APPENDIX A

NOTICE OF PREPARATION/INITIAL STUDY

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

SUBJECT: **NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT**

PROJECT TITLE: **BP CARSON REFINERY SAFETY, COMPLIANCE AND OPTIMIZATION PROJECT**

In accordance with the California Environmental Quality Act (CEQA), the South Coast Air Quality Management District (SCAQMD) is the Lead Agency and will prepare a Draft Environmental Impact Report (EIR) for the project identified above. The purpose of this Notice of Preparation (NOP) is to solicit comments on the environmental analysis to be contained in the EIR.

In conjunction with the development of the proposed project, it is necessary to address the potential adverse effects of the proposed project on the environment. The SCAQMD is preparing the appropriate environmental analysis consistent with CEQA. The Notice of Preparation (NOP) serves two purposes: to solicit information on the scope of the environmental analysis for the proposed project and notify the public that the SCAQMD will prepare a Draft EIR to further assess potential adverse environmental impacts that may result from implementing the proposed project. The Draft EIR will discuss all topics required by CEQA.

This NOP, and the attached Initial Study, are not SCAQMD applications or forms requiring a response from you. Their purpose is simply to provide information to you on the above project. If the proposed project has no bearing on you or your organization, no action on your part is necessary. The project's description, location, and potential environmental impacts are described in the NOP and the attached Initial Study.

The SCAQMD will hold a scoping meeting to discuss the proposed project and review the environmental issues to be discussed in the EIR on November 29, 2005, at the Carson Community Center, 801 E. Carson Street, Carson, CA 90745 at 6:00 p.m.

Comments focusing on your area of expertise, your agency's area of jurisdiction, or issues relative to the environmental analysis should be addressed to Ms. Barbara Radlein at the address shown above, sent by FAX to (909) 396-3324, or e-mailed to bradlein@aqmd.gov. Comments must be received no later than 5:00 p.m on December 9, 2005. Please include the name and phone number of the contact person for your organization.

Project Applicant: BP Carson Refinery

Date: November 8, 2005 **Signature:** Steve Smith

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

Reference: California Code of Regulations, Title 14, Sections 15082, 15103, and 15375

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
21865 Copley Drive, Diamond Bar, California 91765-4182

NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT

Project Title:
Initial Study for the Proposed BP Carson Refinery – Safety, Compliance and Optimization Project

Project Location:
The BP Carson Refinery located at 1801 East Sepulveda Boulevard, Carson, CA 90749

Description of Nature, Purpose, and Beneficiaries of Project:
BP proposes modifications to multiple Refinery process units at the Carson Refinery to: 1) attain compliance with SCAQMD Rules 1105.1, 1118, and 1173; 2) improve the safety at the Coker Gas Fractionation unit and vapor recovery systems; and, 3) improve operational efficiency of the FCC unit, Fluid Feed Hydrodesulfurization Unit, Alky Merox Unit, Alkylation Unit, Hydrocracker Unit, and Sulfur Plant. The proposed project may adversely affect air quality, hazards and hazardous materials, noise, and transportation/traffic.

Lead Agency:
South Coast Air Quality Management District

Division:
Planning, Rule Development and Area Sources

Initial Study and all Supporting Documentation are Available at:
SCAQMD Headquarters
21865 Copley Drive
Diamond Bar, CA 91765

Or by Calling:
(909) 396-2039

Or by accessing:
http://aqmd.gov/ceqa/nonaqmd.html

Scheduled Public Meeting Date:
A CEQA scoping meeting will be held on November 29, 2005, at the Carson Community Center, 801 E. Carson Street, Carson, CA 90745 at 6:00 p.m., for the proposed project.

The Notice of Preparation is provided through the following:

☑ Los Angeles Times (November 10, 2005) ☑ AQMD Website ☑ AQMD Mailing List
☑ Long Beach Press Telegram

Review Period:
November 10, 2005 through December 9, 2005

CEQA Contact Person:	**Phone Number:**	**E-Mail Address**
Barbara Radlein	(909) 396-2716	bradlein@aqmd.gov

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Initial Study for:
BP Carson Refinery
Safety, Compliance and Optimization Project

November 2005

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Submitted to:
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Prepared by:
ENVIRONMENTAL AUDIT, INC.

Reviewed by: Barbara Radlein - Air Quality Specialist
Steve Smith, Ph.D. - Program Supervisor
Frances Keeler – Senior Deputy District Counsel

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BARRY WALLERSTEIN, D. Env.

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CHAPTER 1

PROJECT DESCRIPTION

Introduction
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1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

BP is proposing a project at its Carson Refinery (Refinery) to enhance safety, to comply with South Coast Air Quality Management District (SCAQMD) rules (e.g., SCAQMD Rule 1105.1 – PM10 and Ammonia Emissions from Fluid Catalytic Cracking Units) and a settlement agreement between the SCAQMD and BP, and to optimize operations relating to various existing Refinery units including the Fluid Feed Hydrodesulfurization Reactor (FFHDS), the Fluid Catalytic Cracking (FCC) Unit, the Alky Merox Unit, the Alkylation Unit, the Hydrocracker Unit and the Sulfur Plant at the Refinery. The portion of the proposed project related to safety enhancement will focus on the Coker Gas Fractionation area, and compliance equipment will be added to the FCC unit. The proposed project will involve physical changes and additions to multiple process units and operations as well as operational and functional improvements within the confines of the Refinery.

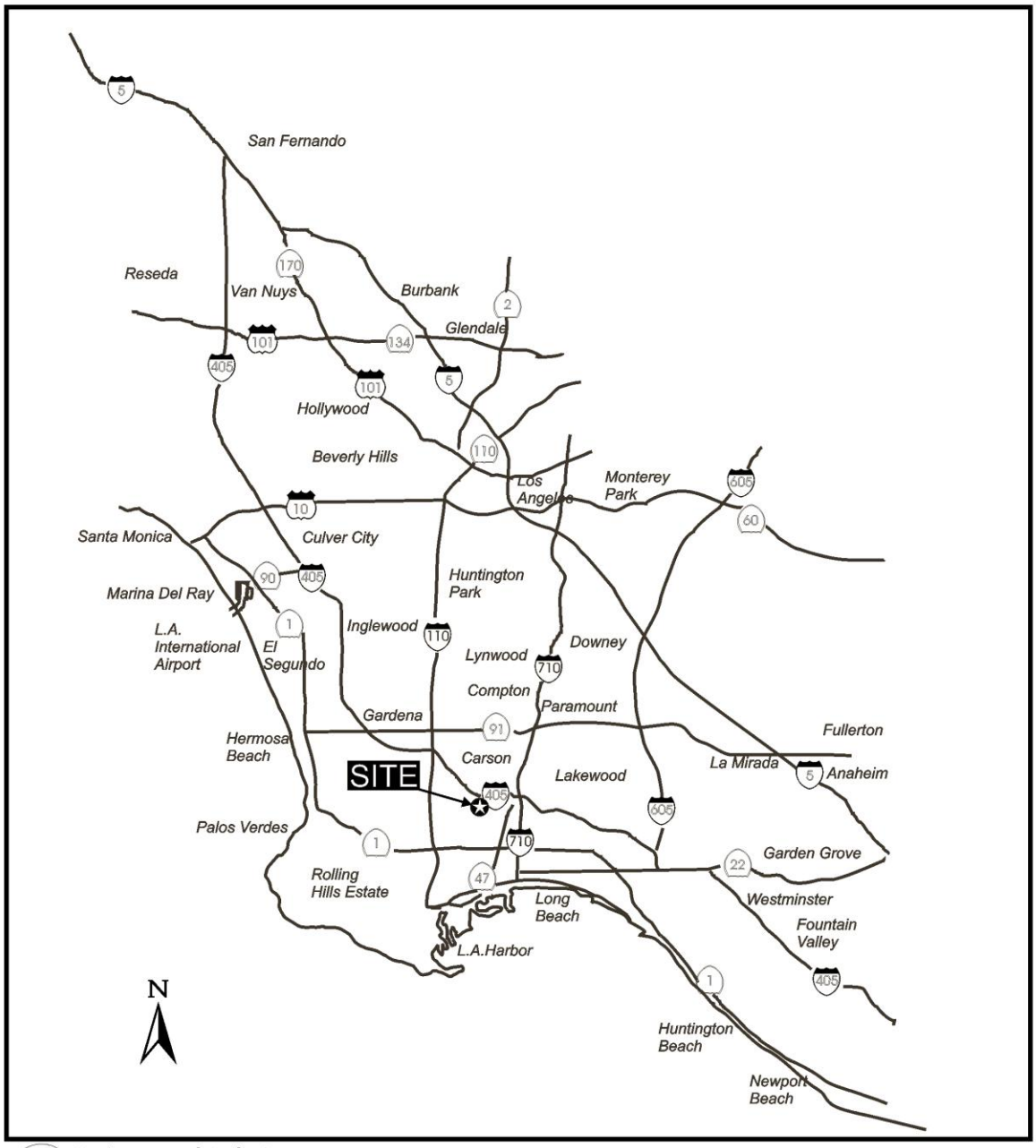
1.2 AGENCY AUTHORITY

The California Environmental Quality Act (CEQA), Public Resources Code §§21000 et seq., requires the evaluation of environmental impacts for proposed projects and requires the identification and implementation of feasible methods to reduce, avoid or eliminate significant adverse impacts from these projects. To fulfill the purpose and intent of CEQA, the SCAQMD is the lead agency for this project and has prepared a Notice of Preparation and Initial Study (NOP/IS) to address the potential environmental impacts associated with the Refinery's Safety, Compliance, and Optimization 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 effect upon the environment (Public Resources Code §21067). It was determined that the SCAQMD has the primary responsibility for supervising or approving the entire project as a whole and is the most appropriate public agency to act as lead agency (CEQA Guidelines §15051(b)). The proposed project requires discretionary approval from the SCAQMD for modifications to existing stationary source equipment and installation of new stationary source equipment.

1.3 PROJECT LOCATION

The proposed project will occur within the confines of the BP Carson Refinery, which is located at 1801 East Sepulveda Boulevard in the City of Carson, California. (Figure 1-1 shows the regional location of the Refinery within the overall southern California region and Figure 1-2 shows the site location.)



Environmental Audit, Inc.

REGIONAL MAP
BP CARSON REFINERY

Project No. 2393 Figure 1-1

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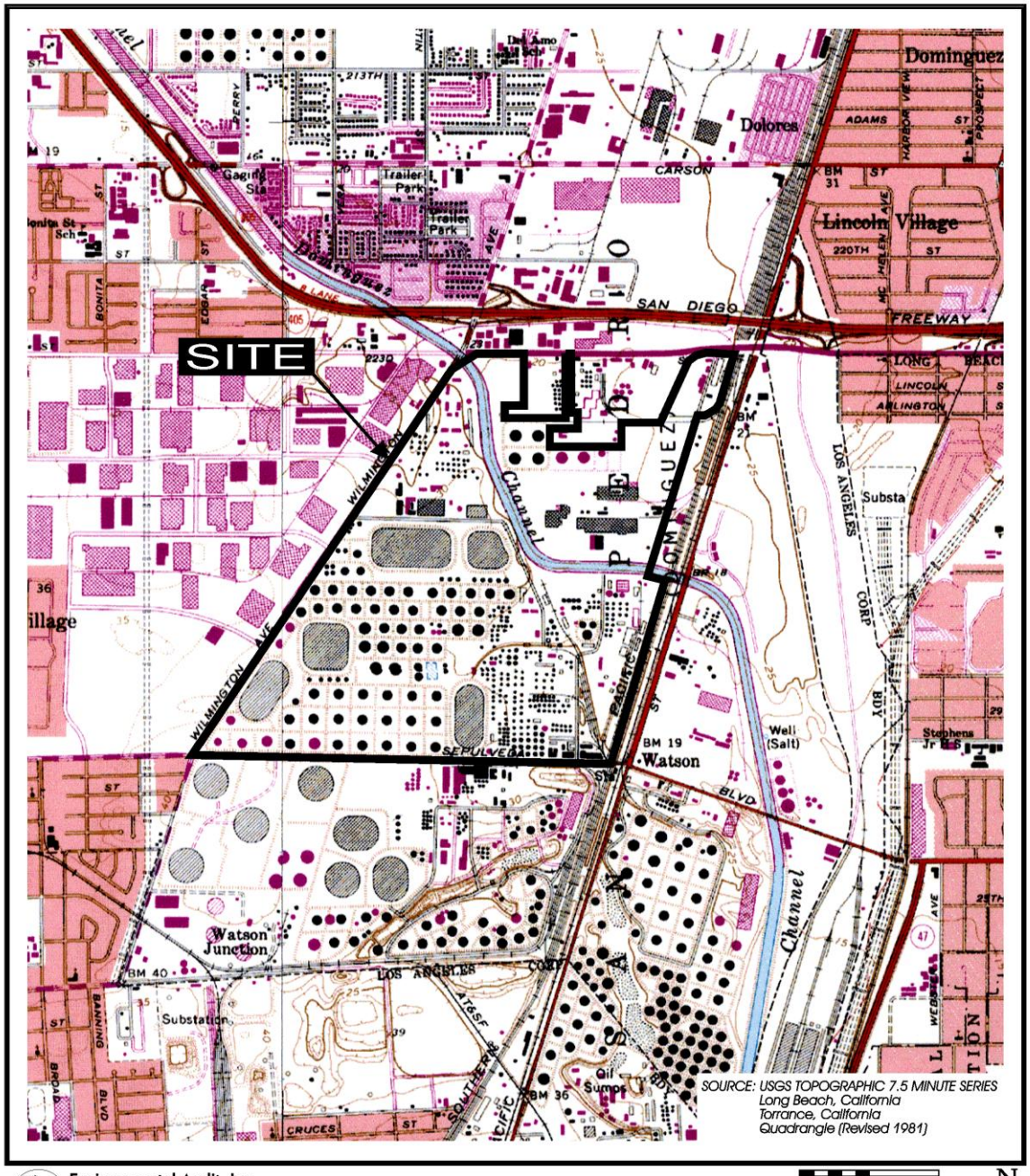


SITE LOCATION MAP
BP CARSON REFINERY

Project No. 2393

Figure 1-2

N:\2393\Site Loc Map.cdr

The Refinery is bounded by Wilmington Avenue to the west, 223rd Avenue to the north, Alameda Street to the east, and Sepulveda Boulevard to the south. The Dominguez Channel flows through the Refinery, dividing the property into two sections: Northeastern and Southern. Several industrial/commercial facilities and the 405 freeway borders the Refinery to the north. The Alameda Corridor and other industrial facilities, including the BP Coke Barn, the Air Products Hydrogen Plant, and the Shell Sulfur Plant, are located to the east of the Refinery. Commercial and residential areas lay to the west. The ConocoPhillips Refinery and tank farms occupy the area located to the south of the Refinery. The Refinery and all adjacent properties are zoned manufacturing heavy (MH). The closest residential area is approximately 3,000 feet from the property line across Wilmington Avenue to the southwest of the Refinery.

1.4 PROPOSED PROJECT MODIFICATIONS TO THE REFINERY

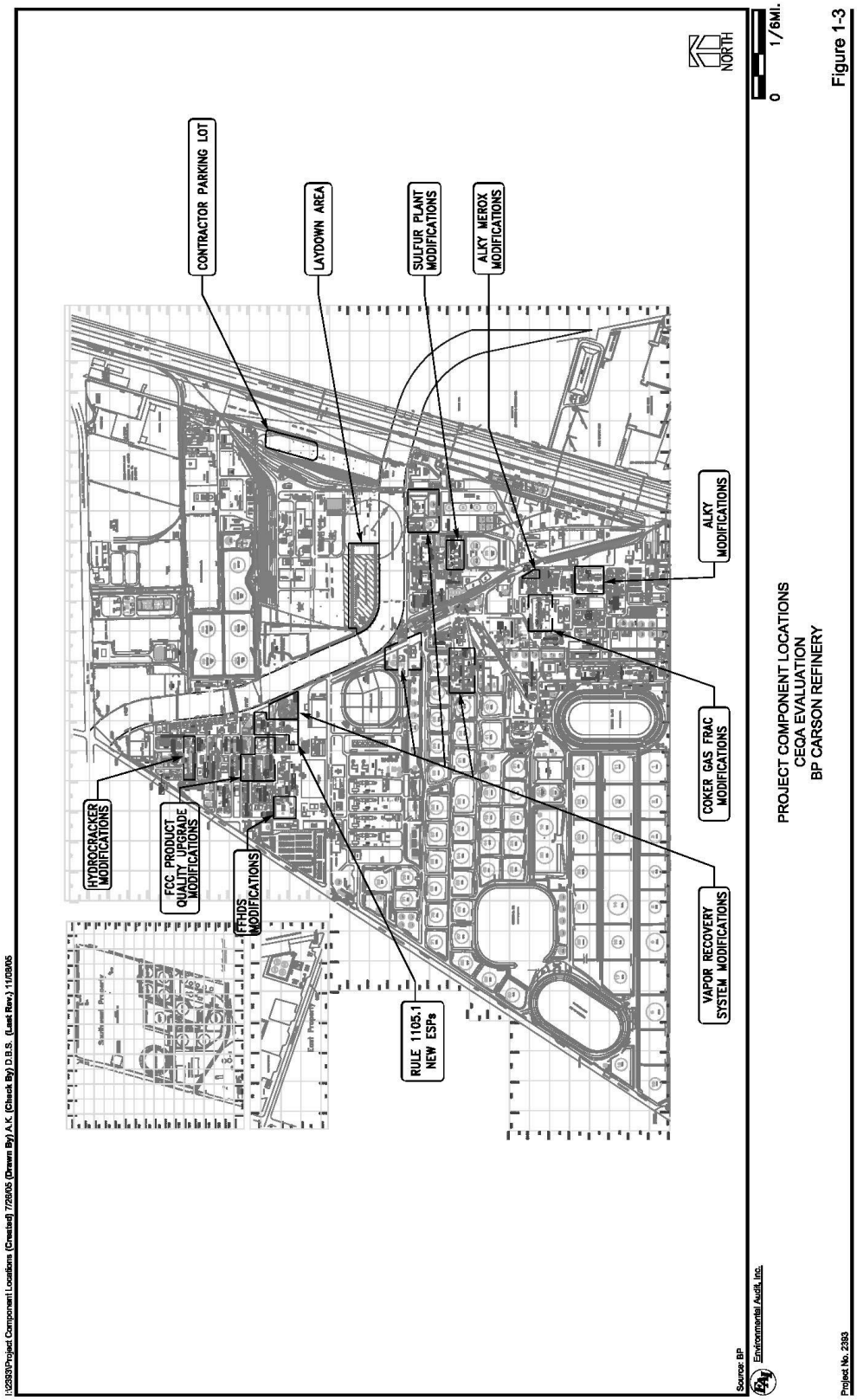
The following discussion describes each of the proposed Refinery modifications. The locations of both the proposed new and modified components are shown in Figure 1-3. The objectives of the proposed project are to enhance safety, achieve compliance with current and future effective requirements, and optimize the operations of the existing Refinery, specifically the operations of the Fluid Feed Hydrodesulfurization (FFHDS) Reactor, the FCC Unit, the Alky Merox Unit, the Alkylation Unit, the Hydrocracker Unit and the Sulfur Plant. Figure 1-4 shows each component of the proposed project and their relationship to the overall project.

A. Modify Existing Fluid Catalytic Cracking Unit

The proposed project will involve several changes to the FCC unit, including changes to allow for compliance with SCAQMD Rule 1105.1 and changes to allow for more efficient operation of the FCC unit.

Rule 1105.1 Compliance:

In November 2003, the SCAQMD adopted Rule 1105.1 - PM10 and Ammonia Emissions from Fluid Catalytic Cracking Units which regulates particulate matter less than 10 microns in diameter (PM10) and ammonia flue gas emissions from FCC units. BP currently has two existing dry electrostatic precipitators (ESPs) that process the flue gas streams and capture and reduce particulate emissions. To comply with the requirements in this rule, BP operators have evaluated their existing system and determined that it would be unable to achieve the future effective PM10 and ammonia emission reduction requirements. Thus, BP is proposing to install a new flue gas pollution control system for the FCC unit in order to bring the Refinery into compliance with Rule 1105.1. Operators at BP are proposing to replace their two existing dry ESPs with one new dual chamber ESP. Each chamber will exhaust into a common flue gas stack mounted on top of the ESP. The new ESP will be downstream of the Selective Catalytic Reduction


CONTRACTOR PARKING LOT
LAYDOWN AREA
SULFUR PLANT MODIFICATIONS
ALKY MEROX MODIFICATIONS
ALKY MODIFICATIONS
COKER GAS FRAC MODIFICATIONS
VAPOR RECOVERY SYSTEM MODIFICATIONS
RULE 1105.1 NEW ESPs
HYDROCRACKER MODIFICATIONS
FCC PRODUCT QUALITY UPGRADE MODIFICATIONS
FFHDS MODIFICATIONS
NORTH
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PROJECT COMPONENT LOCATIONS
CEQA EVALUATION
BP CARSON REFINERY
Source: BP
Environmental Audit, Inc.
Figure 1-3
Project No. 2393
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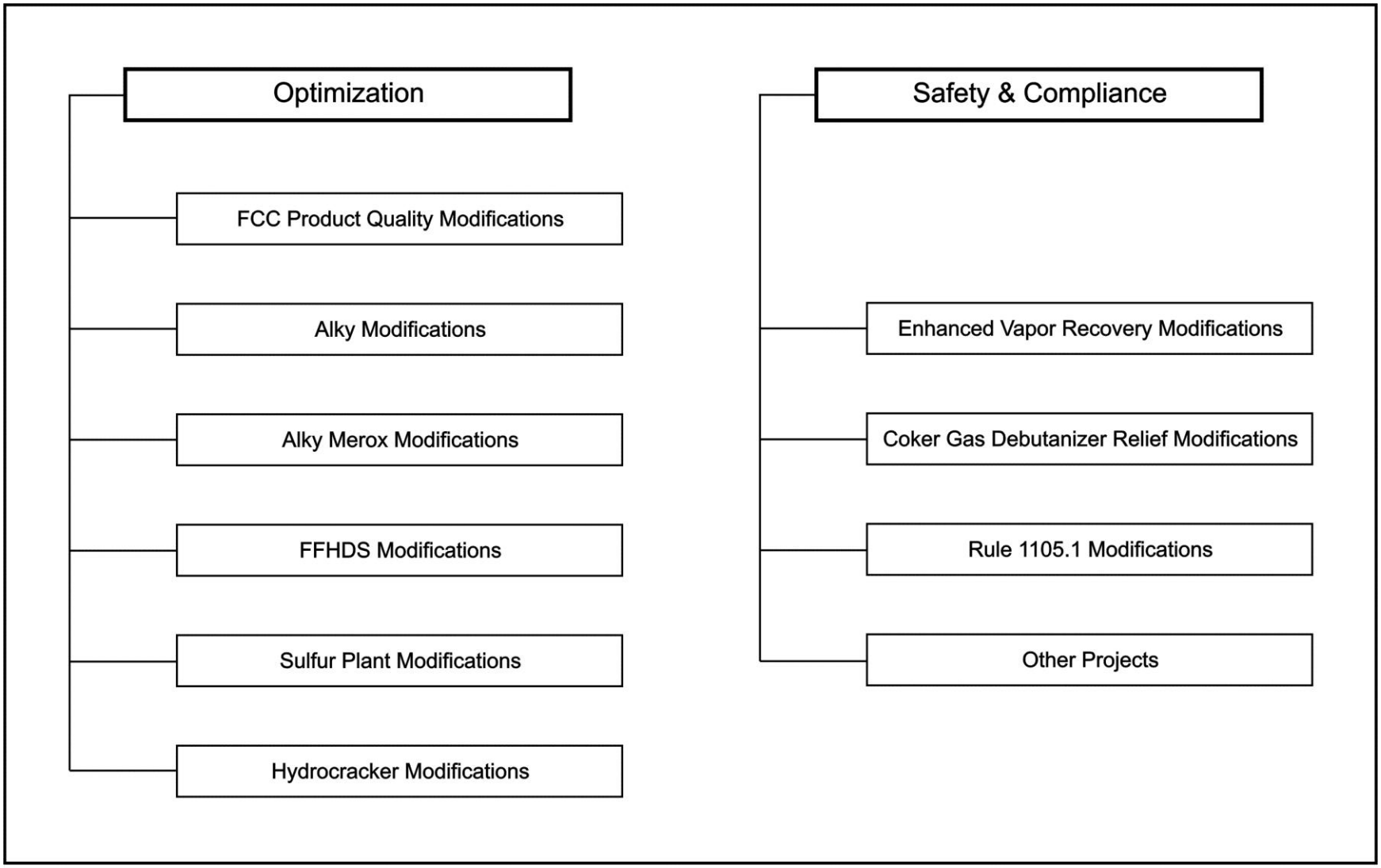

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PURPOSE OF PROPOSED PROJECT MODIFICATIONS

Project No. 2393

Figure 1-4

N:\2393\Purpose of Proposed Project Modifications.cdr

Unit (the existing ESP's are upstream of the SCR), and it will be located directly west of the existing SCR. The common stack is expected to be a maximum of 250 feet above grade. This height will be determined by the final diameter of the stack which sets the height of the stack due to the flow mixing requirements caused by the monitoring instrumentation. The proposed project also includes installing new soot blowers to clean the catalyst beds in the existing SCR.

FCC Unit Product Upgrades:

BP's FCC Unit refines heavier feedstocks known as gas oils into lighter components used for gasoline blending. This portion of the proposed project seeks to optimize the product quality by reducing the sulfur in the feed from the Fluid Feed Hydrodesulfurization (FFHDS) unit. These modifications fall into three categories: Gas Plant modifications, Reactor-Regenerator modifications, and downstream unit (i.e., units that further process products from the FCC Unit) modifications.

The Gas Plant modifications mainly involve replacement of the internal components of absorbers, strippers, and distillation columns. In some cases existing trays will be replaced with new trays, and in other cases, existing trays will be replaced with packing. In both scenarios, the separation efficiency will be increased to produce purer products. The Gas Plant modifications may also involve some upgrades to heat exchangers, pumps, and piping.

Modifications to the Reactor-Regenerator, including vessel internal components, such as cyclones and catalyst distribution rings, are proposed to optimize performance by reducing velocities and pressure drop. Some piping between the Reactor and Regenerator vessels may be replaced to provide better air and catalyst mixing. The downstream unit modifications include increasing the capacity of the Alkylation Unit (see Section D). Other modifications to the FCC unit are primarily related to changes to piping, heat exchangers, pumps, and modification to the internal configuration of vessels. The overall impact of these upgrades is to increase the capacity of the FCC unit by up to 1,000 barrels per day.

B. Install New Fluid Feed Hydrodesulfurization Reactor

BP currently has one FFHDS reactor that removes sulfur compounds from the feed to the FCC unit to produce lower sulfur end products as well as lower stack emissions. To minimize production losses during turnarounds, BP is proposing to install a second FFHDS reactor to run in parallel with the existing FFHDS reactor so that the FFHDS can run for longer periods of time between turnarounds. With the longer cycle length capability and with the ability to maintain consistent feed rate while one reactor is off-line, the FFHDS will have the flexibility to operate at consistently higher feed rates of higher feed sulfur resulting in lower product sulfur sent to the FCC unit. By producing lower feed sulfur to the FCC unit, the amount of sulfur produced from the FCC cracking reaction will also be reduced; therefore, less sulfur will need to be burned off of the catalyst, resulting in lower regenerator stack emissions. To accommodate having two

reactors operating in parallel service, the existing heater feed and outlet piping will be divided to allow the reactors to operate independently. Other modifications to support equipment such as controls, piping, pumps, and ancillary equipment will be necessary.

C. Modify Existing Alky Merox Unit

The purpose of the Alky Merox unit is to remove mercaptans (sulfur containing compounds) from the olefin streams and reduce the sulfur in the feed to the Iso-Octene and Alkylation units producing low sulfur feeds from the Iso-Octene and Alkylation Units. Currently, the Alky Merox unit does not have the capability of processing all of the olefins produced at the Refinery. Therefore, some olefin must be bypassed and fed directly to the Iso-Octene and Alkylation units. When the Iso-Octene product is blended directly into gasoline, it has the impact of raising the sulfur content in the gasoline pool. Producing lower sulfur content in gasoline is desirable because low sulfur gasoline results in fewer sulfur oxide emissions from mobile sources that use the fuel, plus it complies with local, state and federal sulfur content limitations for gasoline.

The capacity of the Alky Merox unit is limited to processing 1,000 barrels per hour. Sour olefins and some sweet olefins are fed through the Extractor to the Water Wash Tower. (Note: The term "sweet" refers to refinery streams with less than about 0.5 percent sulfur. The term "sour" refers to refinery streams with greater than about 2.5 percent sulfur.) The sour olefins are fed to the extractor to reduce the concentration of mercaptans. The extractor uses caustic to remove the mercaptans. The olefins exiting the extractor contain some residual caustic, which is removed in the subsequent water wash tower. Sweet olefins are also fed to the water wash tower in order to reduce the level of contaminants, which can poison downstream catalyst. The Extractor is currently limited to processing 600 barrels per hour. The proposed modifications to the Alky Merox unit will increase the Extractor capacity to 1,000 barrels per hour, which will be large enough to process all of the olefins produced at the Refinery. The proposed modifications include installing new vessels, piping, and other ancillary equipment.

D. Modify Existing Alkylation Unit

The main function of the Alkylation unit is to convert olefins into alkylate, a high octane and clean gasoline blending component. The Alkylation throughput is currently limited to 16,000 barrels per day and the proposed project will increase the Alkylation Unit capacity to 17,000 barrels per day. BP expects that additional olefin feed will become available from the proposed increase in production at the FCC unit, as well as projected increases of olefin purchased. BP expects that the existing Iso-Octene unit will be capable of processing a portion of the additional olefin, while the Alkylation unit will process the balance. The proposed increase in capacity will allow the Alkylation unit to process all the olefin during the annual shutdown of the Iso-Octene unit to replace the spent catalyst. To accommodate the anticipated increased demand for processing olefin, BP proposes to increase the olefin feed throughput and capacity of the Alkylation Unit by approximately five percent. The proposed modifications to the Alkylation unit will primarily affect piping, pumps, and other ancillary equipment. Additionally, existing

trays will be replaced with new trays in the Debutanizer Tower within the Alkylation Unit to improve efficiency.

E. Modify Existing Hydrocracker Unit

BP's Hydrocracker unit processes high sulfur diesel feeds into both ultra-low sulfur diesel and gasoline blending components. The throughput of the Hydrocracker Unit is currently limited by the availability of the fractionation gas plant, the capacity of the distillation tower, and product cooling constraints. Hydraulic constraints in the reaction section of the Hydrocracker unit also limit the feed rate. The Reaction Section contains old technology liquid gas distributor trays, which will be replaced with new, state of the art trays. This change will result in more efficient use of the catalyst and allow higher feed rates. BP proposes to address these other limitations by increasing the feed throughput to the Hydrocracker unit by approximately 10 percent. Project scope includes modifying gas plant towers, modifying heat exchangers, adding new product cooling, plus modifying piping, controls, and ancillary equipment.

F. Modify Existing Coker Gas Debutanizer Pressure Relief Valve

The Coker Gas Fractionation area has three towers: a Dehexanizer Tower, a Debutanizer Tower, and a Swing Tower. On November 23, 2004, there was an emergency release of hydrocarbon gas from the Debutanizer tower. This release prevented the explosion of the Debutanizer tower and was due to pressures inside the tower exceeding the designed relieving pressure of the pressure relief valve. However, the release caused approximately 6,000 pounds of volatile organic compounds (VOCs) to be emitted to the atmosphere. As a result of the release event, SCAQMD Rule 1173 requires BP to vent the Debutanizer Tower pressure relief valve to a closed system or pay a mitigation fee. BP is proposing to replace the pressure relief valve on the Debutanizer Tower and route the future emergency gas releases to an existing flare.

G. Modify Existing Sulfur Plant

BP's existing Sulfur Plant currently converts hydrogen sulfide and ammonia-rich acid gases into elemental sulfur, water, and nitrogen via a partial combustion (Claus) reaction. The current capacity of the Sulfur Plant is permitted to produce 449 long tons per day (LT/D) of elemental sulfur from the four Claus Units (A, B, C and D). To optimize the sulfur plant operations while remaining within the existing 449 LT/D permit limit, BP proposes the following changes: 1) replace diethanol amine (DEA) with methyl diethanol amine (MDEA) in the amine circulation system; 2) modify the "C" Claus Unit to allow oxygen enrichment; and, 3) modify the "D" Claus Unit with a new burner.

H. Modify Existing Vapor Recovery Systems

BP's existing vapor recovery system collects vent gases which are routed to various flares located throughout the refinery. The vapor recovery system is comprised of multiple compressors and has a combined maximum permitted compression capacity of

355,000 standard cubic feet per hour (SCFH). BP is currently operating below this level because one vapor recovery compressor (the No. 7 unit) permitted at 95,000 SCHF is not functional.

As part of the March 2005 settlement agreement between the SCAQMD and the operators of the BP Carson Refinery, BP agreed to implement a Supplemental Environmental Project (SEP) that would increase the capabilities of the existing vapor recovery system to collect and treat vent gases that would otherwise vent to the refinery flares, with a priority placed on maximizing collection of vent gas streams with high sulfur content. The SEP requires BP operators to increase the total vapor compression capacity by a minimum of 195,000 SCHF. BP operators propose to accomplish part of this obligation by replacing the No. 7 unit with a new 95,000 SCHF vapor recovery compressor. In addition, the SEP requires BP operators to invest at least $20 million towards achieving the remaining 100,000 SCHF of vapor compression capacity. BP intends to apply the $20 million by proposing the following improvements:

- Install 100,000 SCFH of reciprocating compressor capacity for flare gas recovery with exchangers, knockout drums, and a new electrical power supply.
- Install a new Water Seal on the Coker Flare to allow recovery of high sulfur containing flare gas.
- Install a flow meter downstream of the new Water Seal on the Coker Flare to measure the net flow of gas to the flare.
- Install a tie-in from the compressor discharge to the Coker Gas Plant Amine Treating Unit to remove hydrogen sulfide from the recovered gas.
- Upgrade the existing vapor recovery caustic gas treating system to improve its ability to handle peak loads.
- Add interstage cooling and knock out drums to the existing No. 5 and 6 Vapor Recovery Compressor systems to increase the availability of the systems.
- Add a local vapor recovery/Super Fractionation Integrated Area (SFIA) relief header and knock-out drum to handle additional emergency relief loads.
- Add four new pressure measurements instruments and five new oxygen measurement instruments to monitor the operation and performance of the vapor recovery system.

This SEP will reduce emissions from the Refinery by increasing the capability of the Refinery's existing vapor recovery system to collect and treat vent gases and will add the capability to collect and treat gases that previously would vent to the Refinery's flares. The Coker Flare is selected due to its high sulfur content, which will maximize the reduction of sulfur emissions.

I. Modify Other Components

BP operators and SCAQMD staff are currently discussing the potential for other compliance-related modifications to comply with future rule requirements. For example, BP operators may need to install a new compressor and other related equipment to comply with SCAQMD Rule 1118 – Control of Emissions from Refinery Flares. Though

no other specific modifications have been identified as part of this proposed project, should any additional modifications be proposed following resolution of the on-going discussions, they will be included and analyzed in the draft EIR. In other words, the proposed project description may be expanded in the draft EIR to include additional compliance-related modifications at the Refinery.

1.5 CONSTRUCTION SCHEDULE

As shown in Figure 1-5, the construction schedule for individual components of BP's Safety, Compliance and Optimization Project are expected to overlap to a certain extent. Construction activities for most aspects of the proposed project are expected to begin during the fourth quarter of 2006 and be completed by the second quarter of 2008. The construction schedule for the proposed modifications to the Vapor Recovery System is expected to begin during the second quarter of 2007 and be completed in the first quarter of 2009.

Figure 1-5
BP Carson Refinery
Safety, Compliance and Optimization Project

Construction Schedule

Project	2006												2007												2008												2009		
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
Rule 1105.1																																							
FCC Upgrades																																							
FFHDS																																							
Alky Merox																																							
Alkylation																																							
Hydrocracker																																							
Coker Gas PRVs																																							
Sulfur Plant																																							
Vapor Recovery																																							

CHAPTER 2

ENVIRONMENTAL CHECKLIST

INTRODUCTION

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

GENERAL INFORMATION

Project Title:	BP Carson Refinery Safety, Compliance, and Optimization Project
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
Contact Person:	Barbara Radlein
Contact Phone Number:	(909) 396-2716
Project Sponsor's Name:	BP West Coast Products, LLC (BP)
Project Sponsor's Address:	1801 East Sepulveda BL, Carson, CA 90749
General Plan Designation:	Heavy Industrial
Zoning:	MH – Heavy Manufacturing
Description of Project:	BP proposes modifications to multiple Refinery process units at the Carson Refinery to: 1) attain compliance with SCAQMD Rules 1105.1, 1118, and 1173; 2) improve the safety at the Coker Gas Fractionation unit and vapor recovery systems; and, 3) improve operational efficiency of the FCC unit, Fluid Feed Hydrodesulfurization Unit, Alky Merox Unit, Alkylation Unit, Hydrocracker Unit, and Sulfur Plant. Refer to Section 1.4 for a more complete description.
Surrounding Land Uses and Setting:	Land uses surrounding the BP Carson Refinery are mostly heavy manufacturing with the exception of an area with mixed light manufacturing, residential, and commercial uses located to the northwest across E. 223rd Street, and an area of mixed residential and light manufacturing uses located to the southwest. Refer to Section 1.3 Project Location for a more complete description.
Other Public Agencies Whose Approval may be Required:	City of Carson

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental checklist provides a standard evaluation tool to identify a proposed project's potential adverse environmental impacts. 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.

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

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: November 8, 2005 Signature: Steve Smith

Steve Smith, Ph.D.
Program Supervisor

ENVIRONMENTAL CHECKLIST AND DISCUSSION

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

Checklist Response Explanation

1. a), b), and c)

Since there are no scenic vistas or resources at or in the vicinity of the Refinery, the proposed project will have no adverse impacts on scenic vistas or resources.

All construction and operational activities will take place within the boundaries of the existing Refinery. The new Refinery equipment to be installed or existing Refinery equipment to be modified as part of the proposed project will be similar in size, appearance, and profile to the existing equipment at the Refinery.

Except for the use of cranes, the majority of construction equipment that will be used for the proposed project will be low in height and will not be visible to the surrounding area due to the presence of existing fences and other structures which buffer the views. During construction, two to six cranes (depending on the phase of construction) may be visible to the surrounding industrial areas. Since the construction activities are temporary in nature, all construction equipment will be removed following completion of the proposed project.

Upon completion of construction, the proposed project will introduce a minor visual change to the Refinery. The proposed modifications to the Alky Merox Unit, the Alkylation Unit, the Coker Gas Debutanizer unit, and the Sulfur Plant modifications will not result in the addition or removal of new structures, so no aesthetic impacts will be generated by these proposed modifications. Of all the modifications proposed for the entire project, only the following new structures will be installed:

- A new gas treating column, as part of the vapor recovery system modification, is estimated to be five feet in diameter and 80 feet high.

- Part of the Hydrocracker modifications will include the replacement of the existing air cooler. A new air cooler will be the same height as the existing air cooler (about 50 feet high) and two new scrubber towers will replace two existing scrubber towers at the same height as the existing towers (56 and 60 feet high).

- As part of the FFHDS modification, a new reactor will be added that will be about 105 feet high.

- As part of modifications to the FCC unit, a new, larger ESP will replace the existing ESP which will share a common stack that is expected to be a maximum of 250 feet high.

Of the new structures, only the gas treating column, the new reactor in the Fluid Feed HDS unit, and the stack for the new ESP are expected to be visible to the areas outside of the Refinery. The gas treating column will be located within the Refinery, where there are a number of existing stacks, vessels, and structures in the range of 70 to 130 feet in height. The new reactor in the FFHDS unit will be located within about 25 feet and will be the same height as the existing reactor in the FFHDS unit. The new reactor will be surrounded by other existing stacks and vessels that range between about 53 and 125 feet in height. The overall appearance and size of the new reactors for the FFHDS unit is not expected to differ significantly from the existing FFHDS unit or from other existing Refinery units.

The common stack for the new ESP in the FCC unit will be a maximum of 250 feet in height. Other tall stacks and vessels are located near the FCC unit, including the SCR stack (135 feet tall) and two other stacks (both 130 feet tall). A number of large existing vessels are associated with the FCC unit, including the disengager (150 feet tall) and the Regenerator (110 feet tall). A number of other existing Refinery structures are in the same height range as the new ESP stack including the crude heater stack (230 feet tall), the hydrogen plant heater stack (250 feet tall), the Sulfur Recovery Unit heater stack (200 feet tall), the hydrogen plant heater SCR unit stack (250 feet tall), the coker flare (203 feet tall), the FFHDS flare (215 feet tall), the naphtha HDS flare (265 feet tall), and the sulfur recovery plant incinerator flare (200 feet tall). The new ESP stack will be surrounded by a number of existing stacks and vessels and located within the Refinery, which is an industrial area so that no significant adverse impacts to aesthetics are

expected. Since residential areas are located about one-half mile away from the proposed project locations within the Refinery, additional stacks and vessels located within the existing operating portions of the Refinery are not expected to be noticeable in residential areas.

1. d) Construction activities are not anticipated to require additional lighting because they are scheduled to take place during daylight hours. However, if the construction schedule requires nighttime activities, temporary lighting may be required. Since construction of the proposed project is completely located within the boundaries of the existing Refinery, additional temporary lighting is not expected to be discernible from the existing permanent night lighting.

Additional permanent light sources will be installed on the new equipment, such as the FFHDS reactor and the gas treating column, to provide illumination for operations personnel at night, in accordance with applicable safety standards. These additional light sources are not expected to create an impact because each component of the proposed project will be located within an existing industrial facility, which is already lighted at night for nighttime operations. Further, new lighting that will be installed on the proposed equipment will be consistent in intensity and type with the existing lighting on equipment and other structures at the Refinery that are being replaced or modified. Also, since residential areas are located about one-half mile away from the proposed project locations within the Refinery, additional lighting at the site is not expected to be noticeable in residential areas. Therefore, no significant impacts to light and glare are anticipated from the proposed project.

Conclusion

Based upon these considerations, no significant impacts on aesthetics are expected. Therefore, aesthetics impacts will not be addressed in the EIR.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
2.0	**AGRICULTURE RESOURCES**. Would the project:			
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☑

		Potentially Significant Impact	Less Than Significant Impact	No Impact
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☑
c)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☑

Checklist Response Explanation

2. a) All proposed modifications would occur within the confines of the existing Refinery. The proposed project would be consistent with the heavy industrial zoning for the Refinery (MH). No agricultural resources are present at or in the vicinity of the Refinery and no new land will be acquired as part of the proposed project. Further, the proposed project would not convert farmland (as defined in Question 2.a) to non-agricultural use or involve other changes in the existing environment that could convert farmland to non-agricultural use or conflict with agricultural land uses, or Williamson Act contracts.

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

Conclusion

Based upon these considerations, no significant impacts on agricultural resources are expected from the proposed project. Therefore, agricultural resources impacts will not be analyzed in the EIR.

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

Checklist Response Explanation

3. a) The 2003 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 some of the inputs used to develop the AQMP. As indicated in the Population and Housing and Transportation/Traffic sections, the proposed project will not require additional Refinery employees or generate additional traffic during operation. Therefore,

the proposed project will not cause increases in the growth projections in the City of Carson General Plan. Additionally, this project must comply with applicable SCAQMD requirements and control measures for new or modified sources. For example, new emission sources associated with the proposed project are required to comply with the SCAQMD's Regulation XIII - New Source Review requirements that include the use of Best Available Control Technology (BACT) and emission reduction credit offsets for any emission increases greater than one pound per day. It must also comply with prohibitory rules, such as SCAQMD Rule 403 – Fugitive Dust. By meeting these requirements, the project will be consistent with the goals and objectives of the AQMP.

3. b) Some of the proposed project components will generate air emissions including the FFHDS unit, the FCC unit upgrades and the Alkylation unit modifications. The proposed project must comply with SCAQMD rules and regulations. Some portions of the proposed project such as modifications to the FCC unit and the Refinery's overall Vapor Recovery System are being completed for air quality compliance purposes and to reduce existing Refinery emissions (e.g., SCAQMD Rule 1105.1 Compliance).

Construction activities associated with the proposed project would result in emissions of carbon monoxide (CO), PM10, VOCs, nitrogen oxides (NOx) and sulfur oxides (SOx). Construction activities include standard land preparation activities including grading, pouring new foundations, and all other activities associated with the installation of the new equipment. Construction-related activities will generate emissions from worker vehicles, trucks, and construction equipment. The air quality impacts associated with the construction phase of the proposed project are potentially significant and will be evaluated in the EIR.

The proposed project would add emission sources to the Refinery including pumps, valves, and flanges and some of the proposed project modifications will result in an increase in the throughput of the unit (FCC unit, Alky Merox unit, Alkylation unit, and the Hydrocracker unit). The SCAQMD requires the installation of BACT for new emission sources within the South Coast Air Basin, which should minimize project-related emissions. In addition, the new dry ESP for the FCC unit is an emission control device that is designed to reduce PM10 emissions. Nonetheless, the proposed project impacts on air quality during the operational phase are potentially significant and will be evaluated in the EIR.

The proposed project may also alter the transport of raw materials to the Refinery and the transport of products from the Refinery. The emission impacts related to changes in the amount or type of materials transported will be evaluated in the EIR.

3. c) The proposed project may result in an increase in emissions from the operation of the Refinery and has the potential to result in cumulative impacts. Since the project-specific air quality impacts may be significant, they may contribute to impacts that are cumulatively considerable. The cumulative air quality impacts are potentially significant and will be evaluated in the EIR.

3. d) New emission sources associated with the proposed project may emit toxic air contaminants. The impact of the emissions of toxic air contaminants on sensitive populations, including individuals at hospitals, nursing facilities, daycare centers, schools, and elderly intensive care facilities, as well as residential and off-site occupational areas, will be evaluated in the EIR.

3. e) The proposed project is not expected to create significant objectionable odors, either during construction or during operations. Sulfur compounds (e.g., hydrogen sulfide) are the primary sources of odors from existing operations throughout the Refinery. The sulfur-bearing materials are handled and treated in the Sulfur Recovery Units where they are converted to elemental (solid) sulfur, which does not emit an appreciable odor. Though the Refinery will continue to process sulfur-bearing materials in the Sulfur Recovery Units, the proposed project would modify the existing Sulfur Recovery Units to use MDEA rather than DEA, since MDEA is more efficient that DEA. Neither DEA or MDEA produce odors. While the use of MDEA is expected to be more efficient than the currently used DEA, the proposed project will not increase the capacity of the Sulfur Recovery Unit so that modifications proposed to the Sulfur Recovery Units are not expected to increase the potential for odors. Ammonia can have a strong odor; however, the proposed project is not expected to generate additional ammonia emissions. Further, the Refinery maintains staff available 24 hours per day for odor investigation which contributes to minimizing the frequency and magnitude of odor events. In addition, all new and modified components of the proposed project will be required to comply with BACT requirements as well as existing SCAQMD rules and regulations, including Rule 402 - Prohibition of Nuisances. Compliance with BACT and Rule 402 is expected to help minimize the frequency and magnitude of odor events at the Refinery. Therefore, no significant odor impacts are expected from constructing and implementing the proposed project.

3. f) The 2003 AQMP demonstrates that applicable federal ambient air quality standards can be achieved within the timeframes required under federal law. This proposed project must comply with applicable SCAQMD rules and regulations as well as control measures applicable to new or modified sources. For example, new emission sources associated with the proposed project are required to comply with the SCAQMD's Regulation XIII – New Source Review requirements that include the use of BACT. The project proponent must also comply with prohibitory rules, such as Rule 403, for the control of fugitive dust. By meeting these requirements, the project will be consistent with the goals and objectives of the AQMP to improve air quality in the Basin. In addition, some modifications associated with the proposed project will result in a reduction in emissions, e.g., the modifications to the FCC Unit to install the new ESP and the enhanced vapor recovery system. Further, the proposed project is consistent with the 2003 AQMP and is not expected to diminish an existing air quality rule or a future compliance requirement.

Conclusion

Project-specific and cumulative adverse air quality impacts associated with increased emissions of air contaminants (both criteria air pollutants and toxic air contaminants)

during the construction and operation phases of the proposed project will be evaluated in the EIR. Impacts to sensitive receptors will also be analyzed in the EIR.

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

Checklist Response Explanation

4. a), b), c), d), e), and f) The proposed project will be located in a heavy industrial area, entirely within the existing boundaries of BP's Carson Refinery. The Refinery has been fully developed and is essentially void of vegetation with the exception of some landscape vegetation near administration buildings. The Refinery limits the growth of vegetation at the site for fire prevention purposes.

One animal species listed as a federal and state species of special concern, the burrowing owl (*Athene cunicularia)*, was reported in 1985 as occurring in the southwest area of the Refinery (east of the Dominguez Channel) in an inactive tank farm located across Sepulveda Boulevard (SCAQMD, 1993). However, proposed project construction and operational activities will not occur in this area of the Refinery property. A review of the California Natural Diversity Data Base did not reveal records of special status species at or within one mile of the Carson Refinery (CNDDB, 2005). Based on the disturbed nature of the Refinery site, the industrial nature of the proposed and existing activities at the site, and the absence of records of special status species, no specific wildlife surveys were considered necessary and none were performed. 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. The proposed project will 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. The proposed project will not result in the addition or the elimination of water ponds that could be used by animals or migratory fowl. Further, the proposed project will not adversely affect federally protected wetlands as defined in §404 of the Clean Water Act. As discussed in Subchapter 9 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 Refinery. 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 in the active portion of the Refinery site. The project would not impact any local policies or ordinances that protect biological resources or conflict with the provisions of a Habitat Conservation Plan or other similar plan. Because the area in and near the Refinery is devoid of native habitat, impacts to other, non-listed species are not expected.

The proposed project will not include the acquisition of additional land for use by the Refinery or expansion outside of the Refinery's current boundaries, which further eliminates the potential for new adverse biological resource impacts. Based on the preceding discussion, no significant adverse impacts on biological resources are expected from the proposed project; therefore, this topic will not be analyzed in the EIR.

Conclusion

Based upon these considerations, both the construction and operation activities associated with the proposed project are not expected to have significant adverse impacts to

biological resources since no native habitat or wildlife species are located within the confines of the Refinery boundaries. Therefore, biological resources will not be analyzed in the EIR.

		Potentially Significant Impact	Less Than Significant Impact	No Impact
5.0	**CULTURAL RESOURCES.** Would the project:			
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☑
b)	Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	☐	☐	☑
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☑
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☑

Checklist Response Explanation

5. a) CEQA Guidelines state that "generally, a resource shall be considered 'historically significant' if the resource meets the criteria for listing in the California Register of Historical Resources including the following:

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

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

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

D) Has yielded or may be likely to yield information important in prehistory or history" (CEQA Guidelines §15064.5).

Generally, resources (buildings, structures, equipment) that are less than 50 years old are excluded from listing in the National Register of Historic Places[1] unless they can be shown to be exceptionally important) (SCVTA/FTA, 2004). The buildings, structures, and equipment associated with the proposed project are not listed on registers of historic resources, and 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 be likely to yield historically important information. The only components of the proposed project that are being removed are old Refinery structures including fans, blowers, ESP, extractor tower, DEA scrubber tower, pumps, and a condensate tank. None of these structures meet the aforementioned historical significance criteria. Therefore, no significant impacts to historic cultural resources are expected as a result of implementing the proposed project.

5. b), c), and d) Portions of the BP Carson Refinery are located in an area of high archaeological sensitivity. As discussed in the CARB Phase 3/MTBE Phase-Out Project Final EIR (SCAQMD, 2001), the Tongva/Gabrielino village site know as Suangna is located at and near a portion of the Refinery and a large cemetery (CA-LAN-262) was exposed at the property in 1998 (east of the Dominguez Channel). Earth disturbance associated with the construction of the proposed project will not impact the known limits of either of these sites. Further, no human remains have been identified in previous projects in the active portion of the Refinery west of the Dominguez Channel and since the proposed project is located west of the Dominguez Channel, the proposed project is not expected to disturb any human remains.

The entire active portion of the Refinery site has been previously graded and developed. Proposed project activities will occur in areas of the Refinery where the ground surface has already been disturbed, and this past disturbance reduces the likelihood that previously unknown cultural resources will be encountered. Further, the Refinery site does not contain known paleontological resources and thus the proposed project also is not expected to impact any sites of paleontological value.

While the likelihood of encountering cultural resources is low, there is still a potential that additional buried archaeological resources may exist. Any such impact would be eliminated by using standard construction practices and complying with state law, which require the following, in the event that unexpected sub-surface resources were encountered:

- 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 this occurred;

- Monitoring of subsurface earth disturbance by a professional archaeologist and a Gabrielino/Tongva representative if cultural resources are exposed during construction;

[1] The eligibility criteria of the California Register criteria are modeled on those of the eligibility criteria of the National Register of Historic Places.

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.

Conclusion

Based upon the preceding discussion, no significant adverse impacts on cultural resources could occur during the construction of the proposed project. Therefore, impacts of the proposed project on cultural resources will not be evaluated in the EIR.

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

Checklist Response Explanation

6. a) and e) The proposed project is not expected to conflict with energy conservation plans or energy standards. It is in the economic interest of BP to conserve energy and comply with existing energy standards in order to minimize operating costs. New equipment installed as part of the proposed modifications are expected to be as efficient or more efficient as the equipment that will be replaced. Further, energy used to operate the new pumps and compressors associated with the proposed project is not considered a

wasteful use of energy that will interfere or conflict with existing energy conservation plans.

6.b) It is not expected that natural gas-fired or electrically powered construction equipment or vehicles will be used and; thus, there will be no need for new or substantially altered power or natural gas utility systems during construction of the proposed project. No increase in the use of natural gas is expected from the proposed project. The proposed project will not result in the need for new or substantially altered power or natural gas utility systems, because the power and natural gas needed to operate the new and modified equipment are available from the existing Refinery utility system.

6. c) and d) Construction of the proposed project is not expected to involve the use of construction equipment that is fueled by natural gas; thus, construction of the proposed project will not affect natural gas demand. No increase in electrical demand at the Refinery is expected during the construction of the proposed project. Electrical demand at the Refinery can continue to be met with the Refinery's existing electrical supply from the existing on-site Watson Cogeneration Plant, from which the Refinery receives almost all of its electrical power.

Diesel and gasoline fuel will be consumed in construction equipment as well as by construction worker's vehicles used for commuting to and from the construction site and trucks used for deliveries of equipment, materials, and supplies. Table 2-1 shows the projected diesel and gasoline fuel use during construction of the proposed project and compares the estimated usage to the applicable available fuel supply. As shown in the table, the projected fuel use for both diesel and gasoline during construction is a small percentage of the total fuel available. Since the increased demand for fuel is so small and construction activities are not considered wasteful activities, increased demand for fuel during construction is not considered to be a significant adverse energy impact. In short, the equipment and vehicles needed for construction-related activities associated with implementation of the proposed project are necessary and will not use energy in a wasteful manner. There will not be a substantial depletion of energy resources nor will significant amounts of fuel be needed when compared to existing supplies. These results confirm that the energy impacts during construction of the proposed project will not be significant.

The Watson Cogeneration facility has a generation capacity of over 320 megawatts (MW) and supplies the Refinery with approximately 727,000 MW-hours per year. Even though BP's operators also purchase approximately 257 MW-hours per year from Southern California Edison, the anticipated electrical demand for the proposed project is expected to be about 2200 kilowatts (kw) or about 2.2 MW which will be wholly supplied from their Watson Cogeneration Plant. Therefore, no significant adverse impacts on electricity consumption are expected.

TABLE 2-1

Total Projected Fuel Usage for Construction Activities

Construction Activity	Total Fuel Usage Per Type (gallons)	
	Diesel	Gasoline
Project Total	85,000	30,000
Threshold Fuel Supply[a]	1,086,000,000	6,469,000,000
Percent of Fuel Supply	0.006	0.0007
Significant (Yes/No)[b]	No	No

[a] Year 2000 California Energy Commission (CEC) Projections. Construction activities in future years would yield similar results.

[b] SCAQMD's Energy Threshold for both diesel and gasoline is one percent of supply.

Operation of the proposed project is not expected to increase the amount of natural gas consumption. Therefore, the proposed project will not result in the need for new or substantially altered power or natural gas utility systems, because the power and natural gas needed to operate the new and modified equipment are available from the existing Refinery utility system. Therefore, no significant impacts on energy are expected due to the construction and operation of the proposed project.

Conclusion

Project-specific energy resources impacts associated with increased demand for electricity, natural gas, gasoline and diesel fuel during the construction and operation phases of the proposed project are less than significant. Therefore the impacts of the proposed project on energy resources will not be evaluated in the EIR.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
7.0 GEOLOGY AND SOILS. Would the project:			
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☑	☐
Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	☑
Strong seismic ground shaking?	☐	☑	☐
Seismic–related ground failure, including liquefaction?	☐	☑	☐

	Potentially Significant Impact	Less Than Significant Impact	No Impact
Landslides?	☐	☐	☑
b) Result in substantial soil erosion or the loss of topsoil?	☐	☑	☐
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☑	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☑	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☑

Checklist Response Explanation

7. a) The Los Angeles area is located within a seismically active region. The most significant potential geologic hazard at the Refinery is seismic shaking from future earthquakes generated by active or potentially active faults in the region. Seismic records have been available for the last 200 years, with improved instrumental seismic records available for the past 50 years. Based on past earthquake data, most of the earthquake epicenters occurred along the San Andreas, San Jacinto, Whittier-Elsinore and Newport-Inglewood faults (Jones and Hauksson, 1986). All of 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 Refinery as a result of earthquakes. However, faults in the Los Angeles area are potential sources of strong ground shaking, including the following: 1) the San Andreas fault; 2) the Newport-Inglewood fault; 3) the Malibu-Santa Monica-Raymond Hills fault; 4) the Palos Verdes fault; 5) the Whittier-Elsinore fault; 6) the Sierra Madre fault; 7) the San Fernando fault; 8) the Elysian Park fault; and 9) the Torrance-Wilmington fault. The Refinery is located near but not within the earthquake fault zones delineated as part of the Alquist-Priolo Special Study area for the Newport-Inglewood fault zone. Since the Refinery is located approximately 4.3 miles southwest of this fault zone, it is not expected to be subject to significant surface fault displacement.

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.

Liquefaction is a mechanism of ground failure whereby earthquake-induced ground motion transforms loose, water-saturated granular material to a liquid state. The northeast corner of the Refinery has been identified by the California Division of Mines and Geology as an area that has the potential for permanent ground displacements due to liquefaction. However, the equipment locations that will be affected by the proposed project are not in this area of the Refinery and, thus, liquefaction impacts are not expected.

Based on the historical record, it is highly probable that earthquakes will affect the Los Angeles region in the future. Research shows that damaging earthquakes will occur on or near recognized faults which show evidence of recent geologic activity. The proximity of major faults to the Refinery increases the probability that an earthquake may adversely affect the Refinery. There is the potential for damage to both new and existing structures in the event of an earthquake. Impacts of an earthquake could include structural failure, spill, etc. The hazards of a release during an earthquake are addressed in the following section 8.0 - Hazards and Hazardous Materials.

As the topography at the Refinery is generally level, the potential is negligible for slope instability at the sites where construction is planned. In addition, the use of standard engineering practices for building within a seismically active area requires that design and construction practices for the proposed project adhere to applicable earthquake safety codes. Further, the City of Carson is responsible for assuring that the proposed project complies with the Uniform Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major earthquakes without collapse, but with some structural and non-structural damage. The Uniform Building Code bases seismic design on minimum lateral seismic forces ("ground shaking"). The Uniform Building Code requirements operate on the principle that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site. As such, BP operators will adhere to the current Uniform Building Code Zone 4 requirements for designing and construction the new and modified Refinery equipment.

Specifically, BP operators will be required to submit building plans to the City of Carson for review in order to obtain building permits, as applicable, for all proposed new and modified structures at the site. Prior to commencing construction activities, BP operators

of the Carson Refinery must receive approval of all proposed building plans and obtain building permits to assure compliance with the latest version of the local Building Code as adopted by the City of Carson. The issuance of the required building permits will assure compliance with the Uniform Building Code requirements, include requirements for construction activities within seismic hazard zones. Therefore, no significant impacts from seismic hazards are expected since the proposed project will be required to comply with the Uniform Building Codes and, thus this issue will not be further analyzed in the EIR.

7. b) The proposed project involves the addition of new vessels and stacks such that some grading, excavation, and trenching will be required to prepare the affected sites within the Refinery for stable foundations. Erosion from wind or water could occur during construction of the proposed project because some soil is expected to be exposed during these grading and excavation activities at the locations where new or modified equipment are proposed to be sited. However, the area of soil disturbance associated with construction of the proposed project will be small (a combined total of less than 0.1 acre disturbed for all of the proposed project locations within the Refinery). Standard construction grading practices and retention features will contain runoff. Further, the proposed project will be required to comply with SCAQMD Rule 403 which requires various measures to control fugitive dust, (e.g., application of water during ground disturbing activities), and these measures will minimize wind erosion. The combination of these factors will combine to keep impacts to an insignificant level. No unstable earth conditions or changes in geologic substructures are anticipated to result from implementing the proposed project because of the limited grading and excavation that will be involved and the character of the local topography. No significant impacts on topography and soils are expected.

The proposed project is located within the confines of the existing Refinery. Concrete pavement currently supports several of the existing structures and equipment at the Refinery. Most roads within the Refinery, including all major roads, have been paved to minimize fugitive dust emissions and reduce soil erosion.

No significant change in topography is expected that could substantially increase wind erosion or runoff from affected sites because minimal grading, excavation, and trenching (less than 0.1 acre) will occur during construction of the proposed project. Relative to operational activities, no change in surface runoff is expected because once the construction is complete, surface conditions of the newly installed equipment will be similar to the surface conditions of the existing equipment. Further, surface runoff is minimized because surface runoff at all facilities is typically captured, treated, and released to the public sewerage system or storm drain system. Thus, no significant impacts on soil erosion is expected.

7. c) Soil liquefaction can accompany strong earth movement caused by earthquakes. Liquefaction would most likely occur in unconsolidated granular sediments that are water saturated less than 30 feet below ground surface (Tinsley et al., 1985). The pore water pressure can increase in certain soils during extended periods of ground shaking which

can change the soil from a solid to liquid state. Structures that are built on soils subject to liquefaction can sink during an earthquake and be damaged since the soils cannot support their weight.

The California Division of Mines and Geology has prepared seismic hazard map zones for areas in California as required by the Seismic Hazards Mapping Act (Public Resources Code §§ 2690-2699.6). The Refinery is located in the Long Beach Quadrangle and the area has been mapped for seismic hazards by the Division of Mines and Geology. The Hazard Map for the area shows that the Refinery is located within an area where there has been historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions that have a potential for permanent ground displacements in the event of an earthquake (California Division of Mines and Geology, Map of Seismic Hazard Zones, Long Beach Quadrangle, March 25, 1999). The issuance of building permits from the local agency will assure compliance with the Uniform Building Code requirements, which include requirements for building within potential liquefaction zones. No significant impacts from liquefaction are expected since the project will be required to comply with the Uniform Building Codes.

In addition, the proposed project is not expected to experience a landslide or mudflow conditions since the topography of the Refinery site is flat. No other unique geological resources have been identified at the Refinery. Thus, the proposed project is not expected to result in significant adverse impacts due to unstable geologic or soils conditions.

7. d) No expansive soils as defined in Table 18-1-B of the Uniform Building Code are present in areas where construction of the proposed project will occur. Therefore, the proposed project will not create substantial risk to life or property as a result of expansive soils and; thus, is not expected to result in significant adverse impacts due to expansive soils.

7. e) Sanitary wastewater from the Refinery is discharged to the Los Angeles County Sanitation District sewer system so installation of alternative wastewater treatment systems is not included as part of the proposed project. Because wastewater associated with the proposed project will be discharged to the Refinery's existing sewer system, the ability of soils at the Refinery site to support septic tanks or other alternative wastewater disposal systems has no bearing on the proposed project.

Conclusion

Based upon these considerations, no significant adverse impacts on geology and soils are expected from the proposed project. Therefore, impacts of the proposed project on geology and soils will not be analyzed in the EIR.

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

i)	Significantly increase fire hazard in areas with flammable materials?	☑	☐	☐

Checklist Response Explanation

8. a) and b) Though hazard analyses have been previously completed for the equipment at the existing Refinery, the proposed project may alter the existing hazards setting. For example, some of the new units that are proposed to be installed, such as the new FFHDS reactor, may increase the amount of hydrogen sulfide stored on-site and increase the potential hazards at the Refinery in the event of a release from the FFHDS reactor. The proposed project could also increase the potential for fires and explosions associated with additional storage/use of flammable materials. In addition, the proposed project may increase the quantity of hazardous materials that will need to be transported to the Refinery for use (e.g., ammonia, sulfuric acid, etc.). The proposed project may also alter the transportation modes for feedstock and products delivered to and shipped from the Refinery and related terminals. The potential hazard impacts related to the proposed project are potentially significant and will be addressed in the EIR.

Increases in potential hazards associated with the implementation of the proposed project could potentially alter the probability for upset and accident conditions that could cause a release of hazardous materials into the environment. The potential effects of an accidental release of the additional hazardous materials being stored, used and transported as part of implementing the proposed project will be evaluated in the EIR.

8. c) The Refinery is not located within a one-quarter mile of an existing or proposed school site. Since the proposed project will not create emissions of acutely hazardous materials, or handle hazardous or acutely hazardous materials, substances or waste within one-quarter of a mile of an existing or proposed school, no potential hazards impacts are expected to affect schools.

8. d) Government Code §65962.5 refers to a list of facilities which may be subject to the Resource Conservation and Recovery Act (RCRA) corrective action program. The Carson Refinery is listed on the RCRA database as a State Equivalent of Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) site (CALSITE) and as a leaking underground storage tank (LUST) site. Hazardous wastes from the facility are managed in accordance with applicable federal, state, and local rules and regulations. The BP Carson Refinery is included on a list prepared pursuant to Government Code §65962.5. CEQA (Public Resources Code §21092.6) requires the following information for sites which are listed pursuant to Government Code §65962.5:

Applicant: BP Carson Refinery

Address:	1801 East Sepulveda Boulevard, Carson, CA 90749
Phone:	(310) 816-8100
Address of Site:	1801 East Sepulveda Boulevard, Carson, CA 90749
Local Agency:	City of Carson
Assessor's Book:	7315-006-003
List:	LUFT/SLIC
Case No:	R-20190/0224

Currently, there is no evidence that soil contamination is located within the areas of the Refinery that are proposed for construction. However, given the heavily industrialized nature of the Refinery and the fact that refining activities, petroleum storage, and distribution have been conducted at the site for over 75 years, construction activities associated with the proposed project such as grading, excavating, and trenching could potentially uncover contaminated soils.

In the event that any excavated soils contain concentrations of certain substances, including heavy metals and hydrocarbons, the handling, processing, transportation and disposal of the contaminated soils will be subject to multiple 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 materials. If contaminated soils are encountered during the excavation phase of the proposed project, the soils will be removed for proper decontamination and disposal in accordance with SCAQMD's Rule 1166 – Volatile Organic Compound Emissions From Decontamination of Soil and BP's Soils Handling Plan. Contaminated soil would be stored at a temporary holding location within the Refinery before transport to an appropriate facility. As previously mentioned in Section 7.b, the area of soil disturbance associated with construction of the proposed project will be small (a combined total of less than 0.1 acre disturbed for all proposed project locations within the Refinery). Based on the relatively small quantity of soil expected to be disturbed as part of the proposed project and considering that most of contaminated soil found during previous construction activities at the Refinery was determined not to be hazardous waste, no significant impacts are expected from the potential for encountering contaminated soils during grading, excavation and trenching. Therefore, impacts related to soil contamination will not be evaluated in the EIR.

8. e) and f) The proposed project site is not located within an airport land use plan or within two miles of a public or private use airport. Therefore, no safety hazards impacts are expected from the proposed project on any airport.

8. g) The Refinery operators have prepared a Risk Management Program (RMP) for the hazardous materials (butane, pentane, hydrogen sulfide, and ammonia) that are currently used at the facility**.** The County of Los Angeles Fire Department (FD) administers this program through the California Accidental Release Prevention (CalARP) program. In

addition, the Refinery operators have prepared an Emergency Response Manual (ERM). This manual describes the emergency response procedures that will be followed in the event of any of several release scenarios and the responsibilities for key response personnel. Included in the ERM are release scenarios involving ammonia and hydrogen sulfide.

The ERM will be modified prior to the start of operation of the proposed project to include emergency response procedures and responsibilities in the event of a release of hazardous substances. After the modifications are made, the proposed project will not impair implementation of or physically interfere with an adopted emergency response plan or emergency evaluation plan.

There are three factors that determine the applicability of CalARP and RMP regulations to processes involving hazardous materials): 1) quantity, 2) mixture fraction, and 3) vapor pressure. In terms of quantity, the new HDS Reactor is expected to involve more than the CalARP threshold quantity of hydrogen sulfide. The threshold quantity of hydrogen sulfide under the CalARP program is 500 pounds, while under RMP it is 10,000 pounds. Mixtures of hydrogen sulfide are exempt from CalARP and RMP if the weight fraction of the substance is less than one percent. Finally, hydrogen sulfide is exempt if its partial pressure is less than 10 mm mercury (Hg). The applicability of RMP and CalARP to the proposed project will be based on a detailed analysis of the three factors identified above specifically for the new HDS Reactor in the Fluid Feed HDS unit.

Modifications under the RMP and CalARP are required for covered processes if changes to usage or the process can reasonably be expected to produce a change by a factor of two in the distance to the endpoint for the off-site consequence analysis. Modifications are also required if there is a major change to the process requiring a new process hazard analysis. BP will conduct a detailed review of the proposed project in order to determine the applicability of the CalARP and RMP regulations to the proposed project and the potential need to modify the Refinery's RMP and CalARP plans if the processes are covered.

As part of the review of the proposed project under the RMP and CalARP programs, a process hazard analysis will be conducted to verify the materials and engineering adequacy of the proposed modifications. In addition, procedure changes under the RMP and Process Safety Management (PSM) programs will require a review of the changes to ensure that no unexpected or adverse interactions with existing systems occur. Such reviews are required as part of the RMP, CalARP, and PSM programs for covered processes. It is expected that such reviews will take place if the threshold quantities of regulated substances are exceeded in any elements of the proposed project (i. e., the HDS Reactor in the Fluid Feed HDS unit).

Lastly, the proposed project modifications are located within the existing operating portions of the Refinery. The proposed project is not expected to alter the route that employees would take to evacuate the site, as the evacuation routes generally directs

employees outside of the main operating portions of the Refinery. No significant impacts on emergency response or evacuation plans are expected.

8. h) The proposed project will not increase the existing risk of fire hazards in areas with flammable brush, grass, or trees because the site of the proposed project is located in an urban area and no wildlands are located in the immediate or surrounding area. Also, no substantial or native vegetation exists within the operational portions of the Refinery. For these reasons, the proposed project would not expose people or structures to wildland fires. Therefore, no potential significant adverse impacts resulting from wildland fire hazards are expected from the proposed project.

8. i) New vessels, such as the HDS Reactor in the Fluid Feed HDS unit and the compressors for vapor recovery system, will be required as part of the proposed project and are expected to contain flammable materials. Due to the proximity of the new vessels and the sources of these flammable materials within the refinery, should a torch fire occur, it would likely remain on-site and not be exposed to the public. Nonetheless, because existing components at the Refinery currently store large volumes of flammable materials and the proposed project will also involve flammable materials, the potential fire hazards associated with the proposed project will be evaluated in the EIR.

Conclusion

The effects of an accidental release of hazardous materials being stored, used and transported are potentially significant and will be evaluated in the EIR. Fire hazards associated with the proposed new vessels will also be analyzed in the EIR.

	Potentially Significant Impact	**Less Than Significant Impact**	**No Impact**
9.0 HYDROLOGY AND WATER QUALITY. Would the project:			
a) Violate any water quality standards or waste discharge requirements?	☐	☑	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☑	☐

	Potentially Significant Impact	Less Than Significant Impact	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	☐	☑	☐
d) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☑	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☑	☐
f) Otherwise substantially degrade water quality?	☐	☑	☐
Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☑
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	☐	☐	☑
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☑
j) Inundation by seiche, tsunami, or mudflow?	☐	☑	☐
k) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☑	☐
l) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☑	☐

	Potentially Significant Impact	Less Than Significant Impact	No Impact
m) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☑	☐
n) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☑	☐
o) Require 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?	☐	☑	☐

Checklist Response Explanation

9.2. a), k), l), and o) Wastewater Generation

Wastewater streams from the Refinery include process wastewater, boiler blowdown, sanitary wastewater, and surface runoff. Process wastewater and surface water streams are treated by the Refinery's existing wastewater treatment facilities prior to discharge to the Los Angeles County Sanitation District (LACSD) sewer system; the sanitary wastewater stream is discharged directly to the sewer without prior treatment. Wastewater from the Refinery is treated and sampled in compliance with the LACSD Industrial Wastewater Discharge Permit. The LACSD places limitations on wastewater parameters such as oil and grease contents, pH levels, temperature, heavy metals, organic compounds and so forth. Wastewater that complies with the LACSD permit requirements is discharged to the sewer. Wastewater that does not comply is returned to the wastewater treatement system for further treatment.

The Refinery is also permitted to discharge stormwater commingled with treated process water to Dominguez Channel. The Refinery's permit contains mass limits for stormwater discharge to the channel based on a certain flow volume, but does not set volume limits per se. If concentrations of contaminants are lower than permit limits, the Refinery can discharge more water without exceeding the permit mass limits. However, if concentrations are higher than permit limits, then discharge volumes must be lower to avoid exceeding the permit mass limits. Though the Refinery is permitted to discharge 2.87 million gallons per day of boiler blowdown to Dominguez Channel, no boiler blowdown is currently discharged to the channel. The location where the Refinery can

discharge to the channel is at an outfall point approximately 2,200 feet west of the Alameda Street Bridge.

The Refinery currently discharges an average of 4.7 million gallons per day of wastewater to the sewer system. The Refinery's current Industrial Wastewater Discharge Permit allows discharge of up to 6.0 million gallons per day. The proposed project is expected to increase the wastewater discharge by an estimated 50 gallons per day due to an increase in caustic wastewater generated by the Alky Merox unit. No other proposed project modifications are expected to result in an increase in wastewater. Once the proposed project becomes fully operational, the total discharge of wastewater is projected to be 4.70005 million gallons per day, which will be well within the existing permit limit such that no permit modifications will be necessary.

Wastewater will continue to be discharged in compliance with the LACSD Industrial Wastewater Discharge permit so no significant impacts on wastewater are expected from the proposed project. Storm water will also continue to be discharged in compliance with the Storm Water Pollution Prevision Plan so no significant impacts on storm water discharge are expected from the proposed project.

9. b) and n) Water Demand

The Carson Refinery obtains its water from a combination of sources including: 1) purchased potable water from the California Water Service via various well sources; 2) non-potable service water from BP owned wells; and, c) reclaimed water. In 2004, the Refinery consumed about 12.5 million gallons of water per day which was used in many of the refining support processes such as the crude desalting units, cooling towers, and steam generators. Of this amount, approximately 5.8 million gallons per day or 46 percent was potable water, 3.9 million gallons per day or 31 percent came from BP owned wells, and 2.8 million gallons per day or 22 percent was reclaimed water.

The proposed project is not expected to increase the water demand at the Refinery. Therefore, the overall impact on water demand is considered to be less than significant and will not be evaluated further in the EIR.

9. c), d), e), f) and m) Surface Water

The Refinery is located on the Dominguez Channel and approximately 1.5 miles west of the 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. Water quality objectives and beneficial uses for the Dominguez Channel tidal prism have been established by the RWQCB, Los Angeles Region, in the Water Quality Control Plan for the Los Angeles River Basin (1978).

The proposed project is expected to increase paved areas at the Refinery by less than 0.1 acre so that no measurable increase in storm water is expected from the proposed project. The minor increase in paved areas will be required for compliance with Rule 1105.1, the Hydrocracker modifications, the enhanced vapor recovery unit, the Fluid Feed HDS, the FCC Unit modifications, and the modification to the Alkylation Unit. No major modifications to the Refinery's existing storm water collection system is expected. For the existing portions of the Refinery site that are currently paved, they will remain paved as part of the proposed project. As with all of the existing units within the Refinery, modifications to the Refinery that include the aforementioned units will be built with curbs to contain surface water runoff. Thus, no significant changes to surface water runoff are expected due to the proposed project. Further, the proposed project will be constructed within the currently developed boundaries of the Refinery and runoff is currently handled in the aforementioned existing surface water treatment systems. Runoff is collected, treated (if applicable), and discharged under the requirements of the existing storm water permit, National Pollutant Discharge Elimination System (NPDES) permit or the Industrial Wastewater Discharge Permit. Because the topography of the site will remain unchanged during operation, the proposed project is not expected to result in a noticeable increase in surface water runoff due to the increase in paved areas (less than 0.1 acre). Therefore, no significant adverse impacts are expected to result from water runoff associated with the proposed project.

9. g), h), and i) Flooding

The proposed project involves the construction activities to install new equipment and modify existing equipment within the existing BP Carson Refinery footprint. However, implementation of 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 along the Los Angeles River. Since the Refinery is not located within a 100- or 500-year flood hazard area, and since the proposed project is located within the existing Refinery boundaries, 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.

9. j) Other Hazards

There are no open ponds or embayments at the Refinery site, so the potential for seiching is considered to be less than significant. The proposed project site is located approximately four miles from both the Los Angeles Harbor and Long Beach Harbor which are constructed with breakwaters that protect the port areas so the potential for a tsunami to adversely affect the Refinery site is considered less than significant. The proposed project site is located in a flat area with no hills or mountains nearby so the potential for significant impacts from mudflows is considered less than significant.

Conclusion

The potential adverse impacts of the proposed project on hydrology and water quality resources are expected to be less than significant and will not be analyzed further in the EIR.

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

Checklist Response Explanation

10. a) Implementation of the proposed project includes improvement and modifications that would occur entirely within the boundaries of the existing heavily industrialized Refinery. The nature of the overall function and products produced at the Refinery will remain the same. No new land will be acquired for the proposed project and no zoning and/or land use changes will be necessary. As no established communities are located on

the Refinery property, the proposed project would not disrupt or physically divide an established community.

10. b) Prior to the incorporation of Carson as a city, the County of Los Angeles issued Special Permit (No. 621) to the Refinery operators. This land use permit allows BP to establish, operate, and maintain a Refinery in accordance with land use and zoning requirements of the City of Carson. Development consistent with the use of the site as a Refinery is in compliance with this permit and no additional, separate land use permits from the City of Carson are necessary. Also, the Refinery is not located within the Coastal Zone and; thus, the proposed project is not within the jurisdiction of the California Coastal Commission. Since the proposed project is consistent with existing zoning and land use requirements and with Special Permit No. 621, it is not expected to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the proposed project adopted for the purpose of avoiding or mitigating an environmental effect.

10. c) The proposed project would occur entirely within the boundaries of the existing heavily industrialized Refinery for which no habitat or natural community conservation plans exist, and, therefore, would not conflict with any applicable habitat conservation or natural community conservation plan.

Conclusion

The impact of the proposed project on land use is expected to be less than significant. Land use issues will not be further evaluated in the EIR.

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

Checklist Response Explanation

11. a) and b) Implementation of the proposed project would occur entirely within the boundaries of the existing heavily industrialized Refinery. There are no known mineral resources on the project site. Therefore, the proposed project will not be located on a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Furthermore, because there are no known mineral resources on the Refinery site, the proposed project will not 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.

Conclusion

Since no significant adverse impacts to mineral resources are expected from implementing the proposed project; the topic of mineral resources will not be analyzed in the EIR.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
12.0 NOISE. Would the project result in:			
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☑	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☑	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☑	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☑	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☑

	Potentially Significant Impact	Less Than Significant Impact	No Impact
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☑

Checklist Response Explanation

12. a), b), c), and d) Construction activities associated with the proposed project will generate noise from heavy construction equipment and construction-related traffic. The types of construction equipment that will be used at the Refinery include, but are not limited to, welding machines, trucks, cranes, compressors, loaders, concrete pumps, graders, and pavers. The estimated noise level during installation of various equipment is expected to average about 80 decibels (dBA) at 50 feet from the center of construction activity. Most of the construction noise sources will be located at or near ground level, so the noise levels are expected to attenuate. Nonetheless, the potential construction noise impacts may be significant.

Once constructed, the proposed project is expected to produce noise in excess of current operations. The proposed project will add new noise sources to the Refinery including pumps and fans. These anticipated increases in noise sources are potentially significant and the impacts will be analyzed further in the EIR.

12. e) and f) The proposed project site 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 expose people residing or working in the area to noise related to airports.

Conclusion: The noise impacts associated with the proposed project are potentially significant and will be analyzed further in the EIR.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
13.0 POPULATION AND HOUSING. Would the project:			
a) Induce substantial growth in an area either directly (for example, by proposing new homes and businesses) or indirectly (e.g. through extension of roads or other infrastructure)?	☐	☐	☑

	Potentially Significant Impact	Less Than Significant Impact	No Impact
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☑
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☑

Checklist Response Explanation

13. a), b) and c) Construction activities at the Refinery will not involve the relocation of individuals, impact housing or commercial facilities, or change the distribution of the population because the proposed project will occur completely within the boundaries of an existing industrial site. The construction work force, which is temporary, is expected to come from the existing labor pool in the southern California area. Additionally, once the proposed project is complete, operation activities are not expected to require new permanent employees at the Refinery. Since all potential impacts will occur at an existing industrial facility, displacement of housing of any type is not anticipated from the proposed project. Therefore, implementation of the proposed project is not expected to have a significant adverse impact on population, population distribution, or housing.

Conclusion

No significant adverse impacts on population, population distribution, or housing are expected due to the proposed project; therefore, the topic of population and housing will not be analyzed in the EIR.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
14.0. PUBLIC SERVICES. Would the proposal result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:			

	Potentially Significant Impact	Less Than Significant Impact	No Impact
a) Fire protection?	☐	☑	☐
b) Police protection?	☐	☑	☐
c) Schools?	☐	☐	☑
d) Parks?	☐	☐	☑
e) Other public facilities?	☐	☐	☑

Checklist Response Explanation

14. a) To respond to emergency situations, the Carson Refinery maintains an on-site fire department, which is supplemented by the resources of public fire departments, primarily the Los Angeles County Fire Department (FD). There are four Los Angeles County FD stations that serve the Carson area: 1) Station 127 at 2049 E. 223rd Street; 2) Station 10 at 1860 E. Del Amo; 3) Station 36 at 127 W. 223rd Street; and, 4) Station 116 at 755 E. Victoria. Construction of the proposed project is likely to require an update to the Refinery's Risk Management Program (RMP), which would be coordinated with the Los Angeles County FD.

Compliance with state and local fire codes is expected to eliminate the need for additional fire protection services. The Refinery is served by its own emergency response team along with local fire department and other emergency services. The proposed project will include requirements for fire protection services that are available from existing services. Fire-fighting and emergency response personnel and equipment will continue to be maintained and operated at the Refinery. Close coordination with local fire departments and emergency services will also continue.

Construction activities are not expected to result in an increased need for fire response services. Construction activities include safeguards, monitoring for hazards with equipment designed to detect sources of flammable gases and vapors, written procedures, training, and authorization of equipment used on-site.

14. b) The Los Angeles County Sheriff's Department is the responding agency for law enforcement needs in the vicinity of the existing Refinery. Because sheriff units are in the field, response times vary depending on the location of the nearest unit.

The Refinery has an existing security department that provides 24-hour protective services for people and property within the fenced boundaries of the site. As part of their regular duties, the security department will monitor construction activities associated with the proposed project since they will occur within the confines of the Refinery. Along with the existing work force, entry and exit of the construction work force will be similarly monitored. Once implemented, the proposed project is not expected to change

Refinery staffing or substantially expand existing facilities. Thus, no additional or altered police protection will be required for the proposed project.

14. c), d), and e) Since the proposed project is not expected to require additional staffing during operations, an increase in the local population is not expected. Therefore, no impacts are expected to schools, parks, or other public facilities as a result of implementing the proposed project.

Conclusion

No significant adverse impacts on public services are expected from implementing the proposed project; therefore, the topic of public services will not be analyzed in the EIR.

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

Checklist Response Explanation

15. a) As previously concluded in Section 14 of this document, implementation of the proposed project is not expected to increase the local population. Therefore, implementation of the proposed project is not expected to increase the demand for neighborhood or regional parks, or other recreational facilities and it will not adversely affect existing recreational opportunities. Due to the heavy industrialization of the area, there are no recreational opportunities at or in the immediate vicinity of the Refinery.

15. b) Implementation of the proposed project does not include new recreational facilities or require expansion of existing recreational facilities and, thus, will not have an adverse physical effect on the environment.

Conclusion

No significant adverse impacts on recreation are expected from the proposed project. Therefore, impacts of the proposed project with respect to the topic of recreation will not be analyzed in the EIR.

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

Checklist Response Explanation

16 a) and b). In 2004, the Refinery transported approximately 9,705 tons of waste for disposal off-site. The type and amount of waste disposed by the BP Carson Refinery is shown in Table 2-2. The "other waste streams" in Table 2-2 include waste generated including ammonium bisulfate, carbon disulfide, ethylene glycol, transformers and paint sludge.

A Class I disposal site can accept hazardous wastes, defined as wastes that exhibit certain characteristics (ignitability, corrosivity, reactivity, and toxicity) or appear on certain lists that specify hazardous wastes. A Class II disposal site can accept "designated wastes", which include hazardous wastes that are not required to be disposed at Class I disposal facilities and non-hazardous waste posing a greater threat to water quality than non-hazardous solid waste. A Class III disposal site can accept only non-hazardous solid waste, often referred to as municipal solid waste. BP transports non-hazardous solid waste to two Class III disposal facilities. These facilities, plus their respective remaining and permitted capacities, are shown in Table 2-3.

TABLE 2-2

Off-Site Waste Shipments from the Carson Refinery During 2004

Waste Description	Quantity (Tons)
Non-Hazardous Soil	4,473
Spent Catalyst (non-RCRA)(1)	1,883
Spent Catalyst (RCRA)(2)	939
Asbestos Containing Materials (including Soil)	1,068
Oil/Water/Sludge Separation Solids (Wastewater)	203
Oily Production Trash	184
Spent Non-Hazardous Catalyst	166
Spent Carbon	143
Cooling Tower Debris	51
Total Coke/Charcoal	30
Other Waste Streams	565
TOTAL	**9,705**

(1) Non-RCRA wastes are waste streams that are not regulated by the federal Resource Conservation and Recovery (RCRA) Act regulations. Non-RCRA waste streams tend to be regulated by state but not federal regulations.

(2) RCRA waste streams are regulated by the federal RCRA regulations.

TABLE 2-3

Disposal Facilities Used by the BP Carson Refinery

Facility Name	Facility Type	Facility Class	Remaining Capacity (yds^3)	Permitted Capacity (yds^3)
Waste Management – Palmdale (Los Angeles County): Antelope Valley Public Landfill	Solid waste landfill Large volume waste transfer facility	Class III	2, 980,000	6,480,000
Waste Management - Azusa, (Los Angeles County): Azusa Land Reclamation Co. Landfill	Inert waste disposal site Major waste tire facility Asbestos Containing Materials disposal site Contaminated soil facility Solid waste disposal site	Class III	34,100,000	66,670,000

Source: www.ciwmb.ca.gov/SWIS

There are no Class I hazardous waste disposal sites within the southern California area. Any hazardous waste generated by the Refinery, such as contaminated soil, is

transported to a licensed hazardous waste disposal facility located either in-state or out-of-state. There are two hazardous waste facilities in California that are closest to the BP Refinery: 1) the Chemical Waste Management Inc. (CWMI) Kettleman Hills facility located in Kings County; and, 2) the Clean Harbors facility located in the city of Buttonwillow in Kern County. Currently the Kettleman Hills facility has an estimated available capacity of four million cubic yards. However, upon completion of a berm expansion, the capacity is projected to increase by five million cubic yards for a total of nine million cubic yards. The Kettleman Hills facility expects to continue receiving wastes for approximately nine years under its current permit. The facility is in the process of permitting a new landfill which would extend the life of the operation another 15 years[2]. The Clean Harbors facility in Buttonwillow has a remaining capacity of approximately 9 million cubic yards. The expected life of the Clean Harbors Landfill is approximately 40 years[3].

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

Construction activities associated with the proposed project will increase the amount of solid waste generated and disposed. For example, demolition activities are expected to generate wastes from the following tasks: 1) removal of concrete; 2) removal of asphalt; 3) removal of steel; and 4) removal of soil. The BP Carson Refinery currently has an alliance arrangement with Waste Management, Inc., to handle most types of waste generated at the Refinery. Also, the Refinery has a well-developed waste handling system to maximize recycling, whenever feasible, such as the following: 1) employee use of different colored containers (e.g., yellow for common trash, blue for aluminum cans, green for oil process trash) to allow easy separation of waste materials; 2) a main recycling area within the Refinery where materials such as large batteries, electronic wastes, and fluorescent lamps are collected; and, 3) indoor recycling collection areas for materials such as small batteries and toner cartridges.

The proposed project will also generate typical construction-related debris such as wood, cardboard, paper, plastic, et cetera. Non-recyclable solid wastes generated during construction of the proposed project will be taken to an appropriately classified disposal facility. As shown in Table 2-3, wastes generated at the Refinery are taken to two facilities for disposal. Though knowing which specific disposal facility will receive waste cannot be predicted prior to generating and classifying the type of construction

[2] Personal Communication, Terry Yarbough, Chemical Waste Management Inc., June 2004.
[3] Personal Communication, Marianna Buoni, Safety-Kleen (Buttonwillow), Inc., June 2004

debris, sufficient remaining capacity is expected to be available at the same waste disposal facilities that currently receive waste from the Carson Refinery. Thus, the quantities of non-recyclable solid wastes that are expected to be generated from constructing the proposed project are not expected to exceed the individual capacity of each disposal facility.

Construction of the proposed project is expected to generate small amounts of hazardous wastes, including materials such as empty aerosol cans, paint cans, oil rags, and used motor oil. The relatively small amounts of hazardous wastes expected to be generated will have a minimal impact on the capacity of any disposal facility qualified to receive this type of waste. Further, if contaminated soils are encountered during the excavation phase of the proposed project, the soils will be removed for proper decontamination and disposal in accordance with SCAQMD's Rule 1166 – Volatile Organic Compound Emissions From Decontamination of Soil and BP's Soils Handling Plan. Contaminated soil would be stored at a temporary holding location within the Refinery. It would be hauled from this temporary holding location for off-site disposal on weekends, when other construction activities for the proposed project are not occurring. It is anticipated that it would be hauled to the Azusa Land Reclamation Co. Landfill.

As with the current operations at the Refinery, wastes generated by the operation of the proposed project will also be managed and/or disposed of in compliance with applicable federal, state, and local statutes and regulations. The proposed new and modified equipment associated with the proposed project will perform the similar functions as the existing equipment. The proposed project is expected to generate increased amounts of sulfuric acid (due to the Alkylation Modifications) and increased catalyst waste (e.g., associated with the proposed modifications to the FFHDS reactor and the FCC unit). BP plans to regenerate the sulfuric acid instead of disposal, so no substantial increase in waste is expected due to the proposed modifications to the Alkylation unit. In addition, as with the current procedures at the Refinery, the additional amounts of recovered catalyst will be transported for recycling offsite, so no increase in waste disposal of catalyst is expected.

The existing ESPs in the FCC Unit generate waste associated with removing particulate matter from the flue gas. This waste particulate matter is usually non-hazardous solid waste. The modification to the FCC Unit to comply with SCAQMD Rule 1105.1 will add a more efficient ESP, generating a slight increase in particulate matter collected in the ESP. The waste generated by the new ESP is expected to be the same composition and greater in volume than the waste currently generated by the existing ESP.

In the Final Environmental Assessment prepared for SCAQMD Rule 1105.1 (SCAQMD, 2003), the SCAQMD determined that, an additional 0.5 ton per day of filterable PM10 and two tons per day of total PM10 (which results in approximately 1.5 tons per day of condensable PM10 or 1.5 tons per day of ammonia) will be collected by the affected refineries as a result of complying with the emissions standards in SCAQMD 1105.1. The waste is associated with solid materials collected from the air pollution control

equipment being replaced or modified, as applicable, and catalysts, et cetera, and may result in an incremental increase in the total waste generated by each affected refinery. However, the wastes generated by refineries are typically minimized through each refinery's waste minimization plan combined with their current practices of regenerating, reclaiming or recycling catalysts, in lieu of disposal. Though some of the affected refineries send their PM10 waste as hazardous waste to a Class III landfill, most of the collected PM10 is recycled at a local California Portland Cement manufacturer. Thus, the majority of the potential increase of solid waste collected by the air pollution control equipment is not expected to be disposed of and, therefore, is not expected to exceed the capacity of designated landfills available to each affected refinery (SCAQMD, 2003). Based on the above, the waste from the new ESP is not expected to significantly increase the volume of solid or hazardous wastes, require additional waste disposal capacity, or generate waste that does not meet applicable local, state, or federal regulations.

In summary, the relatively small increases in the amounts of solid and hazardous wastes that are expected to be generated during the construction and operation for the proposed project are not expected to exceed the available capacity of solid or hazardous waste disposal facilities. Further, implementation of the proposed project will neither require additional waste disposal capacity nor will it interfere with the ability of BP operators to comply with applicable local, state, or federal waste disposal regulations. Thus, the proposed project is not expected to result in adversely significant solid waste or hazardous waste impacts.

Conclusion

Less than significant adverse impacts on solid/hazardous waste are expected from the proposed project. Therefore, impacts of the proposed project on solid/hazardous waste will not be analyzed further in the EIR.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
17.0 TRANSPORTATION/TRAFFIC. Would the project:			
a) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☑	☐	☐

		Potentially Significant Impact	Less Than Significant Impact	No Impact
b)	Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☑	☐	☐
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☑	☐
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☑	☐
e)	Result in inadequate emergency access ?	☐	☑	☐
f)	Result in inadequate parking capacity?	☐	☑	☐
g)	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	☐	☐	☑

Checklist Response Explanation

17. a) and b) The proposed project will increase the traffic in the area associated with construction workers, construction equipment, and the delivery of construction materials. The impacts of the traffic impacts during the construction phase will be analyzed in the EIR.

Once construction of the proposed project is completed, the existing work force at the Refinery is not expected to increase as a result of this project so that operation-related traffic is expected to be minimal, and less than significant.

17. c) The proposed project includes modifications to existing equipment and installation of new equipment within the existing Refinery. The proposed modifications and new structures will be similar in height and appearance to the existing Refinery structures. Since the proposed modifications and new structures will not be greater than 250 feet in height and are not expected to result in a change to air traffic patterns, notification to the

Federal Aviation Administration pursuant to Advsiroy Circular AC 70/7460-2K is not required. Further, since the Refinery is located about four miles west of the nearest airport, Long Beach Airport (LGB), the Refinery is located outside of the normal flight pattern of LGB. In addition, the proposed project will not involve the delivery of materials via air cargo so no increase in air traffic is expected.

17. d) and e) The proposed project is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the Refinery. The proposed project does not include construction of roadways that could include design hazards. Emergency access at the Refinery will not be impacted by the proposed project and BP will continue to maintain the existing emergency access gates to the Refinery.

17. f) Parking for the construction workers will be provided within the confines of the existing Refinery site and sufficient parking exists to handle the estimated increase of workers commuting to and from the Refinery. Once construction is complete, no increase in permanent workers is expected. Therefore, the proposed project will not result in significant parking impacts.

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

Conclusion

The traffic impacts associated with the construction phase of the proposed project are potentially significant and will be analyzed in the EIR. The impacts of the proposed project on other transportation related areas are expected to be less than significant and will not be considered further in the EIR.

	Potentially Significant Impact	**Less Than Significant Impact**	**No Impact**
18.0 MANDATORY FINDINGS OF SIGNIFICANCE.			
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major	☐	☐	☑

	periods of California history or prehistory?			
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	☑	☐	☐
c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☑	☐	☐

Checklist Response Explanation

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

18. b) and c) The areas where there is the potential for cumulative adverse environmental impacts include air quality, hazards/hazardous materials, noise, and transportation/traffic. The proposed project has the potential to result in an increase in emissions, hazard impacts, noise sources, and traffic from the construction of the proposed project and has the potential to result in cumulative impacts. The potential cumulative impacts will be analyzed, as necessary, in the EIR.

Conclusion

Project specific impacts to the following environmental areas will be further analyzed in the EIR: air quality, hazard and hazardous materials, noise, and transportation/traffic. Potential adverse cumulative impact to these environmental areas will also be evaluated in the EIR.

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ACRONYMS

ABBREVIATION	DESCRIPTION
AB2588	Air Toxic "Hot Spots" Information and Assessment Act
AB2595	California Clean Air Act
ACE2588	Assessment of Chemical Exposure for AB2588
API	American Petroleum Institute
AEL	Acute Exposure Limit
AHI	Acute Hazard Index
AHM	Acutely Hazardous Material
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	Air Resources Board
ATIR	Air Toxics Inventory Report
BACT	Best Available Control Technology
Basin	South Coast Air Basin
BLEVE	Boiling Liquid Expanding Vapor Explosion
BTU	British Thermal Units
BTU/hr	British Thermal Units per hour
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention Program
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHI	Chronic Hazard Index
CNDDB	California Natural Diversity Database
CO	Carbon monoxide
CO_2	Carbon dioxide
CPUC	California Public Utilities Commission
CUP	Conditional Use Permit
CWMI	Chemical Waste Management Inc.
C4	Butane
dBA	A-weighted noise level measurement in decibels
DEA	Diethanol amine
DOT	Department of Transportation
DTSC	California Environmental Protection Agency, Department of Toxic Substances Control
DWR	California Department of Water Resources

EHS	Extremely Hazardous Substance
EIR	Environmental Impact Report
ERPG	Emergency Response Planning Guideline
ESP	Electrostatic Precipitators
^{o}F	Degrees Fahrenheit
FCC	Fluid Catalytic Cracking
FEMA	Federal Emergency Management Agency
FFHDS	Fluid Feed Hydrodesulfurization
FHWA	Federal Highway Administration
FIP	Federal Implementation Plan
G	acceleration of gravity
GWh	Gigawatts per hour
H_2	Hydrogen
HAZOP	Hazardous operation process analysis
HDS	Hydrodesulfurization
HI	Hazard Index
HMBP	Hazardous Materials Business Plan
HRA	Health Risk Assessment
ID #	Identification number
ISCST3	Industrial Source Complex Model Short Term Version 3
^{o}K	degrees Kelvin
LACFD	Los Angeles County Fire Department
LACSD	Los Angeles County Sanitation Districts
LADPW	Los Angeles Department of Public Works
LADWP	Los Angeles Department of Water and Power
LAER	lowest achievable emission reduction
LARWQCB	Los Angeles Regional Water Quality Control Board
LGB	Long Beach Airport
LEL	Lower Explosive Limit
lbs	pounds
lbs/hr	pounds per hour
LFL	Lower Flammable Limit
Lmax	Maximum sound level
Lmin	Minimum sound level
LOS	Level of Service
LPG	liquefied petroleum gas
m/s	meters per second
MATES	Multiple Air Toxic Exposure Study
MDEA	Methyl diethanol amine
MEIR	maximum exposed individual resident
MEIW	maximum exposed individual worker
mw	megawatts
MMscf	Million Standard Cubic Feet
MICR	Maximum Incremental Cancer Risk
MWD	Metropolitan Water District of Southern California

N_2	nitrogen
NH_3	Ammonia
NAAQS	National Ambient Air Quality Standards
nanograms/m^3	nanograms per cubic meter
NESHAPS	National Emission Standards for Hazardous Air Pollutants
NFPA	National Fire Protection Agency
NIOSH	National Institute of Occupational Safety and Health
NOP	Notice of Preparation
NOx	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NSR	New Source Review
OSHA	Occupational Safety and Health Administration
pH	potential hydrogen ion concentration
PM10	particulate matter less than 10 microns in diameter
ppbv	parts per billion by volume
ppm	parts per million
ppmv	parts per million by volume
ppmw	parts per million by weight
PRD	pressure relief devices
PRC	Public Resources Code
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
psia	pounds per square inch absolute
psig	pounds per square inch (gauge)
PSM	Process Safety Management Program
RCRA	Resource Conservation and Recovery Act
RECLAIM	Regional Clean Air Incentives Market
REL	Reference exposure level
RFG	reformulated fuels gasoline
RMP	Risk Management Program
RMPP	Risk Management and Prevention Program
RVP	Reid Vapor Pressure
RWQCB	Regional Water Quality Control Board, Los Angeles Region
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison Company
SCFH	standard cubic feet per hour
SCH	State Clearinghouse
SCR	Selective Catalytic Reduction
SEP	Supplemental Environmental Project
SFIA	Super Fractionation Integrated Area
SO_2	sulfur dioxide
SOx	sulfur oxide

SPCC	Spill Prevention, Control and Countermeasure
SRU	Sulfur Recovery Unit
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
T-BACT	Toxics Best Available Control Technology
TACs	toxic air contaminants
TPH	total petroleum hydrocarbons
ULSD	Ultra low sulfur diesel
USDOT	United States Department of Transportation
U.S. EPA	United States Environmental Protection Agency
USC	United States Code
USDA	United States Department of Agriculture
USGS	United States Geological Society
ug/l	micrograms per liter
ug/m^3	micrograms per cubic meter
UVCE	Unconfined Vapor Cloud Explosion
V/C	volume to capacity ratio
VOC	volatile organic compounds

GLOSSARY

TERM	DEFINITION
Ambient Noise	The background sound of an environment in relation to which all additional sounds are heard
Aromatics	Hydrocarbons which contain one or more benzene rings.
Barrel	42 gallons.
Blending	One of the final operations in refining, in which two or more different components are mixed together to obtain the desired range of properties in the finished product.
Catalyst	A substance that promotes a chemical reaction to take place but which is not itself chemically changed.
Cooling Tower	A cooling tower is a heat rejection device, which extracts waste heat to the atmosphere through the cooling of a water stream to a lower temperature. Common applications for cooling towers are providing cooled water for manufacturing and electric power generation.
Condensate	Steam that has been condensed back into water by either raising its pressure or lowering its temperature
Cogeneration	A cogeneration unit is a unit that produces electricity.
Cracking	The process of breaking down higher molecular weight hydrocarbons to components with smaller molecular weights by the application of heat; cracking in the presence of a suitable catalyst produces an improvement in product yield and quality over simple thermal cracking.
Crude Oil	Crude oil is "unprocessed" oil, which has been extracted from the subsurface. It is also known as petroleum and varies in color, from clear to tar-black, and in viscosity, from water to almost solid.
dBA	The decibel (dDB) is one tenth of a *bel* where one bel represents a difference in noise level between two

	intensities I_1, I_0 where one is ten times greater than the other. (A) indicates the measurement is weighted to the human ear.
Distillation	The process of heating a liquid to its boiling point and condensing and collecting the vapor.
Feedstock	Material used as a stream in the refining process.
Flares	Emergency equipment used to incinerate refinery gases during upset, startup, or shutdown conditions
Flue Gas	Gases produced by burning fuels in a furnace, heater or boiler.
Heat exchanger	Process equipment used to transfer heat from one medium to another.
Heater	Process equipment used to raise the temperature of refinery streams processing.
Hydrocarbon	Organic compound containing hydrogen and carbon, commonly occurring in petroleum, natural gas, and coal.
Hydrotreater	A machine that treats hydrocarbons.
Hydrotreating	A process to catalytically stabilize petroleum products of feedstocks by reacting them with hydrogen.
Isomerization	The rearrangement of straight-chain hydrocarbon molecules to form branch chain products; normal butane may be isomerized to provide a portion of the isobutane feed needed for the alkylation process.
L_{50}	Sound level exceeded 50 percent of the time (average or mean level).
Liquefied Petroleum Gas (LPG)	Liquefied light end gases often used for home heating and cooking; this gas is usually 95 percent propane, the remainder being split between ethane and butane.
Mercaptans	Sulfur-containing compounds

Naphtha	A crude distillation unit cut in the range of C_7-420^o; naphthas are subdivided – according to the actual crude distillation cuts - into light, intermediate, heavy, and very heavy virgin naphthas; a typical crude distillation operation would be: C_7-160^o - light naphtha 160-280^o - intermediate naphtha 280-330^o - heavy naphtha 330-420^o - very heavy naphtha
Natural Gas	A mixture of hydrocarbon gases that occurs with petroleum deposits, principally methane together with varying quantities of ethane, propane, butane, and other gases.
Octane	Measurement of the burning quality of the gasoline; reflects the suitability of gasoline to perform in internal combustion engines smoothly without letting the engine knock or ping.
Olefins	Hydrocarbons that contain at least two carbons joined by double bonds; olefins do not naturally occur in crude oils but are formed during the processing.
Paleontological	Prehistoric life.
Peak Hour	This typically refers to the hour during the morning (typically 7 AM to 9 AM) or the evening (typically 4 PM to 6 PM) in which the greatest number of vehicles trips are generated by a given land use or are traveling on a given roadway.
Pentane	Colorless, flammable isomeric hydrocarbon, derived from petroleum and used as a solvent.
Reactor	Vessels in which desired reactions take place.
Refinery fuel gas	Gas produced from refinery operations used primarily for fuel gas combustion in refinery heaters and boilers.

Reformate	One of the products from a reformer; a reformed naptha; the naptha is then upgraded in octane by means of catalytic or thermal reforming process.
Reformulated Gasoline	New gasoline required under the federal Clean Air Act and California Air Resources Board to reduce emissions.
Reid Vapor Pressure	The vapor pressure of a product determined in a volume of air four times greater than the liquid volume at 100^{o}F; Reid vapor pressure (RVP) is an indication of the vapor-lock tendency of a motor gasoline, as well as explosion and evaporation hazards.
Seiches	A vibration of the surface of a lake or landlocked sea that varies in period from a few minutes to several hours and which may change in intensity.
Selective Catalyst Reduction	An air pollution control technology that uses a catalyst to remove nitrogen oxides from flue gas.
Sour	Refinery streams with more than 2.5 percent sulfur.
Stripper or Splitter	Refinery equipment used to separate two components in a feed stream; examples include sour water strippers and naphtha splitters.
Sweet	Refinery streams with less than 0.5 percent sulfur.

COMMENTS AND RESPONSE TO COMMENTS ON NOP/IS

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, REGIONAL PLANNING
IGR/CEQA BRANCH
100 MAIN STREET
LOS ANGELES, CA 90012-3606
PHONE (213) 897-3747
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Flex your power!
Be energy efficient!

November 30, 2005

Ms. Barbara A. Radlein
South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765

BP Carson Refinery Compliance
Notice of Preparation (NOP) of Environmental Impact Report SCH Number 2005111057
Vic. LOS/710/7.89 IGR/CEQA # 051144/EK

Dear Ms. Radlein:

We have received the Initial Study for the application referenced above right. The proposed project is modifications to multiple refinery process units to obtain compliance with SCAQMD Rules 1105.1, 1118, and 1173, as well as to improve safety or operational efficiency of various units. For the California State Department of Transportation (Caltrans), we have the following comments on the application.

Regarding construction, we give this reminder, that transportation of special construction equipment and/or materials, which requires the use of over-sized or weight transport vehicles on State highways would require a Caltrans transportation permit. 1-1

We ask that the applicant avoid excessive or poorly timed truck platooning (caravans of trucks), even on a particular day when many truck trips per day to or from a location might be desirable. The issue is potential formation of queues on ramps of the freeways at such places as Willow Street / Sepulveda Boulevard (I-710 postmile 7.89) or Alameda Street (off I-405). Of particular concern is to avoid the safety hazard of off-ramp queue backup onto freeway through-travel lanes. 1-2

If you have any questions regarding our comments, refer to our internal IGR/CEQA Record Number 051144/EK; and please do not hesitate to contact our review coordinator Edwin Kampmann at (213) 897-1346 or to contact me at (213) 897-3747.

Sincerely,

CHERYL J. POWELL
IGR/CEQA Program Manager

cc: Mr. Scott Morgan, State Clearinghouse

"Caltrans improves mobility across California"

COMMENT LETTER NO. 1
DEPARTMENT OF TRANSPORTATION

CHERYL J. POWELL
November 30, 2005

RESPONSE 1-1

Please see Section 4.5.2 of the Draft EIR regarding traffic impacts during the construction phase of the proposed project. The Draft EIR acknowledges the Caltrans requirement for permits for over-sized or weight transport vehicles on State highways.

RESPONSE 1-2

BP expects that delivery trucks associated with the proposed project will travel to the Refinery throughout the day to avoid traffic impacts. Further, the construction shifts have been designed to avoid peak hour traffic, which should prevent additional queuing of traffic on the 710 or 405 freeway off-ramps.

Barbara Morel
3630 Delta Ave
Long Beach CA 90810

Barbara Radlein
AQMD
21865 Copley Dr.
Diamond Bar, CA
91765-4182

Dec. 3, '05

Dear Ms. Radlein,

I was unable to attend the public scoping meeting in Carson Nov. 29.

The environmental impact of the expansion of the BP Carson Refinery has the potential of more toxic air pollution from refinery emissions and increased diesel truck particulate emissions. Our neighborhoods in West Long Beach receive these pollutants regularly. What measures will be taken to minimize the toxic emissions from yet more refinery activity ?? B. Morel

2-1

COMMENT LETTER NO. 2

BAARBARA MOREL
December 3, 2005

RESPONSE 2-1

The impacts of the proposed project on toxic air contaminants are evaluated in Chapter 4 of the Draft EIR, subsection 4.2.2.4 Toxic Air Contaminants. A health risk assessment (HRA) was performed to determine if emissions of toxic air contaminants generated by the proposed project would exceed the SCAQMD thresholds of significance for cancer risk or acute or chronic health impacts. The results of the HRA were used to evaluate the impacts of toxic air contaminants (TACs) from the proposed project. It was determined that the emissions of TACs would be less than significant and that no significant health impacts were expected from the proposed project.

The analysis in the EIR only describes the potential emission increases associated with the proposed project. The project will also provide air quality benefits associated with emission reductions due to the increased use of low sulfur gasoline and diesel fuel, the reduction in particulate emissions from the FCCU, the reduced combustion of gases from the flare, and the reduced VOC emissions from the Coker Gas Debutanizer Unit are all expected to reduce potential TAC emissions from the Refinery. Further, the proposed project will phase out the use of diethanolamine or DEA (a TAC), and replace it with Methyl Diethanol Amine or MDEA, which is not a toxic air contaminant, reducing the potential TAC emissions from the Refinery. Therefore, following completion of the construction phase, the proposed project is expected to have an overall beneficial impact on air quality.