expected. The Dominguez Channel is a concrete lined flood control channel near the LARC. There are no significant plant or animal resources, locally designated species, natural communities, wetland habitats, or animal migration corridors that would be adversely affected by the proposed project. There are no rare, endangered, or threatened species at the LARC as native

vegetation has been removed. Because the area in and near the LARC is devoid of native habitat, impacts to other, non-listed species are not expected.

The proposed project would not include the acquisition of additional land for use by the LARC or result in expansion outside of the current boundaries of the facility, which further eliminates the potential for new adverse biological resource impacts.

Therefore, the proposed project would have no direct or indirect impacts that could adversely affect plant or animal species or the habitats on which they rely.

**IV. e) & f)** The proposed project is not envisioned to conflict with local policies or ordinances protecting biological resources or local, regional, or state conservation plans. Land use and other planning considerations are determined by local governments and no land use or planning requirements would be altered by the proposed project as further discussed in Section X – Land Use and Planning. Additionally, the proposed project would not conflict with any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or any other relevant habitat conservation plan, and would not create divisions in any existing communities because all activities associated with complying with the proposed project would occur within the LARC located in a heavy industrial area, which is not subject to a Habitat or Natural Community Conservation Plan.

The SCAQMD, as the Lead Agency for the proposed project, has found that, when considering the record as a whole, there is no evidence that the proposed project would have potential for any new adverse effects on wildlife resources or the habitat upon which wildlife depends. Accordingly, based upon the preceding information, the SCAQMD has, on the basis of substantial evidence, rebutted the presumption of adverse effect contained in §753.5 (d), Title 14 of the California Code of Regulations, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse biological impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>V. CULTURAL RESOURCES.</b> Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource, site, or feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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.

**Discussion**

**V. a)** CEQA Guidelines Section 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." Additionally, CEQA Guidelines Section 15064.5(a)(3) state 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:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;

- 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;
- Has yielded or may be likely to yield information important in prehistory or history."

No structures would be demolished as part of the proposed project. New domes would be added to existing storage tanks and new domed tanks would be constructed. The existing storage tanks and other related equipment (e.g., pumps and piping) associated with the proposed project do not meet the eligibility criteria presented above, e.g., associated with historically important events or people, embodying distinctive characteristics of a type, period or method of construction, and would not yield historically important information. Therefore, no significant impacts to historic resources are expected as a result of implementing the proposed project.

**V. b), c), and d)** The entire LARC has been previously graded and developed for over 90 years. A cultural resources archival search completed for a previous environmental document indicated no archaeological/historical/paleontological sites are located at the LARC and one prehistoric site was identified within a one-mile radius of the facility (see SCAQMD, 1994). The proposed project activities would occur in areas of the LARC where the ground surface has already been disturbed, and this past disturbance eliminates the potential for uncovering unknown archaeological/paleontological sites.

No grading efforts would be required to install the geodesic domes on the two existing crude oil Tanks 510 and 511. Grading would be required for the new crude oil tank area, which was previously the site of two reservoirs that were closed in 1995. The closure of the reservoirs involved the remediation of the site by removal of contaminated soil and capping (importing clean soil) of the site where the historic reservoirs were located. The new storage tank and water draw surge tank would be installed in the same location as the old reservoirs, which is where imported soil has been placed. Further, because the LARC does not contain known paleontological resources, the proposed project would not be expected to impact any sites of paleontological value. Therefore, no impacts to archaeological or paleontological resources are expected. While the likelihood of encountering cultural resources is low, there is still a potential that archaeological resources may exist. In the event that unexpected subsurface cultural resources are encountered during construction, any such impact would be eliminated by following standard construction practices, which comply with following provisions of Section 21083.2 of the Public Resources Code:

- Conduct a cultural resources orientation for construction workers involved in excavation activities. This orientation will show the workers how to identify the kinds of cultural resources that might be encountered, and what steps to take if cultural resources are encountered during excavation activities;
- Monitoring of subsurface earth disturbance by a professional archaeologist and an appropriate representative if cultural resources are exposed during construction;

- Provide the archaeological monitor with the authority to temporarily halt or redirect earth disturbance work in the vicinity of cultural resources exposed during construction so the find can be evaluated and mitigated as appropriate; and
- As required by state law, prevent further disturbance if human remains are unearthed, until the County Coroner has made the necessary findings with respect to origin and disposition, and the Native American Heritage Commission has been notified if the remains are determined to be of Native American descent.

For the same reasons as discussed above, the proposed project would not impact any human remains as the site has been disturbed and imported soil has been placed where the old reservoirs were located, which is the site for the proposed storage tank and water draw surge tank. Based upon the above considerations, no significant adverse cultural resources impacts are expected from implementing the proposed project, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse cultural resources impacts were identified, no mitigation measures are necessary or required.

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

**Significance Criteria**

The impacts to energy 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.

**Discussion**

**VI. a) and e)** The proposed project is not expected to conflict with any adopted energy conservation plan or existing energy standard. There is no known energy conservation plan or existing energy standard that would apply to the LARC or this proposed project, as it primarily involves modifications to existing storage tanks and the construction of one new storage tank and one new water draw surge tank, which are not subject to energy conservations plans or energy standards. The new substation would provide more dependable power in this portion of the LARC, but would have no impact on any energy plan and is not subject to and existing energy standard. As concluded in the discussion in section b) ,c), and d) below, the amount of energy that may be needed to implement the project construction and operation activities is shown to be less than significant and, thus, the proposed project would not utilize non-renewable energy resources in a wasteful or inefficient manner.



**VI. b), c), and d)** It is not expected that natural gas-fired or electrically-powered construction equipment would be used because very little construction equipment is natural gas-fired and electricity is not available in the vicinity of the construction area. Construction equipment is primarily fueled by diesel and worker vehicles are primarily fueled by gasoline. Thus, there would be no need for new or substantially altered power or natural gas utility systems during construction of the proposed project. In 2011, the Los Angeles region used 4,892 million gallons of gasoline (CEC, 2011) and 281 million gallons of diesel (CEC, 2011a). The diesel associated with construction of the entire project of approximately 36,000 gallons represents about 0.013 percent of the yearly demand in the Los Angeles region, and a tiny fraction of the total use of fuel in California. Therefore, less than significant adverse impacts on energy are expected during the construction period.

Refinery fuel gas and natural gas required to operate existing equipment located at the LARC will continue to be supplied by the existing facility utility system and Southern California Gas Company. Operation of the proposed project is not expected to increase the amount of natural gas consumption because no new equipment is being installed that requires the use of natural gas. No permanent employees are anticipated to be needed, so no additional demand for gasoline fuel is expected.

The LARC is currently served by Southern California Edison (SCE) for electricity. SCE provides electricity as needed to meet all electricity demands at the LARC. The proposed project includes an electrical power substation that would be installed to upgrade the reliability of the electricity supplied to this portion of the LARC and handle any additional electricity requirements from the proposed project. The new substation would provide more dependable power in this portion of the LARC, but does not represent an increase in electricity use but provides the infrastructure for electricity distribution within the LARC. The new electrical substation would handle a load of about 1,440 kilowatts, most of which would be used to re-feed small substations in the area as electricity demand fluctuates based on operational needs. Existing 12.5 kilovolt (KV) feeders located at the LARC would be extended to the project area to provide power for the new equipment. The electrical power substation is required because there is no existing electricity source in the area where the new crude oil tank and water draw surge tank is to be installed. The proposed project requires electricity primarily to operate two new 2,100 gpm crude feed/transfer pumps associated with the proposed project. The proposed project does not increase the amount of crude oil handled at the LARC, but instead provides for more onsite storage. The overall electricity use would slightly increase due to the new pumps in the proposed project, but would not increase the overall crude oil pumped to the facility. The proposed project merely allows more crude to be pumped and stored at the same time by providing more locations to store crude oil at the LARC. Additionally, no changes to the refining processes are being proposed, so no increase in crude throughput of the LARC would occur.

The estimated incremental increase in electricity associated with the new crude tank and new water draw surge tank would be approximately 25 kilowatts (0.025 megawatts) for lighting, instrumentation, and air conditioning at the new substation.

SCE has developed a long-term procurement plan to review the development of new renewable energy resources and energy efficiency programs to ensure clean, reliable power for future needs. Peak electricity usage for SCE in 2011 was 23,181 megawatts (MW). SCE predicts a peak electricity use increase of about 1.48 percent per year between 2011 and 2022 (about 346 MW per year) with peak electricity usage forecasted to be around 25,591 MW in 2022 (CEC, 2012). The electricity increase associated with the proposed project of 0.025 MW is a negligible portion of the electricity generated by SCE and a small portion of the predicted annual increase of 346 MW. SCE has the capacity to meet the minor increase in electricity required by the proposed project, as it is not expected to result in a substantial increase in electricity. Therefore, less than significant impacts on electricity demand are expected during operation.

Based on these considerations, significant adverse energy impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse energy impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>VII. GEOLOGY AND SOILS.</b> Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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, mudslides.

### **Discussion**

**VII. a)** The LARC is located within a seismically active region. The most significant potential geologic hazard is estimated to be seismic shaking from future unpredictable earthquakes generated by active or potentially active faults in the region. Table 2-7 identifies those faults in the Southern California region considered important to the project in terms of potential for future activity. Seismic records have been available for the last 200 years, with improved instrumental seismic records available for the past 50 years. Based on a review of earthquake data, most of the earthquake epicenters occur along the Whittier-Elsinore, San Andreas, Newport-Inglewood, Malibu-Santa Monica-Raymond Hills, Palos Verdes, Sierra Madre, San Fernando, Elysian Park-Montebello, and Torrance-Wilmington faults (Jones and Hauksson, 1986). All these faults are elements of the San Andreas Fault system. Past experience indicates that there has not been any substantial damage, structural or otherwise to the LARC as a result of earthquakes. Table 2-8 identifies the historic earthquakes over magnitude 4.5 in southern California, between 1915 and the present, along various faults in the region.

The fault zones in the region with potential for future activity that may affect the Refinery are described below. These faults have been identified under the Alquist-Priolo Earthquake Fault Zoning Act.

**Malibu-Santa Monica-Raymond Hills Fault Zone:** The Raymond Hills fault is part of the fault system that extends from the base of the San Gabriel Mountains westward to beyond the Malibu coast line. The fault has been relatively quiet, with no recorded seismic events in historic time (see SCEC, 2013, 2013a, 2013b, and 2013c); however, recent studies indicate movement can occur with a recurrence interval of from 740 years for the Santa Monica Mountains Thrust Fault up to 3,290 years for the Hollywood-Santa Monica-Malibu Coast system to rupture (see Dolan, et al., 1995).

**Table 2-7**

Major Active or Potentially Active Faults in Southern California

<b>Fault Zone</b>	<b>Fault Length (Miles)</b>	<b>Maximum Credible Earthquake</b>	<b>Maximum Acceleration (G)</b>
Malibu-Santa Monica-Raymond Hill	65	7.5	0.49
Newport-Inglewood	25	7.0	0.42
Northridge	12	6.7	0.16
Palos Verdes	20	7.0	0.24
San Andreas	200+	8.25	0.21
San Jacinto	112	7.5	0.11
San Fernando	8	6.8	0.17
Sierra Madre	55	7.3	0.23
Whittier-Elsinore	140	7.1	0.46
Elysian Park – Montebello	15	7.1	0.27

G = acceleration of gravity.

**Table 2-8**

Significant Historical Earthquakes in Southern California

<b>Date</b>	<b>Location (epicenter)</b>	<b>Magnitude</b>
1915	Imperial Valley	6.3
1918	San Jacinto	~6.8
1923	North San Jacinto Fault	6.3
1925	Santa Barbara	6.3
1927	Lompoc	7.1
1933	Long Beach	6.4
1937	San Jacinto Fault	6.0
1940	Imperial Valley	6.9
1941	Santa Barbara	5.5
1941	Torrance-Gardena	4.8
1942	Fish Creek Mountains	6.6
1946	Walker Pass	6.0
1947	Manix	6.5
1948	Desert Hot Springs	6.0
1952	Kern County	7.5
1952	Bakersfield	5.8
1954	San Jacinto Fault	6.4
1966	Parkfield	6.0
1968	Borrego Mountain	6.5
1971	San Fernando (Sylmar)	6.5
1979	Imperial Valley	6.4
1980	White Wash	5.5
1986	North Palm Springs	5.6

**TABLE 2-8 (Concluded)**  
Significant Historical Earthquakes in Southern California

Date	Location (epicenter)	Magnitude
1987	Whittier	5.9
1987	Elmore Ranch/Superstition Hills	6.2
1991	Sierra Madre	5.8
1992	Joshua Tree	6.1
1992	Landers	7.3
1992	Big Bear	6.4
1992	Mojave (Garlock)	5.7
1994	Northridge	6.7
1995	Ridgecrest	5.4
1999	Hector Mine	7.1
2002	Laguna Salada	5.7
2009	Northern Baja California	5.8
2010	Sierra El Mayor (No. Baja Calif.)	7.2

Source: SCEC, 2013d.

**The Newport-Inglewood Fault Zone:** The Newport-Inglewood fault is a major tectonic structure within the Los Angeles Basin. This fault is best described as a structural zone comprising a series of echelon and sub-parallel fault segments and folds. The faults of the Newport-Inglewood uplift in some cases exert considerable barrier influence upon the movement of subsurface water (see DWR, 1961). Offsetting of sediments along this fault usually is greater in deeper, older formations. Sediment displacement is less in younger formations. The Alquist-Priolo Act has designated this fault as an earthquake fault zone. The purpose of designating this area as an earthquake fault zone is to mitigate the hazards of fault rupture by prohibiting building structures across the trace of the fault.

This fault poses a seismic hazard to the Los Angeles area (see Topozada, et al., 1988, 1989), although no surface faulting has been associated with earthquakes along this structural zone during the past 200 years. Since this fault is located within the Los Angeles Metropolitan area, a major earthquake along this fault would produce more destruction than a magnitude 8.0 on the San Andreas fault. The largest instrumentally recorded event was the 1933 Long Beach earthquake, which occurred on the offshore portion of the Newport-Inglewood structural zone with a magnitude of 6.3. A maximum credible earthquake of magnitude 7.0 has been assigned to this fault zone (see Ziony and Yerkes, 1985).

**The Palos Verdes Fault Zone:** The Palos Verdes fault extends for about 50 miles from the Redondo submarine canyon in Santa Monica Bay to south of Lausen Knoll and is responsible for the uplift of the Palos Verdes Peninsula. This fault is both a right-lateral strike-slip and reverse separation fault. The Gaffey anticline and syncline are reported to extend along the northwestern portion of the Palos Verdes hills. These folds plunge southeast and extend beneath recent alluvium east of the hills and into the San Pedro Harbor, where they may affect movement of ground water (see DWR, 1961). The probability of a moderate or major earthquake along the Palos Verdes fault is low compared to movements on either the Newport-Inglewood or San

Andreas faults (see Los Angeles Harbor Department, 1980). However, this fault is capable of producing strong to intense ground motion and ground surface rupture. This fault zone has not been placed by the California State Mining and Geology Board into an Alquist-Priolo special studies zone.

**San Andreas Fault Zone:** The San Andreas fault is located on the north side of the San Gabriel Mountains trending east-southeast as it passes the Los Angeles Basin. This fault is recognized as the longest and most active fault in California. It is generally characterized as a right-lateral strike-slip fault which is comprised of numerous sub-parallel faults in a zone over two miles wide. There is a high probability that southern California will experience a magnitude 7.0 or greater earthquake along the San Andreas or San Jacinto fault zones, which could generate strong ground motion in the project area. There is a five to twelve percent probability of such an event occurring in southern California during any one of the next five years and a cumulative 47 percent chance of such an event occurring over a five year period (see Reich, 1992).

**San Fernando Fault:** The westernmost segment of the Sierra Madre fault system is the San Fernando segment. This segment extends for approximately 12 miles beginning at Big Tujunga Canyon on the east to the joint between the San Gabriel Mountains and the Santa Susana Mountains on the west (see Ehlig, 1975). The 1971 Sylmar earthquake occurred along this segment of the Sierra Madre fault system, resulting in a 6.4 magnitude earthquake. Dolan, et al. (1995) indicates the San Fernando fault segment is capable of producing a 6.8 magnitude earthquake every 455 years.

**Sierra Madre Fault System:** The Sierra Madre fault system extends for approximately 60 miles along the northern edge of the densely populated San Fernando and San Gabriel valleys (Dolan, et al., 1995) and includes all faults that have participated in the Quaternary uplift of the San Gabriel Mountains. The fault system is complex and appears to be broken into five or six segments each 10 to 15 miles in length (see Ehlig, 1975). The fault system is divided into three major faults by Dolan, et al. (1995), including the Sierra Madre, the Cucamonga and the Clamshell-Sawpit faults. The Sierra Madre fault is further divided into three minor fault segments the Azusa, the Altadena and the San Fernando fault segments. The Sierra Madre fault is capable of producing a 7.3 magnitude earthquake every 805 years (see Dolan, et al., 1995).

**Whittier-Elsinore Fault Zone:** The Whittier-Elsinore Fault is one of the more prominent structural features in the Los Angeles Basin. It extends from Turnbull Canyon near Whittier, southeast to the Santa Ana River, where it merges with the Elsinore fault. Yerkes (1972) indicated that vertical separation on the fault in the upper Miocene strata increases from approximately 2,000 feet at the Santa Ana River northwestward to approximately 14,000 feet in the Brea-Olinda oil field. Farther to the northwest, the vertical separation decreases to approximately 3,000 feet in the Whittier Narrows of the San Gabriel River.

The fault also has a major right-lateral strike slip component. Yerkes (1972) indicates streams along the fault have been deflected in a right-lateral sense from 4,000 to 5,000 feet. The fault is capable of producing a maximum credible earthquake event of about magnitude 7.0 every 500 to 700 years.

**Elysian Park-Montebello System:** The Elysian Park fault is a blind thrust fault system, i.e., not exposed at the surface, whose existence has been inferred from seismic and geological studies. The system as defined by Dolan, et al. (1995) comprises two distinct thrust fault systems: 1) an east-west-trending thrust ramp located beneath the Santa Monica Mountains; and 2) a west-northwest-trending system that extends from Elysian Park Hills through downtown Los Angeles and southeastward beneath the Puente Hills. The Elysian Park thrust is capable of producing a magnitude 7.1 earthquake every 1,475 years.

**Torrance-Wilmington Fault Zone:** The Torrance-Wilmington fault has been reported to be a potentially destructive, deeply buried fault, which underlies the Los Angeles Basin. (Kerr, 1988) has reported this fault as a low-angle reverse or thrust fault. This proposed fault could be interacting with the Palos Verdes hills at depth. Little is known about this fault, and its existence is inferred from the study of deep earthquakes. Although information is still too preliminary to be able to quantify the specific characteristics of this fault system, this fault appears to be responsible for many of the small to moderate earthquakes within Santa Monica Bay and easterly into the Los Angeles area. This fault itself should not cause surface rupture, only ground shaking in the event of an earthquake.

In addition to the known surface faults, shallow-dipping concealed "blind" thrust faults have been postulated to underlie portions of the Los Angeles Basin. Because there exist few data to define the potential extent of rupture planes associated with these concealed thrust faults, the maximum earthquake that they might generate is largely unknown.

No faults or fault-related features are known to exist at the LARC site. The closest fault zone to the Refinery is the Newport-Inglewood Fault Zone, which is located approximately 3.0 to 3.5 miles northeast of the LARC. The LARC is not located in any Alquist-Priolo Earthquake fault zone and is not expected to be subject to significant surface fault displacement. Therefore, no significant adverse impacts to the proposed project facilities are expected from seismically-induced ground rupture.

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 LARC facility increases the probability that an earthquake may impact the site. 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 Section VIII - Hazards and Hazardous Materials.

The new crude oil storage tank and water draw surge tank must be designed to comply with the California Building Code requirements since the proposed project is located in a seismically active area. The California Building Code is considered to be a standard safeguard against major structural failures and loss of life. The code requires 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 California Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The California 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 California Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

The new storage tank and water draw surge tank at the LARC would require building permits, as applicable, for all new structures associated with the proposed project from the City of Carson. The LARC must receive approval of all building plans and building permits to assure compliance with the latest Building Code adopted by the City of Carson prior to commencing construction activities. The issuance of building permits from the local authority will assure compliance with the California Building Code requirements which include requirements for building within seismic hazard zones. No significant adverse impacts from seismic hazards are expected since the proposed project would be required to comply with the California Building Codes.

Thus, the proposed project would not alter the exposure of people or property to geological hazards such as earthquakes, landslides, mudslides, ground failure, or other natural hazards beyond the current setting. As a result, substantial exposure of people or structures to the risk of loss, injury, or death involving the rupture of an earthquake fault, seismic ground shaking, ground failure or landslides is not anticipated.

**VII. b)** The proposed project is located within the confines of the existing LARC. Concrete foundations presently support refinery structures and equipment. Most of the roads in the LARC, including all high traffic roads, have been paved. Some portions of site have also been landscaped, mainly near the administration building. No unstable earth conditions, significant changes in topography or in geologic substructures are anticipated to occur with the project. The major aspects of the proposed project, i.e., the installation of a crude oil storage tank and water draw surge tank, would be installed in an area on the west side of the LARC that is presently vacant, but formerly the site of two below ground level crude storage reservoirs. These reservoirs were closed in 1995 and are currently capped with a one-foot thick impermeable clay layer. Grading/excavation of this area would be required to remove the clay cap and recompact the area for the installation of the concrete foundations to provide ample support for the new tanks. Excavated VOC contaminated soil remediation must occur pursuant to a SCAQMD-approved Rule 1166 Plan to assure the control of fugitive emissions, which generally includes covering contaminated soil piles with heavy plastic sheeting and watering activities to assure the soil remains moist. The Rule 1166 Plan must be approved by the SCAQMD prior to excavation of VOC contaminated soils. The facility has submitted an application for a site-specific SCAQMD Rule 1166 Mitigation Plan, and it is anticipated approval of the plan will be issued along with the permit to construct for the project. Soil remediation activities are also under the jurisdiction of the RWQCB. Following SCAQMD approval of the proposed project, a Soil Management Plan will be submitted to the RWQCB for approval. The RWQCB, when considering the Soil Management Plan, relies on the analysis in this Negative Declaration and the SCAQMD Rule 1166 Mitigation Plan. Placing geodesic domes on existing crude oil Tanks 510 and 511 does not require any grading/excavation activities.

Further, wind erosion is not expected to occur to any appreciable extent, because construction contractors operating at any dust generating sites within the LARC would be required to comply

with the best available control measure (BACM) requirements of SCAQMD Rule 403 – Fugitive Dust. In general, fugitive dust must be controlled through a number of soil stabilizing measures such as watering the site, using chemical soil stabilizers, revegetating inactive sites, et cetera. The proposed project involves the installation of new equipment at a site that was previously graded within the LARC. However, additional grading and excavation is expected to be required to provide stable foundations for the new crude oil storage tank and water draw surge tank. Potential air quality impacts related to grading and excavation are addressed elsewhere in this document (as part of construction air quality impacts discussion in Section III.). No unstable earth conditions or changes in geologic substructures are expected to result from implementing the proposed project.

Further, the LARC has prepared a Storm Water Pollution Prevention Plan (SWPPP) in order to comply with National Pollution Discharge Elimination System (NPDES) standards, and compliance with the SWPPP will continue during and after completion of the proposed project. The SWPPP includes best management practices to control dust and mud transport during rain events to prevent solids and sediment transport into the storm drains and onto streets.

**VII. c)** Liquefaction would most likely occur in unconsolidated granular sediments that are water saturated less than 30 feet below ground surface (see Tinsley et al., 1985). Based on the latest seismic hazards maps developed under the Seismic Hazards Mapping Act, small portions of the LARC are located in an area of historic (or has the potential for) liquefaction (California Division of Mines and Geology, Map of Seismic Hazard Zones, Long Beach Quadrangle). A small section of the southeast portion of the LARC has conditions conducive to liquefaction. However, the new facilities associated with the proposed project are not located within the area identified for potential liquefaction. Liquefaction associated with seismic events has not occurred at the LARC. There is no evidence of expansive soils at the LARC, and expansion soils have not been encountered as part of the construction of other facilities at the LARC.

Prior to construction, a geotechnical engineering investigation will be conducted for the area where the new crude oil tank, new water draw surge tank, and new electrical power substation are to be located. The City of Carson will review and approve the geotechnical designs and ensure that the designs comply with the California Building Code requirements. Issuance of building permits will not occur until the City of Carson has reviewed and approved the geotechnical engineering investigation for the proposed project. No significant adverse impacts are expected because the proposed project would be required to comply with the California Building Codes.

Subsidence is not anticipated to be a problem since only minor excavation and grading would occur at a site that has been previously excavated and graded. Further, the proposed project would not involve drilling or removal of underground products (e.g., water, crude oil, et cetera) that could produce subsidence effects. Additionally, the affected area is not envisioned to be prone to landslides or have unique geologic features since the LARC is located in a heavy industrial where such features are not known to exist.

For these reasons, implementation of the proposed project would not be expected to alter or make worse any existing potential for subsidence, liquefaction, et cetera.

**VII. d) and e)** Since the proposed project would occur within the confines of the LARC, which is located in an industrial zone, as explained in VII. c), it is expected that people or property would not be exposed to new impacts related to expansive soils. In addition, because the proposed project is not expected to generate additional wastewater (see Section IX. for further details), the proposed project is not expected to affect soils incapable of supporting water disposal. Further, the LARC currently has an existing wastewater treatment system and discharges treated wastewater to a local sewer system in accordance with its Industrial Wastewater Discharge Permit. The proposed project would not trigger a modification to this permit. For this reason, the proposed project would not require installation of a septic tank or alternative wastewater disposal system. Thus, implementation of the proposed project would not adversely affect soils associated with a septic system or alternative wastewater disposal system.

Based upon these considerations, significant adverse geology and soils impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse geology and soils impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>VIII. HAZARDS AND HAZARDOUS MATERIALS.</b> Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions, or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 use airport or a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Significantly increased fire hazard in areas with flammable materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## 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.

**VIII. a) and b)** Petroleum products are currently delivered to both the Wilmington and Carson Plants via pipelines from marine terminals and other facilities in the area as well as via trucks and rail cars. Following project completion, petroleum products would continue to be delivered to both the Wilmington and Carson Plants via pipelines from marine terminals and other facilities in the area as well as via trucks and rail cars. The proposed project would allow for an increase in the amount of crude oil stored at the LARC, but would not increase the amount of product produced at the Refinery or transported to/from the Refinery via pipeline, ships, trucks or railcar, as the crude throughput rate will not change. Because the proposed project does not increase in crude oil throughput, there will be no modification to the refining process or equipment. Ship deliveries of crude oil are expected to occur in the same size vessels (i.e., Panamax, Aframax, and Suezmax) after implementation of the proposed project as the vessels used currently, so no increase in ship traffic is expected but the ships will ~~have~~ generate less maneuvering emissions as a result improved offloading efficiency from the proposed project (i.e., the elimination of the need for anchorage while waiting to finish offloading). For these reasons, the proposed project would not result in an increase in transportation hazards.

A variety of safety laws and regulations have been developed to reduce the risk of accidental releases of chemicals at industrial facilities, including spill prevention and control and fire protection requirements as discussed below. Phillips 66 maintains its own onsite emergency response department to respond to emergencies and maintains a fully trained 24-hour emergency response team, firefighting equipment including fire engines and foam pumper trucks and trailers, and manual and automatic fire suppression systems for flammable and combustible materials. The LARC staff is trained in accordance with industry standards, and onsite fire training exercises are conducted with the Los Angeles County Fire Department.

The California Hazardous Material Management Act (HMMA) requires that any business that handles hazardous materials greater than specified threshold quantities must prepare a Business Plan. A Business Plan contains a description of the physical and chemical properties of each hazardous and extremely hazardous material that is handled at the facility, where it is used and stored, and symptoms that may result from contact with the substance. Phillips 66 has developed and maintains Business Plan. The Los Angeles County Fire Department, Hazardous Materials

Services Division is responsible for administering the HMMA and is the designated Certified Unified Program Agency (CUPA) for the hazardous material programs within Carson. The HMMA also requires the implementation of an Emergency Response Plan which identifies emergency response procedures in the event of a major release. In the event of an accidental release, Phillips 66 has appropriate mechanisms in place as stated in the California Code of Regulations Title 19 §2765.1 for notifying emergency responders when there is a need for such services.

The proposed new tanks are required to comply with the Spill Control and Countermeasures (SPCC) requirements and would require a revision to the current SPCC Plan. Both the new storage tank and new water draw surge tank would be constructed with surrounding containment berms, capable of containing 110 percent of the maximum volume stored in the largest tank, in compliance with the SPCC requirements. The berms are coated with material that is impervious to petroleum products and effective at minimizing the potential for a release that would migrate offsite and cause contamination.

The Occupational Safety and Health Agency (OSHA) promulgated the Process Safety Management (PSM) of Highly Hazardous Chemicals in the Code of Federal Regulations (CFR) 29 910.119 in 1992. This PSM rule was designed to address the prevention of catastrophic accidents at facilities handling hazardous substances in excess of specific threshold amounts through implementation of PSM systems. A key component of PSM requires the performance of a process hazard analyses to identify potential process deviations and to implement or improve safeguards that would prevent accidental releases of chemicals at industrial facilities.

A federal EPA Risk Management Program (RMP) and a more stringent RMP, the California Accidental Release Program (CalARP), were developed for both the Carson and the Wilmington Plants and submitted to appropriate agencies in 1999. The RMPs contain hazard assessments of both worst-case and more credible accidental release scenarios, an accident prevention program, and an emergency response program. The County of Los Angeles administers the RMP for the Carson Plant. In addition, an emergency response manual has been prepared for both Plants, which describes the emergency response procedures that would be followed in the event of any of several release scenarios along with the responsibilities of key personnel.

The Refinery adheres to the following safety design and process standards:

- The California Health and Safety Code Fire Protection specifications.
- The design standards for petroleum refinery equipment established by the American Petroleum Institute, the American Society of Mechanical Engineers, the American Institute of Chemical Engineers, the American National Standards Institute, and the American Society of Testing and Materials.
- The applicable Cal-OSHA requirements.

The proposed project is not expected to change the amount of hazardous material used or disposed of by the LARC. The proposed project merely provides more storage capacity and does

not change the annual volume of crude oil processed at the LARC, or change the handling practices associated with processing the crude oil. Therefore, no change in the use or disposal of hazardous materials is anticipated as a result of the proposed project.

Thus, as explained above, the proposed project is not expected to create a new significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials beyond the current setting. Further, because of the safety mechanisms in place, the proposed project is not expected to create a significant hazard to the public or the environment involving the release of hazardous materials into the environment.

**VIII. c)** The LARC is not located within one-quarter mile of an existing or proposed school site. As explained in Section VIII a) and b), the proposed project would not change or significantly increase the hazards associated with LARC operations and no off-site hazard impacts are expected. Therefore, the proposed project would not be expected to result in a safety hazard for an existing or proposed school.

**VIII. d)** Government Code §65962.5 refers to the "Hazardous Waste and Substances Site List," which is a list of facilities that may be subject to the Resource Conservation and Recovery Act (RCRA) corrective action program. The LARC is not included on the list prepared by the Department of Toxic Substances Control (DTSC) pursuant to Government Code §65962.5. Nonetheless, the LARC is included on a list of RCRA-permitted sites that require corrective action as identified by DTSC. Furthermore, the LARC is subject to corrective action under the "Spills, Leaks, Investigation & Cleanup (SLIC) Program" administered by the RWQCB pursuant to California Water Code §13304. In order to provide full public disclosure per CEQA (Public Resources Code §21092.6) with regard to corrective actions required by local agency, the following information is provided:

Applicant:	Phillip 66 (ConocoPhillips) Carson Plant
Address:	1520 East Sepulveda Boulevard, Carson, CA 90745
Phone:	(310) 522-9300
Address of Site:	1520 East Sepulveda Boulevard, Carson, CA 90745
Local Agency:	City of Carson
Assessor's Book:	7315-002-021
List:	DTSC and SLIC Corrective Action
SLIC Case No:	0232

The new tanks and substation for the proposed project would be installed in an area on the west side of the LARC that is presently vacant, but formerly the site of two below ground level crude storage reservoirs. These reservoirs were closed in 1995 under authorization from the RWQCB and are currently capped with a one-foot thick impermeable clay layer. During construction of the proposed project, grading and recompaction of this area would be required to install concrete foundations for the new crude oil tank, water draw surge tank, and electrical power substation, and to erect a dike containment berm. RWQCB approval for excavation and recompaction of this area to allow for development of the proposed project would be required.

Since the proposed project site has been identified as having soil containing VOC materials, excavation at this site is subject to the requirements of SCAQMD Rule 1166. The facility must obtain a SCAQMD-approved Rule 1166 Mitigation Plan to assure the control of fugitive emissions prior to the start of excavation activities. Rule 1166 includes requirements for SCAQMD notification at least 24 hours prior of the start of excavation, monitoring (at least once every 15 minutes, within 3 inches of the excavated soil surface), as well as implementation of a mitigation plan when VOC-contaminated soil is detected. Rule 1166 defines VOC contaminated soil as soil which registers a concentration of 50 ppmv or greater of VOC. An approved mitigation plan generally includes covering contaminated soil piles with heavy plastic sheeting and watering activities to assure the soil remains moist. In addition, VOC-contaminated soils shall be treated or removed within 30 days from the time of excavation. The facility has submitted an application for a site-specific Rule 1166 Mitigation Plan, and it is anticipated that it will be issued along with the permit to construct for the project. Soil remediation activities are also under the jurisdiction of the RWQCB. Following SCAQMD approval of the proposed project, a Soil Management Plan will be submitted to the RWQCB for approval. The RWQCB, when considering the Soil Management Plan, relies on the analysis in this Negative Declaration and the SCAQMD Rule 1166 Mitigation Plan.

During grading and recompaction, activities could potentially uncover soils contaminated with regulated concentrations of certain substances, such as heavy metals and hydrocarbons. The handling, processing, transportation, and disposal of these contaminated soils would continue to be subject to applicable hazardous waste regulations such as Title 22 of the California Code of Regulations and other local and federal rules. Title 22 has multiple requirements for hazardous waste handling, transport, and disposal, such as requirements to use approved disposal and treatment facilities, to use certified hazardous waste transporters, and to have manifests for tracking the hazardous waste. Excavated soil contaminated with concentrations above regulated thresholds generally cannot be reused onsite. These contaminated soils would be properly characterized to determine an appropriate offsite processing method(s). These methods may include recycling of the soil if it is considered a non-hazardous waste, off-site treatment to reduce the contaminant concentrations to non-hazardous levels, or disposal as a hazardous waste at a permitted hazardous waste facility. The LARC would work with the RWQCB, SCAQMD, and DTSC, if necessary, to determine an appropriate offsite processing method for any excavated soil that cannot be reused onsite.

Based on the above requirements and considering that most of the contaminated soils encountered during prior construction projects at the LARC were determined not to be a hazardous waste, no significant adverse impacts are expected from the potential for encountering contaminated soils during grading and excavation. Therefore, impacts related to soil contamination are not expected to create a significant hazard to the public or the environment.

**VIII. e)** The LARC is not located within an airport land use plan or within two miles of a public or private use airport. Therefore, the proposed project would not be expected to result in a safety hazard for people residing or working in the area of the LARC, on any airport, or on an airport land use plan.



**VIII. f)** The proposed project is located within the LARC. The proposed project would require revisions to the emergency response plan (i.e., Integrated Contingency Plan) to address emergency response activities that would be associated with the installation of the new crude storage tank and new water draw surge tank. Phillips 66 already uses and stores crude oil at the Refinery so the current emergency response procedures are specific to the use of crude oil. Emergency response related to the new storage tank and new water draw surge tank would include releases, spills, and fires similar to the response provided for the existing crude oil surge tanks. The emergency procedures include detailed requirements for specific actions for employees to take (including evacuation and spill control), individuals to be notified, and agencies to call when assistance is required. As analyzed in Section VIII. h), the fire radiation hazards associated with the proposed new storage tank and new water draw surge tank would remain onsite, so no significant impacts to emergency response activities or emergency response plans at other adjacent facilities would be expected. Thus, the proposed project would not impair implementation or physically interfere with an adopted emergency response plan or evacuation plan. Evacuation plans generally require employees to head towards the employee parking areas and away from the operating portions of the LARC. The emergency response plans would be reviewed and updated to reflect the proposed project. Therefore, no significant adverse impacts to emergency response or evacuations plans are expected.

**VIII. g)** The proposed project would not increase the existing risk of fire hazards in areas with flammable brush, grass, or trees because the proposed project is located in an urbanized, industrial area and no wildlands are located in the immediate or surrounding areas of the LARC. Also, no substantial or native vegetation exists within the operational portions of the LARC and no vegetation is located in the location of the proposed new crude storage tank and water draw surge tank. For these reasons, the proposed project would not expose people or structures to wildland fires. Therefore, no significant adverse impacts resulting from wildland fire hazards are expected from the proposed project.

**VIII. h)** The LARC uses a number of hazardous materials at the facility to manufacture petroleum products. The major types of public safety risks consist of impacts from toxic substance releases, fires and explosions. Examples of toxic substances handled by the LARC include hydrogen sulfide, ammonia, regulated flammables like propane and butane, and petroleum products like gasoline, fuel oils, and diesel.

The primary hazards associated with a storage tank are fire hazards and subsequent exposure to thermal radiation. The proposed project includes fire protection equipment/facilities, e.g., monitors, hydrants, and proper containment berming in accordance with the National Fire Protection Association (NFPA) standards for crude oil storage tank and water draw surge tank. Thermal radiation is the heat generated by a fire and the potential impacts associated with exposure. Exposure to thermal radiation would result in burns, the severity of which would depend on the intensity of the fire, the duration of exposure, and the distance of an individual to the fire.

The proposed crude oil storage tank and water draw surge tank would be protected with both foam- and water-based fire extinguishing systems. Centralized foam generation systems would deliver foam to the tanks in the event of a fire. Foam would cover the tank and fire,

extinguishing flames by eliminating the presence of oxygen. In addition, the tanks would also be served by water deluge systems to minimize heat generated in the event of a fire.

The proposed project includes the addition of one new 615,000 barrel crude oil storage tank and one new 14,000 barrel water draw surge tank, which have the potential to increase fire hazards due to the increased storage volume. Therefore, a fire hazard analysis was conducted for the new crude oil storage tank (see Table 2-9), the larger of the two tanks, using the CANNARY by Quest® hazard model. For additional information about the CANNARY by Quest® model, see Appendix C. The fire radiation hazards can extend up to 510 feet (see Table 2-9) from the center of the storage tank and the property boundary is about 100 feet from the storage tank containment area. As shown in Figure 2-1, the fire hazards associated with the proposed storage tank would remain within the boundaries of the LARC and no exposure to off-site receptors of the thermal radiation would occur. Installing geodesic domes would not change the fire radiation hazard distance associated with the existing storage tanks (Tanks 510 and 511), which is 450 feet from the tank centers because the fire radiation hazard distances would not be affected by the addition of the domes.

**TABLE 2-9**

Maximum Hazard Distances for Maximum Credible Event <sup>(1)</sup>

Wind Speed (meters/sec)	Maximum Distance (ft) from Center of Unit to Pool/Torch Fire Thermal Radiation (5 kW/m <sup>2</sup> )
5.0	510

(1) See Appendix C for further details on the hazard modeling and impacts.

Therefore, the fire hazard impacts due to thermal radiation that may be associated with the proposed project are expected to be less than significant.

Based upon the above considerations, significant adverse hazards and hazardous materials impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

**Mitigation Measures**

Since no significant adverse hazards and hazardous materials impacts were identified, no mitigation measures are necessary or required.

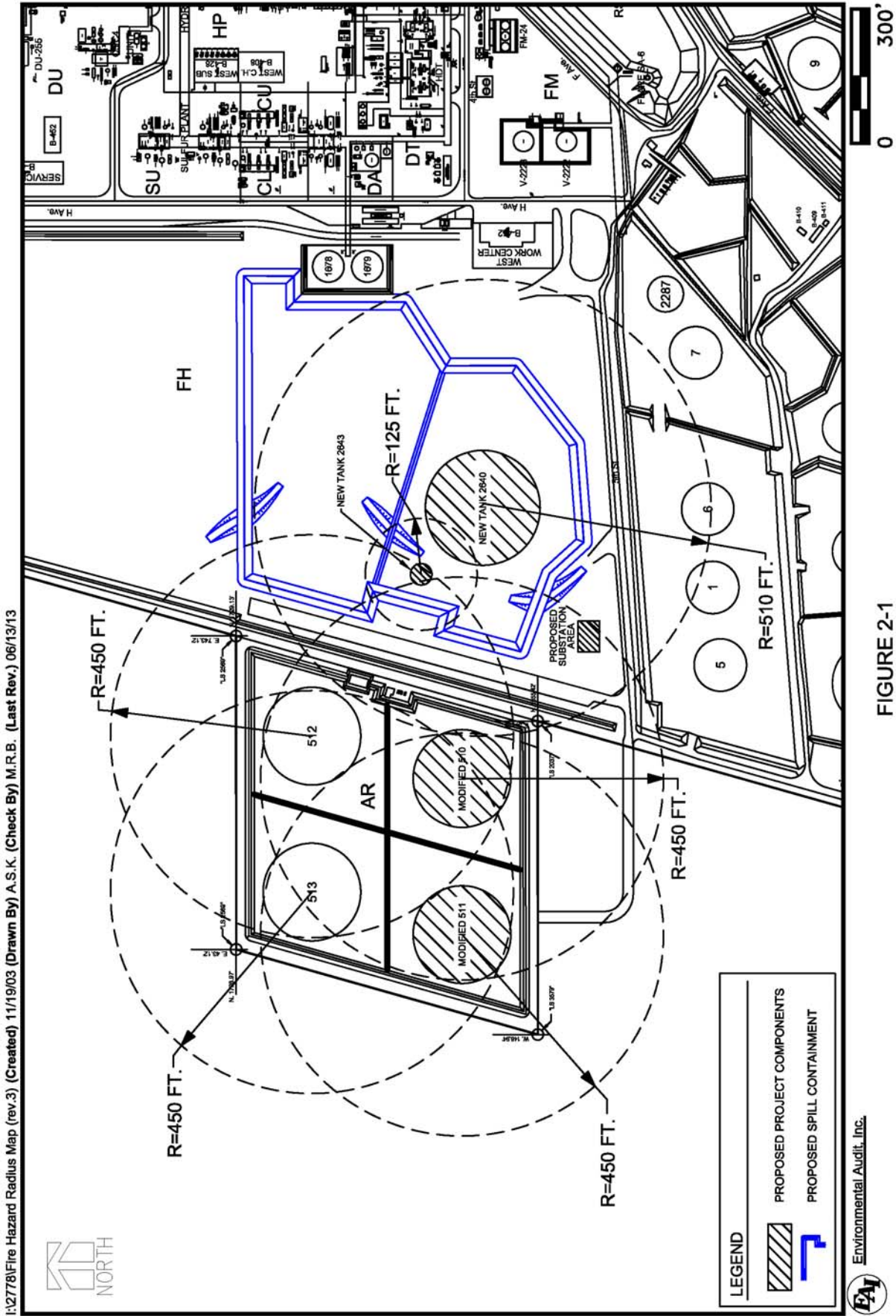


FIGURE 2-1  
 FIRE HAZARD RADIUS MAP  
 Phillips 66 Los Angeles Refinery  
 Carson Plant

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>IX. HYDROLOGY AND WATER QUALITY.</b> Would the project:				
a) Violate any water quality standards, waste discharge requirements, exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board, or otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) 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 substantial erosion or siltation on- or off-site or flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Place housing or other structures 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, which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
f) 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, or inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Require or result in the construction of new water or wastewater treatment facilities or new storm water drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Result in 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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 more than 262,830 gallons per day of potable water.
- The project increases demand for water by more than five million gallons per day.

**Discussion**

**IX. a), g), and i):** Operations at the LARC currently generate process wastewater, high salts water, treated sour water, and storm water. Wastewater is treated in the wastewater treatment system, which includes American Petroleum Institute (API) separators to remove oil and dissolved air floatation units for additional removal of oil and particulates. The treated process wastewater, high salts water and treated sour water are discharged to the Los Angeles County Sanitation Districts (LACSD) in accordance with the LACSD industrial wastewater permit discharge limits. The storm water is captured, treated as necessary, and discharged to the Dominguez Channel in accordance with a NPDES permit discharge limits. The NPDES permit requires monitoring for various chemicals, pH, and oil and grease, prior to discharge.

During construction of the proposed project, water would be needed to perform the hydrotest of the completed tanks. Hydrotesting involves filling the tank with water to check for leaks. In lieu of being pumped directly to the existing fire water tank (Tank 88A), a portion of the water produced from an onsite well would be diverted to Tank 2640 using the existing firewater pumps and manifold, which deliver water at a rate of 500 to 600 gpm (720,000 to 864,000 gallons per day). Diversion of water would continue until Tank 2640 has been filled to approximately 555,000 bbl (23,247,000 gallons) to perform the required hydrotesting. Once hydrotesting of Tank 2640 has been completed, approximately 12,600 bbl (529,200 gallons) would be transferred to Tank 2643 to perform the necessary hydrotesting. Upon completion of all hydrotesting, the water would be transferred to the existing fire water tank (Tank 88A), which supplies process water to the LARC. Therefore, no new water demand or wastewater would be generated as the result of hydrotesting the tanks.

The operation of the new tanks does not require water. Under normal operations, no water is used in the tank. Under current regulations, should the tank require major reconstruction (e.g., a new tank bottom), hydrotesting prior to reuse would be required. Minor repairs could be inspected using non-destructive testing, such as weld x-rays and ultrasonic testing. Hydrotesting in the future would be performed if required by regulation and would be performed in the same manner as is proposed for the initial construction. Therefore, the proposed project would not

result in an increase in wastewater generated or discharged from the LARC or require a change in any wastewater permits. As a result, no significant adverse impacts associated with wastewater discharges at the LARC are expected from the proposed project.

The two new tanks would be located in an existing tank farm where storm water is managed through the LARC storm water system. No new additional storm water drainage facilities would need to be constructed or the expansion of existing facilities would need to occur to handle the storm water generated in the tank farm. Therefore, no significant adverse impacts associated with construction of or expansion to storm water drainage systems are expected from the proposed project.

The proposed project would not alter wastewater discharge from the LARC and would not affect the capacity of the LACSD facilities. Therefore, the LACSD has adequate capacity to serve the proposed project's projected demand in addition to the provider's existing commitments.

**IX. b) and h)** Water is primarily provided to the LARC by an onsite water well (i.e., non-potable groundwater). The LARC has adjudicated water rights, which limit the groundwater the LARC can extract from the onsite well (see Appendix D). The proposed project water demand for temporary hydrotesting is within the available water rights of the LARC. Supplemental potable water is supplied to the LARC by the California Water Service Company, which produces water from its own wells and receives water primarily from the Metropolitan Water District.

Construction activities associated with the proposed project would require water for dust suppression during grading for preparation of the project area for the placement of foundations for the new crude oil tank, new water draw surge tank, and new electrical power substation. Grading activities are expected to be limited to a six-week period resulting in an estimated 2,000 to 3,000 gallons of water per day used for dust suppression purposes (a total of approximately 126,000 gallons during the grading activities). Placement of geodesic domes on existing Tanks 510 and 511 does not require any site preparation or dust suppression activities. Water needed for construction would be supplied from the onsite groundwater well.

As already noted in Section IX. a), g), and i) above, petroleum storage tanks do not require water to operate. During operation of the tanks, should future repairs require hydrotesting, the same procedure of using non-potable groundwater prior to being used in the LARC for process water would be implemented. Therefore, no increase in potable water use would be associated with implementing the proposed project.

The groundwater used for hydrotesting would not be wasted as it would be used in processing following completion of the hydrotesting. To accumulate the necessary hydrotesting water, the LARC would maximize the existing allowable use of the water allocation from the onsite well. As such, no additional groundwater allocation would be required. Therefore, existing entitlements and resources are available for the proposed project and no new or expanded entitlements are needed.

Therefore, no potable water would be used during construction for dust suppression. Further, because non-potable groundwater would be utilized for hydrotesting purpose before it is used as usual for processing via the fire water tank, no increase in the use of groundwater or potable water would occur. Thus, less than significant adverse impacts on water demand would be expected from the proposed project overall. Consequently, the proposed project is not expected to result in a significant adverse impact on potable water demand or groundwater supplies.

**IX. c), and d)** The LARC is located near the Dominguez Channel and Los Angeles River. The Los Angeles River and the Dominguez Channel are the major drainages that flow into the Los Angeles-Long Beach Harbor complex. Sediments and contaminants are transported into the harbor with the flows from the Los Angeles River, and to a lesser degree, the Dominguez Channel.

The Los Angeles River drains an 832-square mile watershed basin into the Long Beach Harbor. The Los Angeles River watershed is controlled by a series of dams and an improved river channel with a design flow capacity of 146,000 cubic feet per second.

The Dominguez Channel originates in the area of the Los Angeles International Airport and flows southward into the East Channel of the Los Angeles Harbor. The Dominguez Channel, an 8.5-mile long structure, drains approximately 80 square miles west of the Los Angeles River drainage basin. Permitted discharges from industrial sources are a substantial percentage of the persistent flows in the Dominguez Channel.

The LARC modifications would occur within an existing storage tank farm area, which is currently paved and is expected to remain paved, so no increase in the amount of runoff from the proposed project is expected to occur. As part of construction of the new storage tank and new water draw surge tank, the area surrounding the tanks would be curbed to contain runoff. Any runoff occurring will continue to be collected in a drainage system and handled by the LARC's wastewater system and then either discharged to the Dominguez channel under the conditions of the LARC's existing storm water permit or sent to an onsite wastewater treatment system. Treated storm water is currently discharged to the LACSD sewer system in accordance with the requirements of the facility's Industrial Wastewater Discharge Permit. The proposed project is not expected to increase the storm water runoff from the LARC. The LARC's SWPPP would be updated, as necessary, to reflect the new crude oil storage tank and new water draw surge tank, and include additional Best Management Practices, if required. No new storm drainage facilities or expansion of existing storm facilities are expected to be required.

Any construction that may occur as a result of implementing the proposed project would not alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in substantial erosion or siltation on- or off-site or flooding on- or off-site because the affected sites are paved and storm water is directed into the existing wastewater treatment system. Since storm water discharge or runoff is not expected to change in either volume or water quality, no new storm drainage facilities or expansion of existing storm facilities are expected to be required. Thus, no significant adverse storm water quality impacts are expected to result from the operation of the proposed project.



To prevent oil discharges from reaching navigable waters of the United States through proactive measures, the LARC is required to comply with Title 40 of the CFR Part 112 (Oil Pollution Prevention), which sets forth requirements for Spill Prevention, Control and Countermeasure (SPCC) Plans. These regulations require, among other things, that containment facilities be included for all storage tanks, as applicable. In compliance with these regulations, appropriate containment facilities would be constructed for the new crude oil storage tank and new water draw surge tank. Therefore, in the event of a leak, the contents of the new crude oil storage tank or new water draw surge tank would be collected in the containment facilities onsite and would not run off-site or impact water resources.

Therefore, less than significant adverse storm water quality impacts are expected to result from the operation of the proposed project.

**IX. e)** The proposed project includes installing geodesic domes to the two existing crude oil tanks (Tanks 510 and 511), construction of one new 615,000 barrel crude oil storage tank, one new water draw surge tank, and one new electrical power substation. The proposed project does not include the construction of any housing, nor would it require placing housing within a 100- or 500-year flood hazard area. The project does not anticipate the need for additional permanent workers, so no additional housing is expected (see Section XIII – Population and Housing). The LARC is not located within a 100-year flood hazard area. Since the proposed project is located within the existing boundaries of the LARC, it would not impede or redirect flood flows. The proposed project is not located within a flood zone and therefore, would not expose people or property to a significant risk of loss, injury or death related to flood hazards. Based on the topography and/or site elevations of the LARC in relation to the ocean, the proposed project is not expected to result in an increased risk of flood. Therefore, no significant adverse impacts associated with flooding are expected from the proposed project.

**IX. f)** The construction activities associated with the proposed project would not occur in an area that could be affected by tsunamis or seiche. The LARC is located approximately 2.1 miles, 1.9 miles, and 4.3 miles from the Ports of Long Beach, Los Angeles, and San Pedro, respectively. The port areas are protected from tsunamis by the construction of breakwaters. Construction of breakwaters combined with the distance of the LARC from the water is expected to minimize the potential impacts of a tsunami or seiche so that no significant impacts are expected. The proposed project does not require construction in areas that are susceptible to mudflows (e.g., hillside or slope areas). The LARC is not located on a hillside or slope area and thus, is not susceptible to mudflow. As a result, the proposed project is not expected to generate significant adverse mudflow impacts. Finally, the proposed project would not affect in any way any potential flood hazards inundation by seiche, tsunami, or mud flow.

Based upon the above considerations, significant adverse hydrology and water quality impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

**Mitigation Measures**

Since no significant adverse hydrology and water quality impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>X. LAND USE AND PLANNING.</b>				
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Significance Criteria**

Land use and planning impacts will be considered significant if the project conflicts with the land use and zoning designations established by local jurisdictions.

**Discussion**

**X. a), and b)** The proposed modifications to two existing crude oil storage tanks (Tanks 510 and 511) by installing geodesic domes and the installation of the new 615,000 barrel crude oil tank, new water draw surge tank, and new electrical power substation, would occur entirely within the existing LARC property boundaries and no new property would be required for the proposed project.

Land use at and surrounding the LARC is zoned heavy industrial, and the proposed project is consistent with this zoning, so no change in zoning designation would be expected. The proposed project would not affect in any way habitat conservation or natural community conservation plans, agricultural resources or operations, and would not create divisions in any existing communities. Further, no new development or alterations to existing land designations would occur as a result of the implementation of the proposed project. Therefore, present or planned land uses in the region would not be affected as a result of implementing the proposed project.

Based upon these considerations, significant adverse land use and planning impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

**Mitigation Measures**

Since no significant adverse land use and planning impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>XI. MINERAL RESOURCES.</b> 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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.

**Discussion**

**XI. a), and b)** Implementation of the proposed project would occur entirely within the existing LARC property boundaries all of which is zoned heavy industrial. The Munger Map Book (May 1990 edition) contains data on oil and gas wells in the States of California and Alaska. These data are gathered from state agencies, oil well operators, and various trade journals serving the oil and gas industry. According to Munger, there are no wells (active or abandoned) located on the LARC property and the site is not located within an administrative boundary of an oil field. The nearest oil and gas wells are located over one-half mile south from the LARC in an oil field identified as the Wilmington Oil Field. Thus, LARC property does not contain any known mineral resources.

There are no provisions of the proposed project that would result in the loss of availability of a known mineral resource of value to the region and the residents of the State of California such as aggregate, coal, clay, shale, etc., or locally-important mineral resource recovery site delineated on a local plan, specific plan or other land use plan.

Based upon these considerations, no significant adverse impacts to mineral resources are expected from implementing the proposed project, and thus, this topic will not be analyzed further.

**Mitigation Measures**

Since no significant adverse mineral resource impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>XII. NOISE.</b> Would the project result in:				
a) Exposure of persons to or generation of permanent noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) 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 use airport or private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Significance Criteria**

Noise impacts will be considered significant if:

- Construction noise levels exceed the local noise ordinances 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.

**Discussion**

**XII. a) and c)** Construction activities associated with the proposed project would generate noise from construction equipment and construction-related traffic. The types of construction equipment to be used include, but are not limited to, trucks, cranes, fork lifts, air compressors, generators, excavators, scrapers, backhoes, front end loaders, welding machines, and ditch witch (i.e., trenching machine for electrical conduit installation). Noise levels for various construction

equipment are provided in Table 2-10. It should be noted that these noise levels are detected at 50 feet from the source. Noise attenuation due to distance will reduce these values as discussed later in this section.

**TABLE 2-10**  
Construction Noise Sources

Equipment	Typical Range (dBA) <sup>(a)</sup>	Analysis Value (dBA) <sup>(b)</sup>
Air Compressor	85-91	85
Backhoe	73-95	80
Compressors	75-87	85
Concrete Mixers	75-88	75
Concrete Pumps	81-85	85
Cranes	75-89	85
Front Loader	73-86	82
Generators	71-83	85
Jackhammers	81-98	85
Pavers	85-88	75
Pumps	68-72	70
Scrapers, Graders	80-93	80
Tractor	77-98	85
Truck	82-95	82

- (a) City of Los Angeles, 2006. Levels are in dBA at 50-foot reference distance. These values are based on a range of equipment and operating conditions.
- (b) 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 at 50 feet.

The City of Carson Municipal Code, Ordinance No. 95-1068, limits long-term construction noise for periods of 21 days or more to 65 dBA in the daytime (7:00 a.m. to 6:00 p.m.). In addition, non-urgent, essential construction is generally prohibited without a special permit between 6:00 p.m. and 7:00 a.m. weekdays, and on weekends. If the City Engineer determines that the public health, safety, comfort, and convenience will not be affected during these times, the City Engineer may grant special permission for certain noise-generating activities. The construction activities that would generate noise would be carried out during daytime hours, (e.g., 7:00 a.m. to 6:00 p.m., Monday through Friday).

The operational noise limits for the City of Carson are summarized in Table 2-11 for residential, commercial, and industrial areas and are provided for informational purposes. However, the noise limits in Table 2-11 do not apply to construction activities. If the existing ambient noise level already exceeds these limits, then the noise limit becomes equal to the existing ambient noise level.



**TABLE 2-11**

City of Carson Noise Ordinance Limits

Construction Limit (dBA)		Operations Limit (exterior dBA except where noted)					
Area	L <sub>max</sub>	Area	L <sub>50</sub>	L <sub>25</sub>	L <sub>8.3</sub>	L <sub>1.7</sub>	L <sub>max</sub>
Residential	65 (7:00 a.m. – 6:00 p.m.)	Residential (1,2)	50	55	60	65	70
		Commercial <sup>(a, b)</sup>	60	60	70	75	80
		Industrial <sup>(a,b)</sup>	70	70	80	85	90
		Indoor Noise – Residences <sup>(b)</sup> : 45 day, 40 night					

Source: City of Carson Ordinance No. 4101

a Residential and commercial nighttime limits (10:00 p.m. – 7:00 a.m.) are 5 dBA lower. Tonal or impulsive type noise also reduces limit by five dBA.

b If ambient noise exceeds limit then limit is increased to ambient noise.

L<sub>x</sub> A-weighted sound level, L, that may not be exceeded more than “x” percent of the measured time period.

L<sub>max</sub> Maximum A-weighted sound level

The LARC is surrounded by other industrial land uses (e.g., Alameda Corridor, other refining-related land uses, and storage tank farms) that generate noise. Construction activities for the proposed project would produce noise as a result of operating construction equipment. The estimated noise level during construction is expected to be an average of about 85 dBA at 50 feet from the construction site. The closest resident is located about one-third mile or 1,760 feet, to the west of Wilmington Avenue at Realty from the construction site. The City of Carson General Plan Noise Element identifies the existing ambient noise levels in the vicinity of the LARC to be between 68.2 and 77.7 dBA in non-residential areas (Carson, 2004). Using an estimated six dBA reduction for every doubling distance, the noise levels from the construction activities at the residential area (conservatively estimated at 1,600 feet from the proposed project) are expected to be about 55 dBA (see Table 2-12), which is below existing ambient noise levels and within the noise levels allowed under the City of Carson noise ordinance. Most sources of the construction noise would be located near ground level, so the noise levels are expected to attenuate more than analyzed herein. In addition, structures, such as existing storage tanks, are located between the peak noise construction activities and the residential areas, so the noise would be lessened further by these obstructions. For a more conservative analysis, noise attenuation due to existing structures has not been included in the analysis.

Because of the nature of the construction activities, the types, number, operation time, and loudness of construction equipment would vary throughout the construction period. As a result, the sound level associated with construction would change as construction progresses. Construction noise sources would be temporary and would cease following construction activities. Noise levels at the closest residential areas are not expected to increase during construction activities; background noise levels in residential areas generally are in the range of 55 dBA to 65 dBA. The noise levels from the construction equipment are expected to be within

**TABLE 2-12**

Noise Level Attenuation at a Representative Construction Site

<b>Distance from Construction Noise Source (ft)</b>	<b>Estimated Noise Level (dBA)</b>
50	85
100	79
200	73
400	67
800	61
1,600	55
2,400	52
3,200	49
6,400	43

the allowable noise levels established by the local noise ordinances for industrial areas, which are about 65 dBA but in this case would be the existing ambient background of 68.2 and 77.7 dBA because 65 dBA is already exceeded.

Once construction is complete, the geodesic domes on the two existing storage tanks (Tanks 510 and 511), the new crude oil storage tank, the new water draw surge tank, and the new small electrical power substation are not expected to contribute to any noise because storage tanks and electrical power substations are not noise-producing equipment. The two new pumps would generate the same amount of noise as existing pumps at ground level and are not major sources of discernible noise outside the site boundary, so that no increase in noise related to the pumps would be expected. Pumps already exist at the LARC, and implementation of the proposed project would not generate noise beyond that which currently exists at the facility. Therefore, no discernable change to the existing noise setting during operation of the proposed project is expected. As such, no significant adverse noise impacts from the proposed project are expected.

**XII. b)** Construction of the proposed project would involve equipment and activities that may have the potential to generate groundborne vibration. Construction equipment is operated sporadically during different construction phases. The Federal Transit Administration (FTA) has published standard vibration levels and peak particle velocities for construction equipment operations (FTA, 2006). The approximate velocity level and peak particle velocities for large construction equipment are listed in Table 2-13. Groundborne vibration is quantified in terms of dB, which is a scale that compresses the range of numbers required to describe the oscillations. The FTA uses vibration decibels (abbreviated as VdB) to measure and assess vibration amplitude. In the United States, vibration is referenced to one micro-inch/sec (converted to 25.4 micro-mm/sec in the metric system) and presented in units of VdB. Based on the activities and equipment which would be used during construction, the peak construction equipment source levels are estimated to range between 58 VdB and 100 VdB at a distance of 25 feet.

**TABLE 2-13**

Representative Construction Equipment Vibration Impacts

Equipment	Approximate Peak Particle Velocity at 25 Ft. (inches/second) <sup>(a)</sup>	Approximate Velocity Level at 25 Ft. (VdB) <sup>(a)</sup>	Approximate Velocity Level at Closest Residential Area (VdB) <sup>(b)</sup>	Significant? (Exceeds 72 VdB) <sup>(c)</sup>
Pile Driver typical	0.644	100	64	NO
Large Bulldozers	0.089	87	51	NO
Loaded Trucks	0.076	86	50	NO
Jackhammer	0.035	79	43	NO
Small Bulldozer	0.003	58	22	NO

- a. Source: FTA, 2006. Data reflects typical vibration level.
- b. Distance to closest off-site receptor. Assumes an estimated six VdB reduction for every doubling of distance per FTA 2006.
- c. FTA Ground-Borne Vibration Impact Level.

When analyzing groundborne vibration, the FTA recommends using an estimated six VdB reduction for every doubling of distance (FTA, 2006). The groundborne vibration levels at the closest residential receptor are conservatively estimated at 1,600 feet from the proposed project. Using the FTA methodology, the VdB would range from 22 to 64 VdB (see Table 2-13 and Appendix E). The predicted vibration during construction activities can be compared to the FTA groundborne vibration impact level of 72 VdB, which is the level above which human annoyance or interference with vibration-sensitive equipment is expected to occur. Levels of vibration below the FTA groundborne vibration impact level are considered less than significant by the FTA. Therefore, because the vibration from construction activities is less than the FTA vibration impact level, no significant adverse vibration impacts are expected during the construction period.

The equipment associated with the proposed project is not expected to generate detectable groundborne vibration during normal operation because storage tanks and electrical substation equipment do not have oscillating parts which have the potential to generate groundborne vibration. Therefore, vibration from operation of the proposed project is expected to be less than significant and no significant adverse vibration impacts are expected during operation.

**XII. d)** The LARC is not located with an airport land use plan or within two miles of a public or private airport. Therefore, the proposed project would not expose people residing or working in the area to excessive noise related to the proposed project.

Based upon these considerations, significant adverse noise impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

**Mitigation Measures**

Since no significant adverse noise impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>XIII. POPULATION AND HOUSING.</b>				
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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.

**Discussion**

**XIII. a), and b)** Construction activities at the LARC would not involve the relocation of individuals, impact housing or commercial facilities, or change the distribution of the population because the proposed project would occur completely within the boundaries of the existing LARC and no housing is located within the LARC. During construction, a maximum of 115 temporary workers would be needed and these workers are expected to come from the existing labor pool in the southern California area. Additionally, once the proposed project is complete, operational activities are not expected to require new permanent employees. In the event that new employees are hired, it is expected that the number of new employees would be small, e.g., no more than one or two people and these workers would be expected from the existing labor pool. Human population within the jurisdiction of the SCAQMD is anticipated to grow regardless of implementing the proposed project. As a result, the proposed project is not anticipated to generate any significant adverse effects, either direct or indirect, on population growth in the district or population distribution.

**XIII. b)** Because the proposed project includes modifications at the existing LARC which is located in an industrial setting, the proposed project is not expected to result in the creation of any industry that would affect population growth, directly or indirectly induce the construction of single- or multiple-family units, or require the displacement of people or housing elsewhere in

the district. Therefore, implementation of the proposed project is not expected to have a significant adverse impact on population, population distribution, or housing.

Based upon these considerations, significant adverse population and housing impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse population and housing impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>XIV. PUBLIC SERVICES.</b> 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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 public service performance objectives.

**Discussion**

**XIV. a)** To respond to emergency situations, the LARC maintains an onsite fire department, which is supplemented by the resources of public fire departments. Specifically, the LARC is supported by the Los Angeles County Fire Department (LACFD), which has four LACFD stations that serve the Carson area: (1) Station 127 at 2049 E. 223<sup>rd</sup> Street; (2) Station 10 at 1860 E. Del Amo Boulevard; (3) Station 36 at 127 W. 223<sup>rd</sup> Street; and (4) Station 116 at 755 E. Victoria. Compliance with state and local fire codes is expected to minimize the need for additional fire protection services.

In addition, the LARC maintains its own onsite emergency response department. LARC maintains a fully trained 24-hour emergency response team; fire-fighting equipment including fire engines and foam pumper trucks or trailers; and manual and automatic fire suppression systems for flammable and combustible materials. LARC staff are trained in accordance with industry standards, and onsite fire training exercises with the LACFD staff are routinely conducted.

During construction, safeguards, monitoring for hazards with equipment designed to detect sources of flammable gases and vapors, written procedures, training, and authorization of equipment used onsite would be in place, thus, construction activities are not expected to result in an increased need for fire response services.

Because the new crude oil storage tank and new water draw surge tank would be located within an existing tank farm, the proposed project would not increase or alter the requirements for additional or altered fire protection during operation. In addition, fire hazards from the proposed project were determined to be not significant (see Section VIII h). Fire-fighting and emergency response personnel and equipment will continue to be maintained and operated at the LARC. Close coordination with local fire departments and emergency services also will be maintained.

**XIV. b)** The Los Angeles County Sheriff's Department is the responding agency for law enforcement needs in the vicinity of the LARC. Because sheriff and police units are in the field, response times to the LARC may vary depending on the location of the nearest unit.

In addition, the LARC has an existing security department that provides 24-hour protective services for people and property within the fenced boundaries of the facility. As part of their regular duties, the security department would monitor construction activities associated with the proposed project since construction would occur within the confines of the LARC's boundaries. Along with the existing work force, entry and exit of the construction work force would be similarly monitored. Once construction is completed, the proposed project would not be expected to change LARC staffing. Thus, no additional or altered police protection would be required for the proposed project.

**XIV. c), and d)** As noted in the previous "Population and Housing" (Section XIII.) discussion, the proposed project is not expected to induce population growth in any way because the local labor pool (e.g., workforce) is expected to be sufficient to accommodate any construction activities that may be necessary at affected facilities and operation of any new equipment is not expected to require additional employees. Therefore, there would be no increase in local population and thus no impacts would be expected to local schools or other public facilities. Similarly, since the proposed project is not expected to require additional permanent staffing once construction is completed, an increase in the local population is not expected.

Besides permitting the new equipment and altering permit conditions for the existing equipment by the SCAQMD and building permits from the City of Carson, there would be no need for other types of government services. Permitting agencies are currently equipped with the resources necessary to provide permits and environmental review of the proposed project. Thus, the proposed project would not result in the need for new or physically altered government facilities in order to maintain acceptable service ratios, response times, or other public service performance objectives. There would be no increase in population and, therefore, there would be no need for physically altered government facilities.

Based upon these considerations, significant adverse public services impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

**Mitigation Measures**

Since no significant adverse public services impacts were identified, no mitigation measures are necessary or required.



	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>XV. RECREATION.</b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 or recreational services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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.

**Discussion**

**XV. a), and b)** The City of Carson currently has 16 public parks, one County park (Victoria), and two public golf courses (Victoria Golf Course and Dominguez Golf Course). The Carson Community Center also provides recreation programs and meeting rooms for all residents. Collectively, excluding the Dominguez Golf Course, the total amount of public park land (City and County owned) is approximately 315 acres.

As noted in the previous “Population and Housing” (Section XIII.) discussion, the existing labor pool in southern California is sufficient to fulfill the labor requirements for the construction of the proposed project. The operation of the proposed project would not require additional workers to be hired at the LARC, and therefore, there would be no significant changes in population densities resulting from the proposed project, and thus no anticipated increase in the use of existing neighborhood and regional parks or other recreational facilities.

As noted in the previous “Land Use and Planning” (Section X.) discussion, there are no provisions in the proposed project that would affect land use plans, policies, or regulations. Land use and other planning considerations are determined by local governments and no land use or planning requirements would be altered by the proposed project.

Because the proposed project is limited to the confines of the LARC, the proposed project would not increase the demand for or use of existing neighborhood and regional parks or other recreational facilities or require the construction of new or expansion of existing recreational facilities that might have an adverse physical effect on the environment because it would not directly or indirectly increase or redistribute population.

Based upon these considerations, significant adverse recreation impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse recreation impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>XVI. SOLID/HAZARDOUS WASTE.</b>				
Would the project:				
a) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Comply with federal, state, and local statutes and regulations related to solid and hazardous waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Significance Criteria**

The proposed project impacts on solid and 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.

**Discussion**

**XVI. a), and b)** There are no existing structures at the LARC that require demolition, so no increase in solid waste would be associated with demolition activities. However, excavation and grading activities during construction could generate solid waste.

The new crude oil storage tank, new water draw surge tank, and new electrical substation would be installed in an area on the west side of the LARC that is presently vacant, but formerly the site of two below ground level crude storage reservoirs. These reservoirs were closed in 1995 under authorization from the RWQCB and are currently capped with a one-foot thick impermeable clay layer. Grading and recompaction of this area would be required in order to install the concrete foundations for the new crude oil tank and electrical power substation, and to erect a containment berm. RWQCB approval for grading/excavation and recompaction of this area to allow for development of the proposed project would be required, as it requires changes to the clay layer (cap). The excavated clay would be reused to the extent practicable, with any unusable clay appropriately classified and treated or disposed of at the appropriate offsite facility. Based on preliminary soil sampling of the clay to be excavated, minimal amounts of clay are expected to be transported off-site.

Excavation at this site is also subject to the requirements of SCAQMD Rule 1166, which requires SCAQMD approval prior to the start of excavation and requires the offsite treatment of VOC-contaminated soils with concentrations above the Rule 1166 threshold. The facility has submitted an application for a site-specific SCAQMD Rule 1166 Mitigation Plan, and it is anticipated approval of the plan will be issued along with the permit to construct for the project. Soil remediation activities are also under the jurisdiction of the RWQCB. Following SCAQMD

approval of the proposed project, a Soil Management Plan will be submitted to the RWQCB for approval. The RWQCB, when considering the Soil Management Plan, relies on the analysis in this Negative Declaration and the SCAQMD Rule 1166 Mitigation Plan.

Excavated soil, if found to be contaminated, would need to be characterized, treated, and disposed of offsite in accordance with applicable regulations. Where appropriate, the soil would be recycled if it is considered or classified as non-hazardous waste or it can be disposed of at a landfill that accepts non-hazardous waste. Otherwise, the material would need to be disposed of at a hazardous waste facility. (Potential soil contamination is addressed in the Hazards and Hazardous Materials discussion in Section VIII. d.) Most of the contaminated soils encountered during prior construction projects at the Refinery were determined through testing to be non-hazardous wastes. The Refinery would determine an appropriate offsite processing method for any excavated soil that cannot be reused onsite.

Construction-related waste such as shipping packing materials, depending on the classification of the waste, would need to be disposed of at a Class II (industrial) or Class III (municipal) landfill. A Class II landfill can handle wastes that exhibit a level of contamination not considered hazardous, but that are required by the State of California to be managed for disposal to a permitted Class II landfill. For this reason, Class II landfills are specially designed with liners to reduce the risks of groundwater contamination from industrial wastes, also known as California-regulated waste. Similarly, a Class III landfill can handle non-hazardous or municipal waste. Municipal waste is typically generated through day-to-day activities and does not present the hazardous characteristics of hazardous, industrial, or radioactive wastes.

There are 32 active Class III landfills within the SCAQMD's jurisdiction, many of which have liners that can handle both Class II and Class III wastes. According to the Final Program EIR for the 2012 AQMP (SCAQMD, 2012), total Class III landfill waste disposal capacity in the district is approximately 116,796 tons per day.

There are no hazardous waste landfills within the Southern California area. Construction (excavation) activities may encounter soil that through testing is determined to be a hazardous waste. If hazardous waste soil is encountered it must be disposed of at a permitted hazardous waste disposal facility. One such facility in California is the Clean Harbors (formerly Safety-Kleen) facility in Buttonwillow (Kern County). 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, and USPCI, Inc., in Murray, Utah.

In summary, the amount of solid or hazardous waste that may be generated during construction is expected to be well within the landfill waste disposal capacity available. No demolition is required as part of the proposed project and large volumes of contaminated clay are not expected to be generated. For these reasons, the construction impacts of the proposed project on solid and hazardous waste disposal facilities are expected to be less than significant.

The operation of the new crude oil storage tank and new water draw sure tank do not routinely generate non-hazardous or hazardous wastes. However, periodically for maintenance (typically every five to 15 years depending on sludge generation), the tanks are emptied and cleaned out,

resulting in a sludge that generally requires treatment to recover useful product (oil), etc., and disposal (e.g., disposal at a hazardous waste landfill). Since the proposed project includes the installation of the new crude oil tank and new water draw surge tank, the proposed project would generate sludge wastes associated with periodic tank cleaning operation. However, less sludge would be generated in the existing crude tanks at the LARC because less crude oil will ultimately be stored there. The daily volume of waste generated during the periodic cleaning of the existing storage tanks and the proposed new storage tanks is expected to be about the same as current conditions because no change in the method for tank cleaning is proposed. Overall, the amount of sludge generated from crude storage is expected to remain the same as current operations because sludge formation is a function of material handling, not the volume of the storage container. The LARC is expected to continue to comply with federal, state, and local statutes and regulations related to solid and hazardous wastes, therefore, no significant adverse increase in solid or hazardous waste is expected due to the proposed project.

Since operation of the new crude oil storage tank and new water draw surge tank, would not generate additional solid or hazardous waste, implementation of the proposed project is not expected to require additional waste disposal capacity or interfere or undermine the LARC's ability to comply with existing federal, state, and local regulations for solid and hazardous waste handling and disposal.

Based upon these considerations, significant adverse solid and hazardous waste impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse solid and hazardous waste impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>XVII. TRANSPORTATION AND TRAFFIC.</b>				
Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Significance Criteria

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

- Peak period levels on major arterials are disrupted to a point where level of service (LOS) is reduced to D, E 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.
- The project conflicts with applicable policies, plans or programs establishing measures of effectiveness, thereby decreasing the performance or safety of any mode of transportation.
- 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.
- Waterborne, rail car, or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.
- The need for more than 350 employees.
- An increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round trips per day.
- Increase customer traffic by more than 700 visits per day.

## Discussion

**XVII. a) and b)** The LARC is located at 1520 East Sepulveda Boulevard, between Wilmington Avenue and Alameda Street, in Carson California, about 1.25 miles south of the 405 Freeway. Most of the area surrounding the LARC is heavy industrial land uses. Key arterials servicing the LARC include Sepulveda Boulevard, Wilmington Avenue and Alameda Street. Sepulveda boulevard is an east-west street in the vicinity of the LARC. Alameda Street and Wilmington Avenue are north-south streets in the vicinity of the proposed project.

Approximately 115 construction workers would be commuting to the LARC during peak construction activities. All construction workers would be directed to the LARC for parking since sufficient capacity is available in the contractor parking lot at the LARC. Construction

workers are expected to arrive at the work sites between 6:30 a.m. and 7:00 a.m., which would generally avoid peak hour traffic conditions, and depart between 5:30 p.m. and 6:00 p.m. The construction worker commute is expected to avoid peak hour traffic during morning hours, between 7:00 a.m. and 8:00 a.m., but could impact the evening peak hours (between 4:00 p.m. and 6:00 p.m.). Peak construction activities are expected to be limited to about the six-month period when initial grading and construction of the domes on the existing storage tanks and the new crude storage tank would occur. The increase in construction worker traffic in the area would be temporary and would cease following the completion of construction activities.

The predominant route used to reach the LARC is from the San Diego Interstate 405 Freeway to Alameda Street. Alameda Street, Sepulveda Boulevard, and Wilmington Avenue are identified as major highways in the General Plan for the City of Carson. Major highways typically handle inter-city vehicular trips in the magnitude of 25,000 or more vehicles per day (Carson, 2004a). The projected increase in traffic during the construction phase of the proposed project is less than the significance criteria of 350 employees and well below a one percent increase in traffic on the local streets and at the local intersections. Further, the City of Carson has completed an LOS analysis on the streets near the LARC. All intersections in the vicinity of the LARC are LOS A during both morning and evening peak hours, indicating free flowing traffic conditions (Carson, 2004a). In addition to a maximum of 115 construction worker commute trips, the proposed project would generate a maximum of one additional delivery truck per day to deliver equipment to the site. These delivery trucks would be scheduled to arrive at a time that would avoid peak hour traffic and minimize the delivery time. Therefore, maximum estimated daily impacts on traffic would be approximately 116 trips during the construction phase (morning and evening).

Delivery of equipment and materials may require permits from Caltrans or local jurisdictions should equipment or materials to be delivered exceed size and weight limitations for the transport route. Phillips 66 will apply for and obtain the necessary permits, if needed. Permits typically require transport to occur during off peak hours, coordination with the California Highway Patrol and the local police along the transportation route.

The permanent work force at the LARC is not expected to increase as a result of the proposed project and thus, no increase in operation-related traffic is expected. Therefore, no significant traffic impacts are expected during the operational phase of the proposed project. For these reasons, the anticipated traffic impacts are relatively minimal and thus, would not be expected to conflict with plans, ordinances or policies for establishing effective performance of the circulation system or congestion management plans, if applicable.

The proposed project would not result in any increase in the number or size of marine vessels visiting the marine terminal used by Phillips 66 in the Port of Long Beach. Currently the marine terminal receives vessels of various sizes including Panamax vessels (400,000 bbl capacity) as well as larger vessels (from 720,000 bbl to 1,000,000 bbl capacity). When a ship larger than Panamax calls, LARC accepts delivery of the first portion of the crude oil into the existing tanks then processes the crude oil through LARC to make room in the receiving tanks to accommodate the second discharge from the larger vessel. By installing the new crude oil storage tank, the proposed project would allow larger vessels to discharge the entire volume of material in one ship call, minimizing the time the vessels spend in the Port area and minimizing the ship



emissions. However, because the proposed project would not change refining operation, no increase in crude throughput would occur. Therefore, no additional crude oil deliveries would be needed to supply the Refinery. The proposed project streamlines the delivery process.

**XVII. c)** The proposed project includes modifications to existing equipment and installation of one crude oil storage tank, one new water draw surge tank, associated piping, and one electrical power substation and tie-in to an existing manifold within the existing boundaries of the LARC. Modifications to existing equipment include the addition of geodesic domes on the two existing crude oil storage tanks (Tanks 510 and 511). The maximum height of these storage tanks is about 118 feet. The height profile of the new storage tank, new water surge tank, and the modified existing storage tanks would be similar in height to other existing storage tanks in the tank farm. The tallest structure at the LARC is the Coker Unit at a height of 250 feet, which is below the height at which air traffic exists. For these reasons, the proposed project would not be expected to result in a change to air traffic patterns such that a notification to the Federal Aviation Administration pursuant to Advisory Circular AC 70/7460-2K would not be required. Further, since the LARC is located about four miles west of the nearest airport, Long Beach Airport, the facility is located outside of the normal flight pattern of Long Beach Airport. In addition, because the proposed project would not involve the delivery of materials via air cargo, no increase in air traffic would be expected.

**XVII. d), and e)** The proposed project is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the site because the proposed project does not include the construction of roadways onsite or off-site that could include design hazards. Emergency access at the LARC would not be impacted by the proposed project because no onsite roadways would be altered as a result of the proposed project and Phillips 66 would continue to maintain the existing emergency access roads and gates to the LARC. Therefore, no changes to emergency response plans are expected as a result of the proposed project.

**XVII. f)** Because the proposed project would be constructed within the confines of the existing LARC, and no conflict with adopted policies, plans, or programs supporting alternative transportation modes (e.g., bus turnouts, bicycle racks) would be expected.

Based on these considerations, significant adverse transportation and traffic impacts are not expected from implementing the proposed project, and thus, this topic will not be analyzed further.

### **Mitigation Measures**

Since no significant adverse transportation and traffic impacts were identified, no mitigation measures are necessary or required.

	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
<b>XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.</b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion**

**XVIII. a)** As discussed in the “Biological Resources” (Section IV.), the proposed project is not expected to significantly adversely affect plant or animal species or the habitat on which they rely because the affected equipment is located in the LARC within in industrial area that has already been greatly disturbed for over 90 years and that currently does not support such habitats. Furthermore, the area where the modified storage tanks exist and where the new crude oil storage tank and new water surge tank would be constructed are already either devoid of significant biological resources or whose biological resources have been previously disturbed. Lastly, special status plants, animals, or natural communities are not expected to be found within close proximity to the storage tanks because the LARC is generally devoid of plants and natural communities that could support animals for fire safety reasons.

The proposed project would not require the acquisition of land and the construction activities associated with the modifications to the two existing storage tanks and installation of the new crude oil storage tank and new water draw surge tank are expected to occur entirely within the LARC's existing established boundaries. In other words, implementing the proposed project would not require construction activities in areas where special status plants, animals, or natural communities and important examples of the major periods of California history or prehistory exist. As a result, implementing the proposed project is not expected to adversely affect in any way habitats that support riparian habitat, are federally protected wetlands, or are migratory corridors. Therefore, these areas would not be expected to be adversely affected by the proposed project.

**XVIII. b)** Based on the preceding analyses in discussion topics I. through XVII., the proposed project is not expected to generate any project-specific significant adverse environmental impacts for the following reasons. The environmental topics that were not checked as areas potentially affected by the proposed project (e.g., agriculture and forestry resources, biological resources, cultural resources, land use and planning, mineral resources, population and housing, public services, and recreation) were found to have 'No Impact' and would not be expected to make any contribution to potential cumulative impacts whatsoever. For the environmental topics checked as areas potentially affected by the proposed project (e.g., aesthetics, air quality and GHG emissions, energy, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, solid and hazardous waste and transportation and traffic), the analysis indicated that project impacts would be less than significant because they would not exceed any project-specific significance thresholds. Based on these conclusions, incremental effects of the proposed project would be minor and, therefore, are not considered to be cumulatively considerable as defined by CEQA Guidelines §15064 (h)(1). Since impacts from the proposed project are not considered to be cumulatively considerable, the proposed project has no potential for generating significant adverse cumulative impacts.

**XVIII. c)** The proposed project would primarily modify two existing storage tanks, construct one new crude oil storage tank and one new water draw surge tank at the LARC, which would be built in accordance with current BACT requirements. The estimated VOC emission increase from the proposed project operations have been shown (see Table 2-4) to be less than significant. The potential health impacts of the TAC emission increases were evaluated in a health risk assessment (see Appendix C) and the results of the health risk assessment indicated that the TAC emissions in the vicinity of the LARC would be less than significant. Further, the proposed project is not expected to increase the potential adverse hazard impacts associated with the operation of the facility and the hazard impacts were determined to be less than significant.

Based on the preceding analyses, the proposed project is not expected to cause substantial adverse effects on human beings, either directly or indirectly. For the environmental topics that were checked as areas of potentially affected by the proposed project (i.e., aesthetics, air quality and GHG emissions, energy, geology and soils, hazards and hazardous material, hydrology and water quality, noise, solid and hazardous waste, and transportation and traffic), less than significant adverse impacts to these environmental topics were identified.

Based on the discussion in items I. through XVII., the proposed project is not expected to have the potential to cause significant adverse environmental effects to any environmental topic.

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## 2.7 ACRONYMS

<b>Abbreviation</b>	<b>Description</b>
AQMP	Air Quality Management Plan
AB	Assembly Bill
BACM	Best Available Control Measure
BACT	Best Available Control Technology
Basin	South Coast Air Basin
bbbl	barrel, 42 gallons
CalARP	California Accidental Release Program
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalent
dBA	A weighted noise level measurement in decibels
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
ERPG	Emergency Response Planning Guideline
Farmland	Prime Farmland, Unique Farmland, or Farmland of Statewide Importance
FDDR	floating double deck roof
FPR	floating pontoon roof
ft	feet
FTA	Federal Transit Administration
G	acceleration of gravity
GHGs	Greenhouse Gases
gpm	gallons per minute
HARP	Hotspots Analysis Reporting Program
HFCs	hydrofluorocarbons
HMMA	Hazardous Material Management Act
HRA	Health Risk Assessment
KV	kilovolt
LACFD	Los Angeles County Fire Department
LACSD	Los Angeles County Sanitation Districts
LARC	Phillips 66 Los Angeles Refinery Carson Plant
lbs/day	pounds per day
LOS	Level of Service
LST	Localized Significance Threshold
MAHI	maximum acute hazard index
MATES	Magnitude of Ambient Air Toxics Impacts from Existing Sources
MCHI	maximum chronic hazard index

MEIR	maximum exposed individual resident
MEIW	maximum exposed individual worker
MT	metric ton
MTCO <sub>2</sub> e	metric tons of CO <sub>2</sub> equivalent
MW	megawatt
NC	no change
N <sub>2</sub> O	nitrous oxide
NFPA	National Fire protection Association
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	Nitrogen oxides
NPDES	National Pollution Discharge Elimination System
OEHHA	Office of Environmental Health Hazard Assessment
OSHA	Occupational Safety and Health Administration
PFCs	perfluorocarbons
PM <sub>10</sub>	particulate matter less than 10 microns in diameter
PM <sub>2.5</sub>	particulate matter less than 2.5 microns in diameter
PM	particulate matter
ppm	parts per million
PRC	Public Resources Code
PSM	Process Safety Management
RCRA	Resource Conservation and Recovery Act
Refinery	Phillips 66 Los Angeles Refinery, Wilmington Plant and Carson Plant
REL	reference exposure levels
RMP	Risk Management Program
RWQCB	California Regional Water Quality Control Board, Los Angeles Region
SCAQ	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCEC	Southern California Earthquake Center
SCE	Southern California Edison
SF <sub>6</sub>	sulfur hexafluoride
SLIC	Spills, Leaks, Investigation and Cleanup
SO <sub>x</sub>	sulfur oxides
SPCC	Spill Prevention, Control and Countermeasure
SWPPP	Storm Water Pollution Prevention Plan
TACs	toxic air contaminants
VdB	vibration decibels
VOCs	Volatile Organic Compounds