CHAPTER 1
INTRODUCTION AND EXECUTIVE SUMMARY

CHAPTER 1.0

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INTRODUCTION

The Alkylation Unit at the Ultramar Inc. - Valero Wilmington Refinery uses concentrated hydrofluoric acid (HF) as a catalyst for the production of alkylate, a high octane blend stock highly important to the production of California's Phase 3 Reformulated Gasoline (RFG 3). HF can volatize in the event of an accidental release and has the potential to be a toxic air contaminant. On February 12, 2003, the Ultramar Inc. - Valero Wilmington Refinery (Refinery) and the South Coast Air Quality Management District (SCAQMD) entered into a Memorandum of Understanding (the MOU) providing for termination of the storage and use of concentrated hydrofluoric acid at the Refinery.

As part of the MOU, the Refinery agreed to adopt a modified alkylation process, which eliminates the use of concentrated HF catalyst by substituting the proprietary Reduced Volatility Alkylation Process (ReVAP). ReVAP incorporates a suppressant in the HF, which reduces HF volatility in the event of an accidental release with a concurrent reduction in safety risks in the surrounding area. Use of this modified process meets the SCAQMD's objectives with respect to elimination of concentrated HF.

Incorporation of ReVAP requires substantial improvements to the Alkylation Unit and related units and systems of the Refinery. The MOU recognizes that these improvements must be viewed in light of the objectives of both the California RFG 3 requirements and the Governor's executive order eliminating methyl tertiary butyl ether (MTBE) as an oxygenate and octane enhancer in California gasoline. Both these actions can result in the loss of gasoline production unless other modifications are made to make up this loss in gasoline production. The Refinery will incorporate alkylation efficiency improvements and design capacity enhancements to help offset any such losses. Although the proposed project increases alkylate production capacity, the improvements will not increase annual crude oil throughput of the Refinery.

The proposed project consists of the following principal components:

- Modify the existing Alkylation Unit to incorporate the ReVAP process, and enhance the alkylate production capacity to 20,000 barrels per day (BPD).

- Increase the existing Butamer Unit capacity to 17,000 BPD to provide sufficient feed for the enhanced Alkylation Unit with the ReVAP process. Modifications to the Merox Treating Unit, Light Ends Units, and Naphtha Hydrotreater Unit, and installation of a new fuel gas treating system are also required.

- Upgrade Refinery utility systems to support the improvements, including a new steam boiler with a selective catalytic reduction (SCR) unit, a new hot oil heater with a SCR unit, modifications to an existing hot oil heater, a new cooling tower, as well as

modifications to an existing cooling tower, a new butane storage sphere, a new propane storage bullet, a new hydrocarbon flare, a new aqueous ammonia storage tank, and relocation of storage tanks.

The MOU establishes a schedule for the project with enforceable deadlines. The Refinery must complete construction and commence operations of the modified Alkylation Unit by December 31, 2005. Construction must start within seven months of the date when all permits have been issued.

PURPOSE/LEGAL REQUIREMENTS

In accordance with §15121(a) of the State CEQA Guidelines (California Administrative Code, Title 14, Division 6, Chapter 3), the purpose of an EIR is to serve as an informational document that: "will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project."

The EIR is an informational document for use by decision-makers, public agencies and the general public. The proposed project requires discretionary approval from the SCAQMD and, therefore, it is subject to the requirements of CEQA (Public Resources Code, §21000 et seq.).

This ~~Draft~~ Final EIR addresses both project-specific and cumulative impacts of the proposed project. The focus of this ~~Draft~~ Final EIR is to address potentially significant adverse environmental impacts identified in the Notice of Preparation/Initial Study (NOP/IS) (see Appendix A) and to recommend feasible mitigation measures, where possible, to reduce or eliminate significant adverse environmental impacts.

SCOPE AND CONTENT

The NOP/IS were circulated for a 30-day comment period beginning on September 16, 2003. The NOP/IS were circulated to neighboring jurisdictions, responsible agencies, other public agencies, and interested individuals in order to solicit input on the scope of the EIR. Comments received on the NOP/IS and responses are also included in Appendix A. The NOP/IS formed the basis for and focus of the technical analyses in this ~~Draft~~ Final EIR. The following environmental issues were identified in the NOP/IS as potentially significant and are further addressed in this document:

- Air Quality,
- Hazards/Hazardous Materials,
- Hydrology and Water Quality,
- Noise,
- Transportation/Traffic.

The NOP/IS concluded that the proposed project would not create significant adverse environmental impacts to the following areas: aesthetics, agricultural resources, biological resources, cultural resources, energy, hydrology/water quality, land use/planning, mineral

resources, population/housing, public services, geology/soils, noise, solid/hazardous waste, and recreation.

A discussion of potential cumulative impacts is also provided. The alternatives section of this ~~Draft~~ Final EIR is prepared in accordance with §15126.6 of the CEQA Guidelines. This section describes a range of reasonable alternatives that could feasibly attain the basic objectives of the proposed project or are capable of eliminating or reducing some of the significant adverse environmental effects associated with the proposed project.

LEAD AGENCY

CEQA, Public Resources Code §21000 et seq., requires that the environmental impacts of proposed projects be evaluated and that feasible methods to reduce, avoid or eliminate significant adverse impacts of these projects be identified and implemented. To fulfill the purpose and intent of CEQA, the SCAQMD is the lead agency for this project and has prepared this ~~Draft~~ Final EIR to address the potentially significant adverse environmental impacts associated with the proposed Ultramar Inc. - Valero Wilmington Refinery's Alkylation Improvement 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 Section 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 Section 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. The SCAQMD Permits to Construct, and Permits to Operate, are considered to be discretionary. Once the SCAQMD approves the project by certifying the EIR, permits can be issued.

RESPONSIBLE AGENCIES

State CEQA Guidelines §15381 defines a "responsible agency" as: "a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For purposes of CEQA, responsible agencies include all public agencies other than the lead agency that have discretionary approval authority over the project."

The following agencies may have ministerial permitting authority for aspects of modifications at the Refinery operations, and have been given an opportunity to review and comment on the NOP/IS and EIR; however, no new discretionary permits or permit modifications are expected to be required from these agencies for the proposed project:

- State Water Resources Control Board (SWRCB),
- Los Angeles Regional Water Quality Control Board (RWQCB),
- Los Angeles City Bureau of Sanitation (LACBS),
- Department of Toxic Substances Control (DTSC), and

- City of Los Angeles (COLA)
- California Coastal Commission

For convenience, all the above agencies will be referred to generally as Responsible Agencies in this EIR.

INTENDED USES OF THE EIR

The EIR is intended to be a decision-making tool that provides full disclosure of the environmental consequences associated with implementing the proposed project. Additionally, CEQA Guidelines §15124(d)(1) requires a public agency to identify the following specific types of intended uses:

- A list of the agencies that are expected to use the EIR in their decision-making;
- A list of permits and other approvals required to implement the project; and,
- A list of related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

To the extent that local public agencies, such as cities, county planning commissions, etc., are responsible for making land use and planning decisions related to the proposed project, they could possibly rely on this EIR during their decision-making process. See the preceding section for a list of public agencies' whose approval may be required and who may also be expected to use this EIR in their decision-making process.

EXECUTIVE SUMMARY – CHAPTER 2: PROJECT DESCRIPTION

PROJECT LOCATION

The proposed project will occur entirely within the Refinery which is located at 2402 East Anaheim Street, in the Wilmington district of the City of Los Angeles in the southern portion of Los Angeles County. The proposed modifications are within the confines of this existing facility.

The Refinery is bounded to the north by Anaheim Street and industrial uses. Also northward of Anaheim Street is another major refinery complex. The Refinery is bounded on the south by an area used previously for oil field production facilities and which is now developed for marine cargo transport and storage facilities and other Port of Long Beach related uses. A Hydrogen Plant is located adjacent to and immediately west of the Refinery (west of the Dominguez Channel) on Henry Ford Avenue. To the west of Henry Ford Avenue are additional industrial and commercial uses and the Port of Los Angeles. To the east are automobile storage yards, a cogeneration plant and a petroleum coke calcining plant. The Terminal Island Freeway (Interstate 47) runs through the Refinery boundaries. Historically, there were oil production facilities scattered throughout this general area, none of which are currently producing. The closest residential area is about one-half mile northwest of the Refinery in Wilmington.

LAND USE AND ZONING

The Refinery is located in the Wilmington District of the City of Los Angeles within southern Los Angeles County. The community of Wilmington is generally urbanized and includes a substantial amount of industrial and port-related development. The Ports of Los Angeles and Long Beach are located along the coastal boundary of Wilmington.

The Wilmington area is bordered by the Harbor Interstate 110 Freeway on the west, the Long Beach Interstate 710 Freeway on the east, the San Diego Interstate 405 Freeway on the north and the Pacific Ocean on the south. The Dominguez Channel runs adjacent to the Refinery from the north to the south. Railroad tracks service the area along the western boundary of the Refinery and along Alameda Street.

The project would be consistent with the zoning for the Refinery (M3-1) and with the Wilmington-Harbor City Plan (City of Los Angeles, 1999). All proposed modifications would occur within the confines of the existing Refinery.

EXISTING REFINERY CONFIGURATION AND OPERATION

Crude oils and distillates (both of which are also referred to as feedstocks), used to produce gasoline and other petroleum products, are delivered to marine terminals in the Port of Los Angeles/Port of Long Beach by ship. Feedstocks are delivered to the Refinery by pipelines. Crude oil is processed in the crude unit where it is heated and distilled into components, most of which are processed in downstream Refinery units. The heavy residual oil leaving the crude unit is further distilled in the vacuum unit to yield additional, lighter hydrocarbon products and the vacuum residuum. The lighter hydrocarbon components from the crude unit and vacuum unit are fed to other Refinery units for further processing, primarily the gas oil hydrotreater, the Unibon, and the naphtha hydrotreater unit. The feedstocks are refined into the petroleum products which include unleaded gasoline, diesel, jet fuels, low sulfur distillate fuels, other distillate fuels, petroleum coke, and sulfur. Elemental sulfur and petroleum coke are produced as by-products of the refining process. Major processing units at the Refinery include the crude and vacuum distillation, delayed coking, catalytic reforming, hydrotreating, fluid catalytic cracking, alkylation, sulfur recovery, and auxiliary systems. Under the existing Refinery configuration, about 78,000 barrels per day (bpd) of crude oil and about 50,000 bpd of distillates are purchased and processed at the Refinery.

PROPOSED PROJECT MODIFICATIONS TO THE REFINERY

The Refinery proposes to adopt ReVAP, which is similar to conventional HF alkylation except the process is modified so that a proprietary vapor pressure suppression additive can be blended with the HF acid catalyst. The proprietary additive is a non-volatile, non-odorous, low toxicity material that is completely miscible in the acid phase. It has very limited affinity for other hydrocarbons, including the alkylate product and acid soluble oil (ASO) by product, similar to the organic polymer produced in the current process. The unique physical properties of the additive significantly reduce the volatility of the acid at ambient conditions. This reduction in volatility

proportionately reduces the amount of HF that can vaporize and subsequently disperse off-site from a given liquid release quantity. The ReVAP catalyst reduces acid vapor pressure sufficiently to suppress the usual flash atomization process of hydrofluoric acid, causing most of the acid to fall to the ground as an easily controlled liquid and reduces the potential for off-site consequences of an accidental HF release.

In order to incorporate ReVAP into the existing Alkylation Unit, and to enhance the alkylate production capacity to a nominal 20,000 BPD, modifications are required to the following processes and equipment: HF Acid Storage, Replenishment and Injection Section; Reaction and Settling Section; Product Separation (Fractionation) Section; HF Stripping Section; Additive Recovery for Alkylate Product; and HF Acid Regeneration Section.

Since the circulation of the Draft EIR, additional project engineering has been completed resulting in minor changes to the proposed project. The Refinery is proposing to use the ConocoPhillips technology which has a slightly different reactor system than the system described in the Draft EIR. The main change is that instead of installing two new alkylation reactors in addition to the two existing reactors (a total of four reactors), the system has been modified so that the two existing reactors will be replaced with two new and larger reactors (a total of two reactors). These project changes have been evaluated to determine if they would alter the analysis and conclusions in the Draft EIR and are summarized in Table 1-1. The project changes are described in Chapter 2.0 and the changes to the environmental impacts are discussed in Chapter 4.0. In summary, the modifications to the proposed project are not expected to change the conclusions of the Draft EIR and only minor changes have been incorporated into the Final EIR as a result of the modifications to the proposed project. The revised project continues to meet the main objective of the proposed project, which is to reduce the hazards associated with the use of hydrofluoric acid.

The refinery is also proposing modifications to a number of other units, which are described below.

Butamer Unit: In order to provide sufficient isobutane for enhanced alkylate, the Refinery proposes to upgrade the capacity of the Butamer Unit to a capacity of 17,000 BPD. To accomplish this will require a combination of new components and debottlenecking of the Deisobutanizer column and related equipment.

LPG Merox Treating Unit: The LPG Butane Merox Unit capacity must be increased from a nominal capacity of 6,500 BPD of field butanes to treat 10,000 BPD. The only modification required is replacement of existing caustic prewash drum with a new larger vessel.

Light Ends Recovery Units: Minor modifications to this unit will allow more butane to be desulfurized in the Naphtha Hydrotreater for feed to the Butamer Unit.

Naphtha Hydrotreater Unit: Minor modifications will be made to provide sufficient LPG feed for the modified alkylation process.

TABLE 1-1
COMPARISON OF ORIGINAL PROJECT WITH MODIFIED PROJECT

ENVIRONMENTAL ISSUES	***ORIGINALLY PROPOSED PROJECT*** ***(as described in Draft EIR)***	***MODIFIED PROPOSED PROJECT*** ***(as described in Final EIR)***
Reactor System	*Included two new alkylation reactors in addition to the two existing reactors for a total of four reactors.*	*Two existing reactors will be replaced with two new and larger reactors (a total of two reactors). The modification will not change the throughput of the alkylation unit.*
Product Separation (Fractionation) System	*Included a recontactor to increase reaction time.*	*No recontactor needed with the revised technology.*
Construction Activities	*Conservative estimates were made on the number and types of construction equipment, and the number of workers during the peak construction period.*	*No changes to the assumptions used for the peak construction emission calculations are required as the number and types of equipment and the number of workers during the peak construction period have not changed.*
Demolition Activities	*Minor demolition activities were assumed to occur.*	*The demolition of the existing reactors will be required in addition to the other demolition activities. Demolition of the existing reactors will not occur until after major construction activities have taken place so there is no change in the peak construction emissions estimates for the proposed project. Demolition activities will not increase peak construction emissions, but will extend construction activities for three to five days. Construction emissions for demolition activities are included in Appendix B of the Final EIR.*
Fugitive components	*Based on preliminary engineering estimates, the following conservative components counts were estimated for the proposed modifications to the Alkylation Unit: 31 pumps, 1,974 valves; 19 drains, 14 pressure relief devices, and 3,120 fittings. All new and modified process components are required to conform to the SCAQMD's BACT Guidelines.*	*The estimated component counts have not changed from the estimates reported in the SCAQMD permit applications and the Draft EIR. In actuality, it is expected that the fugitive component counts (primarily for fittings) would be reduced (and the VOC emissions would be less) due to the fact that only two reactors will be included in the modified project versus four in the originally proposed project, and*

TABLE 1-1 (Cont.)

ENVIRONMENTAL ISSUES	***ORIGINALLY PROPOSED PROJECT*** *(as described in Draft EIR)*	***MODIFIED PROPOSED PROJECT*** *(as described in Final EIR)*
Fugitive components (cont.)		*the recontactor has been eliminated. BACT will continue to be used on new and modified equipment.*
Hazards – Release from settler acid outlet	*The potential distance that an HF release could travel from the existing Alkylation Unit settler acid outlet is 25,240 feet, resulting in potential off-site exposures. The potential distance that an HF release could travel from the Alkylation Unit settler under the originally proposed project was reduced from 25,240 to 18,850 feet, providing a beneficial impact.*	*The hazard analysis was revised because the reactors under the modified proposed project will be larger. The revised hazard analysis indicated that an HF release would travel a maximum of 23,250 feet under the modified project, but less than the estimated 25,240 feet associated with the existing Alkylation Unit, providing a beneficial hazards impact. The revised hazard analysis does not change the conclusions of the EIR since the EIR.*
Hazards – Release from olefin feed to reactor #2	*The potential distance that a flash fire, explosion overpressure and pool torch fire could travel from the existing olefin feed to reactor #2 ranges from 360 feet to 1,960 feet. The originally proposed project would not alter these potential hazards. Further, these impacts remain on-site.*	*The potential distance that a flash fire, explosion overpressure and pool torch fire could travel from the modified olefin feed to reactor #2 ranges from 470 to 2,060 feet. The impacts associated with these hazards are expected to remain on-site so no significant impacts are expected.*
Hazards – Release from Reactor #2 outlet	*The potential distance that a flash fire, explosion overpressure, and pool torch fire could travel from the existing reactor #2 outlet ranges from 90 feet to 190 feet. The originally proposed project impacts would range from 50 to 150 feet and would be less than the existing Alkylation Unit and less than significant.* *The potential distance that an HF release could travel under the existing reactor #2 outlet is 24,790 feet. The potential distance that an HF release could travel from reactor #2 under the originally proposed project would be 20,570 feet providing a beneficial hazard impact.*	*The potential distance that a flash fire, explosion overpressure, and pool torch fire could travel from the modified reactor #2 outlet ranges from 40 feet to 130 feet, which is less than the existing Alkylation Unit or the originally proposed project. These hazard impacts would remain on-site and remain less than significant.* *The potential distance that an HF release could travel under the modified project is 19,990 feet, which is less than the existing Alkylation Unit or the originally proposed project, providing a beneficial hazard impact.*

TABLE 1-1 (Cont.)

ENVIRONMENTAL ISSUES	***ORIGINALLY PROPOSED PROJECT*** ***(as described in Draft EIR)***	***MODIFIED PROPOSED PROJECT*** ***(as described in Final EIR)***
Hazards – Release from isostripper bottoms and depropanizer	*The potential distance that a flash fire, explosion overpressure and pool torch fire could travel from the existing isostripper and depropanizer ranges from 770 feet to 1,320 feet. The originally proposed project impacts would range from 770 feet to 1,380 feet. These releases are expected to remain onsite and would be less than significant.*	*No changes are proposed to the isostripper bottoms and depropanizer so there is no change in these hazards under the modified project.*
Hazards – Release from and depropanizer receiver outlet	*The potential distance that a flash fire, explosion overpressure and pool torch fire could travel from the existing depropanizer receiver outlet ranges from 440 feet to 1,090 feet. The proposed project impacts would range from 440 feet to 1,170 feet. These releases are expected to remain onsite and would be less than significant.*	*No changes are proposed to the depropanizer so there is no change in these hazards under the modified project.*
Hazards – Release from recontactor	*There is no recontactor in the existing Alkylation Unit.* *The potential distance that an HF release could travel from the recontactor under the originally proposed project would be 5,540 feet.*	*No recontactor is included with the modified project so this hazard will be eliminated.*
Hazards – Release during start up	*As noted above, the potential distance that an HF release could travel from the existing Alkylation Unit settler acid outlet is 25,240 feet. The potential distance that an HF release could travel from the Alkylation Unit settler under the originally proposed project was reduced from 25,240 to 18,850 feet, providing a beneficial impact.*	*Upon completion of construction, the HF will be removed from the existing Alkylation Unit before modified HF is added to the new Alkylation Unit. Therefore, there will be no overlap in the operation of the existing and modified Alkylation Unit. As noted above, the revised hazard analysis indicated that an HF release could travel a maximum of 23,250 feet under the modified project, which is less than the estimated 25,240 feet associated with the existing Alkylation Unit, providing a beneficial impact on hazards.*

Fuel Gas Treating System: The Refinery will install a new fuel gas treating system to reduce the sulfur content of the additional fuel gas to be consumed as a result of the Alkylation Unit improvements.

The proposed conversion to ReVAP and enhanced operation of the Alkylation Unit will require additional steam, cooling, and flaring capability, and additional butane storage capacity including the following:

- A new 245 million British thermal units per hour (mmBtu/hr) Steam Boiler, with selective catalytic reduction for air pollution control,
- A new 350 mmBtu/hr Hot Oil Heater, with selective catalytic reduction for air pollution control,
- Modification to Existing Heater 56-H-2 to provide additional process heat,
- Modifications to the existing vapor recovery system to add additional components to the system,
- A new Cooling Tower,
- A new Emergency Flare,
- A new 5,000 barrel Butane Storage Sphere, and
- A new 4,000 barrel Propane Storage Bullet.
- A new ammonia tank to store aqueous ammonia in support of the new SCR units.

Finally, three existing storage tanks located immediately north of the Alkylation Unit and Butamer Unit will be removed to accommodate the improvements to the Alkylation Unit.

EXECUTIVE SUMMARY – CHAPTER 3: EXISTING ENVIRONMENTAL SETTING

Pursuant to CEQA Guidelines §15125, Chapter 3 – Existing Environmental Setting of the EIR, includes descriptions of existing environment only for those environmental areas that could be adversely affected by the proposed project. The following subsections briefly highlight the existing settings for the identified environmental areas that could potentially be adversely affected when implementing the proposed project, including Air Quality, Hazards and Hazardous Materials, Hydrology/Water Quality, Noise, and Transportation/Traffic.

Air Quality

Over the last decade and a half, there has been significant improvement in air quality in the SCAQMD's jurisdiction. Nevertheless, several air quality standards are still exceeded frequently and by a wide margin. Of the National Ambient Air Quality Standards (NAAQS) established for six criteria pollutants [ozone, lead, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter less than 10 microns in diameter (PM10)], the area within the SCAQMD's jurisdiction is in attainment with the state and NAAQS for SO_2, NO_2, and lead. Chapter 3 provides a brief description of the existing air quality setting for each criteria pollutant as well as for toxic air contaminants.

Hazards and Hazardous Materials

The Refinery handles hazardous materials with the potential to cause harm to people, property, or the environment. Accidental release of hazardous materials at a facility can occur due to natural events, such as earthquake, and non-natural events, such as mechanical failure or human error. Potential hazards from the existing Refinery are those associated with accidental releases of toxic/flammable gas, toxic/flammable liquefied gas, and flammable liquids. Consequences associated with gas releases include toxic gas clouds, torch fires, and vapor cloud explosions. Consequences associated with potential releases of toxic/flammable liquefied gases include toxic clouds, torch fires, flash fires, and vapor cloud explosions. Releases of flammable liquids may result in pool fires, flash fires, or vapor cloud explosions.

The Refinery currently uses a number of hazardous materials at the site to manufacture petroleum products. A more detailed discussion of the hazards associated with the existing Refinery is available in the Risk Management Plan required under the federal Risk Management Program (RMP) and California Accidental Release Program (CalARP) regulations. Shipping, handling, storing, and disposing of hazardous materials inherently poses a certain risk of a release to the environment. The toxic substances handled by the refinery include HF, hydrogen sulfide, ammonia, and regulated flammable substances including propane, butane, and other petroleum products including gasoline, fuel oils, diesel, and other products, which pose the potential of a fire or explosion.

State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released.

Hydrology and Water Quality

The Refinery purchases water from the Los Angeles Department of Water and Power (LADWP). Water is used in various refinery processes including crude desalting, cooling towers, and steam generation. The Refinery estimates current water consumption is about 650 gallons per minute or about 936,000 gallons per day (about 341,640,000 gallons per year).

Noise

The Refinery is located in an M3-1 zoned (heavy industrial) area, as established by the City of Los Angeles. The areas surrounding the Refinery are also industrial. Noise readings were taken in the area surrounding the Refinery in October 2003. The measurements quantified the equivalent sound levels over a 24-hour period and were used to estimate the Community Noise Equivalent Level (CNEL). The ambient noise readings indicate the noise levels in the vicinity of the proposed project site is generally below the City of Los Angeles noise limits of 70 dBA at the property boundaries, and are acceptable for industrially zoned areas. Noise levels adjacent to the Refinery generally range from 60 to 70 dBA.

Although there are numerous sources of noise in the area, there are few sensitive receptors (i.e., residential areas, hospitals, rest homes, and schools). The noise levels at the nearest residential area range from about 53 to 63 dBA. The Refinery's contribution to noise at this location is negligible due to the presence of other industrial facilities and the distance of the residential area (about 0.5 mile) from the Refinery.

Transportation/Traffic

The transportation network in the Wilmington area includes roads, highways, freeways, railroads, airports, and seaports. Traffic counts including turn counts were taken in 2003 to determine the existing traffic in the area. The traffic analysis indicates typical urban traffic conditions in the area surrounding the Refinery, with most intersections operating at Level of Services (LOS) A to C.

EXECUTIVE SUMMARY – CHAPTER 4: SUMMARY OF IMPACTS AND MITIGATION MEASURES

This section summarizes the environmental impacts, mitigation measures, and residual impacts associated with the proposed project. Impacts are divided into four classifications: Unavoidable Adverse Impacts, Potentially Significant but Mitigable Impacts, Less Than Significant Impacts, and Beneficial Impacts. Unavoidable adverse impacts are significant impacts that require a Statement of Findings pursuant to CEQA Guidelines §15091 and a Statement of Overriding Considerations to be issued per CEQA Guidelines §15093 if the project is approved. Potentially Significant but Mitigable Impacts are adverse impacts that can be feasibly mitigated to less than significant levels. The SCAQMD interprets §15091 to require findings only if impacts are significant. If an impact is mitigated to insignificance, findings are not required. Less than significant impacts may be adverse but do not exceed any significance threshold levels and do not require mitigation measures. Beneficial impacts reduce existing environmental problems or hazards.

Unavoidable Adverse Impacts

Air Quality: Construction emissions of CO, volatile organic compounds (VOCs), nitrogen oxides (NOx), and PM10 are expected to remain significant following mitigation.

Emissions associated with the operation of the proposed project are expected to remain significant for VOC and PM10.

The proposed project's impacts on ambient air quality (as determined by air quality modeling) are expected to be significant for 24-hour PM10 concentrations.

Hazards: The proposed modifications to the Light Ends Recovery Units, the Naphtha Hydrotreater, the Merox Unit, the Butamer Unit, the Butane Storage Sphere, and the Propane Storage Sphere could result in an increase in the potential public exposure under "worst-case" consequence analysis conditions. As a result, the potential consequences of a release of hazardous materials associated with these modifications are significant.

Less Than Significant Impacts

Air Quality: Construction emissions of SOx are expected to be less than significant.

Emissions associated with the operation of the proposed project are expected to be less than significant for CO, NOx, and SOx.

The proposed project's impacts on ambient air quality are expected to be less than significant for CO and NOx.
Ambient concentrations of CO (related to hot spots), and odors are expected to be less than significant during the operational phase of the project.

The proposed project's carcinogenic health impacts to the Maximum Exposed Individual Resident (MEIR), Maximum Exposed Individual Worker (MEIW), all sensitive populations and all other receptors are expected to be less than 10 per million and, therefore, less than significant.

The proposed project's impacts associated with exposure to non-carcinogenic compounds are expected to be less than significant. The chronic hazard index and the acute hazard index are both below 1.0, so no significant non-carcinogenic health impacts are expected.

Hazards: The proposed modifications to the Alkylation Unit, Fuel Gas Treating Unit, new boiler, new heater, and aqueous ammonia storage tank, are not expected to result in significant impacts.

Transportation hazards are expected to be less than significant during project operation. The proposed project is expected to comply with

	applicable design codes and regulations, with National Fire Protection Association Standards, and with generally accepted industry practices.
Hydrology and Water Quality:	No significant water demands are expected from the proposed project.
Noise:	The proposed project's impacts on noise during both the construction and operational phases are expected to be less than significant.
Transportation/ Traffic:	Traffic impacts during the project construction and operation are expected to be less than significant.

Growth-Inducing Impacts: The proposed project is not expected to foster population growth in the area, nor will additional housing or infrastructure be required. The project involves the modification of existing industrial facilities. No new services will be required; therefore, no infrastructure development or improvement will be required, and no population growth will be encouraged as a result of the project. The proposed project is not expected to require any additional refinery workers.

Relationship Between Short-Term Uses and Long-Term Productivity: The Alkylation Improvement Project is not expected to achieve short-term goals at the expense of long-term environmental productivity or goal achievement. The purpose of the project is to eliminate the use, storage and transport of anhydrous HF, improve the efficiency of the Alkylation Unit, and manufacture gasoline and diesel fuel in compliance with state and federal requirements that were established to minimize emissions from vehicles that use the fuels. The proposed project is expected to reduce the hazards related to the use, storage, and transport of HF, since a modified form of the acid will be used.

Significant Irreversible Environmental Changes: It was determined that implementation of the proposed project would result in potentially significant impacts on air quality and hazards. However, implementation of CARB Phase 3 reformulated fuel requirements has resulted in large emission benefits (CARB, 1999). Therefore, the clean fuel projects have had, and are expected to continue to have, long-term environmental benefits on air quality. The proposed project could result in significant impacts related to the "worst-case" hazards associated with modifications to the Refinery. There are a number of rules and regulations that The Refinery must comply with that serve to minimize the potential impacts associated with hazards at the facility.

Environmental Effects Found Not To Be Significant: The following topics of analysis in this EIR were found to have no potentially significant adverse effects: hydrology/water quality, noise, and transportation/traffic.

The following topics of analysis were found to have no potentially significant adverse effects in the NOP/IS: aesthetics; agricultural resources; biological resources; cultural resources; geology/soils; land use/planning; mineral resources; population/housing; public services; recreation; and utilities/services systems.

EXECUTIVE SUMMARY – CHAPTER 5: SUMMARY OF CUMULATIVE IMPACTS

A number of projects with the potential to have cumulative impacts with the proposed project were identified, including local projects and other refinery reformulated fuel projects. These projects and associated cumulative impacts relative to the proposed project are discussed in Chapter 5. The following are the conclusions from the cumulative analysis.

Unavoidable Significant Adverse Cumulative Impacts

Air Quality: Cumulative emissions of CO, VOCs, NOx, and PM10 from construction equipment will exceed mass daily emissions significance thresholds during project construction and are considered potentially significant.

Cumulative emissions of CO, VOCs, NOx, SOx and PM10 will exceed mass daily emission significance thresholds during project operation and are considered significant. Although operations will exceed significance thresholds, there will be large regional benefits from the use of the reformulated fuels by mobile sources.

Less Than Significant Cumulative Impacts

Air Quality: During the construction phase of the project, the cumulative SOx emissions are less than significant.

The cumulative impacts associated with the post-project scenario would be below the significance criteria for cancer risk at the MEIR, MEIW and for the chronic and acute hazard index.

Hazards: The impacts of the various projects on hazards are not expected to be cumulatively considerable as hazards at or within one project area are not expected to impact or lead to hazards at other facilities.

Hydrology and Water Quality: No significant water demands are expected from the proposed project or cumulative projects.

Transportation/ Traffic: Cumulative traffic impacts during the construction phase are expected to be less than significant. Cumulative impacts during operation would generate potentially significant impacts at the intersection of Wilmington Ave./223rd St. The Refinery is located a sufficient distance so that it does not contribute traffic to this intersection.

EXECUTIVE SUMMARY – CHAPTER 6: SUMMARY OF ALTERNATIVES

This EIR identifies and compares the relative merits of a range of reasonable alternatives to the proposed project as required by the CEQA guidelines. According to the guidelines, alternatives should include realistic measures to attain the basic objectives of the proposed project and provide means for evaluating the comparative merits of each alternative. In addition, though the range of alternatives must be sufficient to permit a reasoned choice, they need not include every conceivable project alternative (CEQA Guidelines, §15126.6(a)). The key issue is whether the selection and discussion of alternatives fosters informed decision making and public participation.

Alternatives evaluated include the No-Project Alternative and No Increase in Alkylation Capacity. The No Increase in Alkyation Capacity Alternative would be considered the superior alternative as it would eliminate one of the potentially significant impacts (hazards). However, this alternative would not allow the Refinery to meet the project objective of improving the efficiency of the Alkylation Unit to help offset losses associated with the installation of the ReVAP process and CARB Phase 3 requirements including the elimination of MTBE. Further, under this alternative it is likely that additional alkylate would be imported into southern California. Consequently, the proposed project is considered the preferred alternative to ensure that the Refinery will be able to achieve all the objectives of the proposed project, which is to produce RFG3 fuels as specified by state and federal regulations, and minimize environmental impacts.

CHAPTERS 7 AND 8 SUMMARY – REFERENCES AND ACRONYMS AND GLOSSARY

Information on references cited (including organizations and persons consulted) and the acronyms and glossary are presented in Chapters 7 and 8, respectively.

TABLE 1-2

SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
AIR QUALITY		
The construction emissions of CO, VOC, NOx, and PM10 and are significant.	Mitigation measures include developing a Construction Emission Management Plan, prohibit truck idling longer than *five ~~10~~* minutes, use electricity or alternative fuels for on-site mobile equipment, maintaining construction equipment, using electric welders, using on-site electricity rather than diesel generators, evaluating the use of retrofit technology for diesel construction equipment, evaluating the use of modified diesel fuels, using low sulfur diesel, using CARB certified construction equipment, suspending construction activities during first stage smog alert, construction equipment engine size shall be the minimum practical size, and developing a fugitive dust emission control plan, and investigate the use of low VOC paints.	Construction emissions are expected to be remain significant for CO, VOC, NOx, and PM10.
The construction emissions of SOx are less than significant.	None required.	Construction emissions are expected to be less than significant for SOx.
Operational emissions of criteria pollutants are less than significant for CO, NOx, and SOx.	None required. Project emissions are controlled through the use of BACT.	Mass daily emissions of CO, NOx, and SOx from stationary sources are expected to be less than significant.
Operational emissions of criteria pollutants are significant for VOCs and PM10.	Project emissions are controlled through the use of BACT. No additional feasible mitigation measures were identified.	Mass daily emissions of VOCs and PM10 are expected to remain significant.
The ambient air concentrations of NOx and CO are below SCAQMD significance threshold levels and are less than significant.	None required.	Concentrations of NOx and CO are less than significant.
The ambient air concentrations of 24-hour PM10 are expected to be significant.	Project emissions are controlled through the use of BACT. No additional feasible mitigation measures were identified.	24-hour PM10 concentrations are significant.

TABLE 1-2 (Cont.)

SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
No significant traffic impacts were identified at local intersections so no significant increase in CO hot spots are expected.	None required.	CO hot spots are less than significant.
The project is consistent with the General Plan and is consistent with the Air Quality Management Plan so no significant impacts are expected.	None required.	Impacts on the AQMP are less than significant.
The estimated cancer risk due to the operation of the proposed project is expected to be less than the significance criterion of 10 per million so that the project impacts are less than significant.	None required.	Cancer risk impacts are less than significant.
The proposed project's impacts associated with exposure to non-carcinogenic compounds are expected to be less than significant. The chronic hazard index and the acute hazard index are both below 1.0.	None required.	No significant non-carcinogenic health impacts are expected.
Potential odor impacts from the proposed project are not expected to be significant.	None required.	Project impacts on odors are less than significant.
HAZARDS		
Impacts associated with modifications to the Light Ends Recovery Units, the Naphtha Hydrotreater, the Merox Unit, the Butamer Unit, the Butane Storage Sphere, and the Propane Storage Sphere could result in off-site exposures at levels that could cause injury. Hazard impacts are considered significant.	The Refinery will be required to update its Process Safety Management Program and Risk Management Program. No additional feasible mitigation measures were identified, over and beyond the extensive safety regulations that apply.	Hazard impacts for the Light Ends Recovery Units, the Naphtha Hydrotreater, the Merox Unit, the Butamer Unit, the Butane Storage Sphere, and the Propane Storage Sphere remain significant.

TABLE 1-2 (Cont.)

SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
Hazard impacts associated with modifications to the Alkylation Unit, Fuel Gas Treating Unit, new boiler, new heater and aqueous ammonia storage tank are expected to be less than significant.	None required. However, the Refinery will be required to update its Process Safety Management Program and Risk Management Program.	Hazard impacts associated with modifications to the Alkylation Unit, Fuel Gas Treating Unit, new boiler, new heater and aqueous ammonia storage tank are less than significant.
The proposed project impacts on water quality due to an accidental release are expected to be less than significant.	None required.	Hazard impacts on water quality are expected to be less than significant.
The project is expected to increase the transport of hazardous materials and petroleum products. The hazard impact associated with the transport of these materials is expected to be less than significant.	None required.	Hazard impacts due to transportation are less than significant.
The project is expected to comply with all applicable design codes and regulations.	None required.	Hazard impacts are less than significant.
HYDROLOGY AND WATER QUALITY		
No significant adverse water demand impacts are expected from the construction or operational phases of the proposed project.	None required.	Water demand impacts are less than significant.
NOISE		
No significant adverse noise impacts during the construction and operational phases are expected.	None required.	Noise impacts are less than significant.

TABLE 1-2 (Concluded)

SUMMARY OF ENVIRONMENTAL IMPACTS, MITIGATION MEASURES AND RESIDUAL IMPACTS

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
TRANSPORTATION/TRAFFIC		
No significant change in the LOS rating at any intersection during construction is expected, so no significant adverse traffic impacts are expected due to construction of the proposed project.	None required.	Traffic impacts during the construction phase are less than significant.
No significant change in the LOS rating at any intersection during project operation is expected, so no significant adverse traffic impacts are expected due to the proposed project.	None required.	Traffic impacts due to operation of the proposed are not considered to be significant.

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