2.0 PROJECT DESCRIPTION

2.1 Project Objectives

The primary objective of the proposed project is to provide the means for manufacturing gasoline that complies with the MTBE phase-out mandate and the CARB Phase 3 specifications. The proposed project consists of four components: elimination of ether blending, gasoline vapor pressure reduction, gasoline sulfur reduction, and gasoline volume. The objectives of each proposed project component are summarized below:

- Elimination of Ether Blending – The objective of this component is related to the phase-out of MTBE and TAME. With this phase-out, the Refinery will no longer produce or blend ethers.
- Gasoline Vapor Pressure Reduction – Due to the substitution of ethanol for MTBE and ethanol's effect on the gasoline RVP, the objective of this component is to remove pentanes from the gasoline. Removal of pentanes from the gasoline would enable Chevron to meet the RVP specifications.
- Gasoline Sulfur Reduction – The objective of this project component is to meet the lower sulfur specifications for gasoline as required by the CARB Phase 3 specifications.
- Maintain Gasoline Volume – The objective of this project component is to maintain gasoline production levels consistent with historical gasoline production levels to partially offset the loss of gasoline volume from the MTBE phase-out and vapor pressure reduction.

Phasing out MTBE and producing reformulated gasoline that complies with CARB Phase 3 fuel specifications would allow Chevron to distribute the gasoline to markets in southern California. Since less ethanol than MTBE would be used to make CARB Phase 3 gasoline, the gasoline volume component includes debottlenecking specific process units to minimize the loss of gasoline volume produced due to the reformulation requirements. Debottlenecking is a term that refers to removing physical constraints from particular refinery units/processes. The proposed project will not result in an increase in crude throughput capacity.

2.2 Project Overview

To meet the oxygenate requirements of the CARB Phase 3 gasoline without MTBE, Chevron proposes to blend ethanol, which is currently the only permissible oxygenate that can be used, into the gasoline. For the most part, ethanol is not produced in southern California and would be imported by marine vessel, displacing large amounts of MTBE that are currently imported by marine vessel from the Gulf Coast. Ethanol may also be transported into the region by train.

MTBE and ethanol have different physical and chemical properties. One key difference is that ethanol has a higher affinity for water. MTBE is currently blended into gasoline at the Refinery, and the blended gasoline is transported via pipeline to the distribution terminals. For ethanol, the gasoline and ethanol must be separately transported to distribution terminals via existing pipelines and trucks, respectively, and blended only at the point of shipment that immediately precedes delivery to the retail gasoline stations. This distribution and blending process minimizes the potential contact of ethanol and water that would likely occur during pipeline transport. The gasoline and ethanol would be blended at the three Chevron distribution terminals located in Montebello, Van Nuys, and Huntington Beach.

Replacing MTBE with ethanol in gasoline presents additional refining challenges because when blended with gasoline, ethanol increases the RVP of the resulting blend by about one pound per square inch (psi). To meet the summertime RVP limit of 7.0 psi, a refinery must produce a base fuel with a RVP less than 6.0 psi. Based on the specific refinery processes of the Chevron refinery, this requires pentanes in the gasoline to be removed from the base fuel during the summer months. Consequently, a portion of the project is related to removing pentanes from the gasoline.

Table 2.2-1 presents a comparison of the previous CARB Phase 2 (California Reformulated Gasoline 2 – CaRFG2) gasoline specifications and the CARB Phase 3 (California Reformulated Gasoline 3 - CaRFG3) gasoline specifications. The phase-out of MTBE and the associated changes in California's reformulated gasoline specifications represent the driving forces for the proposed project.

Table 2.2-1
Existing CaRFG2 and New CaRFG3 Gasoline Specifications

Property	Flat Limits		Averaging Limits		Cap Limits	
	CaRFG2	CaRFG3	CaRFG2	CaRFG3	CaRFG2	CaRFG3
RVP, psi max	7.0	7.0(1)	NA(2)	No change	7.0	6.4 – 7.2
Benzene, vol. % max	1.0	0.8	0.8	0.7	1.2	1.1
Sulfur, ppmw, max	40.0	20.0	30.0	15.0	80.0	60.0/30.0(3)
Aromatic hydrocarbon, vol. %, max	25.0	No change	22.0	No change	30.0	35.0

Table 2.2-1 (Concluded)
Existing CaRFG2 and New CaRFG3 Gasoline Specifications

Property	Flat Limits	Averaging Limits	Cap Limits

	CaRFG2	CaRFG3	CaRFG2	CaRFG3	CaRFG2	CaRFG3
Olefins, vol. %, max	6.0	No change	4.0	No change	10.0	No change
Oxygen, wt. %	1.8 to 2.2	No change	NA[2]	No change	1.8-3.5 winter areas	1.8-3.7[4] winter areas
					0 - 3.5	0-3.7[4]
T50 °F, max[5]	210	213	200	203	220	No change
T90 °F, max[6]	300	305	290	295	330	No Change

ppmw – parts per million by weight
1 – Equal to 6.9 psi if using the evaporation element of the Predictive Model.
2 – Not applicable.
3 – 60 ppmw will apply December 31, 2002; 30 ppmw will apply December 31, 2004.
4 – If the gasoline contains more than 3.5 percent by weight oxygen but no more than 10 percent by volume, the maximum oxygen content cap is 3.7 percent by weight.
5 – Temperature at which 50 percent of the hydrocarbons will distill in a standard laboratory test.
6 – Temperature at which 90 percent of the hydrocarbons will distill in a standard laboratory test.

Chevron's proposed project would consist of modifications and additions to existing refinery process units, construction of new equipment, and construction of railcar storage facilities within existing refinery boundaries, as well as modifications and additions at the terminals to blend and store ethanol. There are a number of engineering evaluations underway to determine the optimal design to meet the CARB Phase 3 specifications. Although these evaluations could result in minor modifications to the proposed project, the impact of these minor modifications is expected to be within the scope of the project-specific or alternatives analyses (discussed in Chapters 4 and 5, respectively).

2.3 Locations

The locations of the Refinery and distribution terminals are shown in Figure 1.1-1 in Chapter 1.

The Refinery is located at 324 West El Segundo Boulevard in the City of El Segundo, California. The Refinery occupies a rectangular-shaped parcel of land totaling approximately 1,000 acres south of Los Angeles International Airport and west of the San Diego Freeway (I-405) on the shore of Santa Monica Bay. The Refinery is bordered on all four sides by roads: El Segundo Boulevard to the north, Sepulveda Boulevard to the east, Rosecrans Avenue to the south, and Vista Del Mar to the west. The proposed additions and modifications to the existing refinery will occur within the boundaries of the Refinery.

The Montebello Terminal is located at 601 South Vail Avenue in the City of Montebello. The Montebello Terminal occupies 43 acres of land between the Union Pacific Railroad right-of-way on the north, Vail Avenue on the east, and Flotilla Street on the south. To the west of the terminal is a vacant parcel of land, beyond which is a Metrolink Station.

The Van Nuys Terminal is located at 15359 Oxnard Street in the Van Nuys/Sherman Oaks area of the City of Los Angeles. The terminal is a rectangular-shaped parcel of land totaling approximately five acres on the north side of Oxnard Street. West and northwest of the terminal is a large shipping/receiving warehouse and north of the terminal is a railroad right-of-way. East of the terminal is an office building and Sepulveda Boulevard. South of the terminal (on the south side of Oxnard Street) are several light industrial and commercial facilities.

The Huntington Beach Terminal is located at 17881 Gothard Street in the City of Huntington Beach. The site is a rectangular-shaped parcel located at the northwest corner of Gothard Street and Talbert Avenue. The terminal is surrounded to the north, west, and south by Huntington Central Park, a large regional park encompassing several hundred acres of open space, equestrian trails, and camping facilities. East and southeast of the terminal are industrial and commercial businesses.

2.4 Key Terms

Refineries and terminals use a variety of technical terms to describe their complex operations. For clarification purposes, Table 2.4-1 presents definitions of key terms used throughout the document, and where appropriate, describes how the terms apply to the project. The terms are used with regard to gasoline specifications, certain refinery hydrocarbon streams, and Refinery and terminal operations.

Table 2.4-1
Descriptions of Key Terms

Term	Definition
Alkylation	A polymerization process uniting olefins and isoparaffins; particularly the reaction of butylene and isobutane using sulfuric acid as a catalyst to produce a high-octane, low-sensitivity blending agent for gasoline.
Aromatics	Hydrocarbons that contain one or more benzene rings. Their presence in gasoline has been connected with the formation of VOCs, toxics (benzene), NO_x and CO in exhaust emissions.
Benzene	A type of aromatic hydrocarbon containing six carbon and six hydrogen atoms that has been identified as a carcinogen and is present in gasoline. Benzene reduction in gasoline is part of the new reformulated gasoline specifications.

Table 2.4-1 (Continued)
Descriptions of Key Terms

Term	Definition
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. Under the current project, ethanol will be blended into gasoline.
Bottoms	In general, the higher-boiling residues that are removed from the bottom of a fractionating column.
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.
Cx	The petroleum industry uses a shorthand method of listing hydrocarbon compounds that denotes the number of carbon atoms in the molecule (i.e., Cx). For example, butane is a compound that is comprised of four atoms of carbon and is denoted as C4. Generally, the lower the carbon atom number, the lower the boiling point of the product. During the refinery process, the lighter products (which have the lower boiling points) are collected at the higher points or overheads of distillation towers, while the heavy ends are collected at the bottoms of these units.
DEA	Diethanol amine, a solvent used to remove hydrogen sulfide (H_2S) from refinery streams.
Dimerization	Process of combining two molecules of the same chemical composition into a larger molecule.
Distribution terminal	Terminal used to receive products from the refinery (such as gasoline) and distribute, generally by truck, to service stations and other terminals.
Fractionation	Process of separating or isolating components of a mixture.
Heat exchanger	Refinery equipment used to transfer heat from one medium to another.
Hydrogenation	Any reaction of hydrogen with an organic compound.
Hydrotreating	The process of stabilizing petroleum products and/or removing objectionable elements from products or feedstocks by using hydrogen in the presence of a catalyst.
Isooctene	A mixture of C_8 olefins.
Marine terminal	Terminal located near the sea that can receive or ship products over water.

Table 2.4-1 (Concluded)
Descriptions of Key Terms

Term	Definition
MEA	Monoethanol amine, a solvent used to remove H_2S from refinery streams.
MTBE	Methyl tertiary butyl ether; used in gasoline blending to meet the reformulated gasoline specifications for oxygen content. MTBE also raises the octane number of gasoline.
Olefins	A group of hydrocarbons that contain at least two carbons joined by double bonds. Olefins naturally occur in crude oils and are formed during processing. Olefins have a high ozone reactivity potential and contribute to the reactivity of evaporative emissions.
Oxygen content	Refers to one of the reformulated gasoline specifications that increase the oxygen content of gasoline to promote more complete gasoline combustion and fewer emissions of CO.
Pentane	A saturated hydrocarbon, or alkane, containing five carbon and 12 hydrogen atoms. Under the current project, pentanes will be removed from the Chevron gasoline in order meet the summer RVP requirements.
Reactors	Refinery vessels in which desired reactions take place.
Reflux	An intermediate stream that is recycled back to a distillation tower.
Reformate	The gasoline blending component produced in a catalytic reformer unit
SCR	Selective catalytic reduction; an air pollution control technology.
Sulfur	Refinery product generated by conversion of H_2S to elemental sulfur; normally sold for sulfuric acid production or as a fertilizer component. Studies have demonstrated that sulfur, even in small amounts, causes deactivation of motor vehicle catalysts, resulting in increases in emissions of CO, VOCs, and NO_x.
T50 distillation	Temperature at which 50 percent of the hydrocarbons will distill in a standard laboratory test.
T90 distillation	Temperature at which 90 percent of the hydrocarbons will distill in a standard laboratory test.
TAME	Tertiary amyl methyl ether; also used in gasoline blending to meet the reformulated gasoline specifications for oxygen content. TAME also raises the octane number of gasoline.

2.5 Overview of Current Operations

This section presents an overview of current refinery and terminal operations and a discussion of how the proposed project relates to these operations.

Figure 2.5-1 is a simplified block flow diagram of the existing refinery operations. The Refinery processes crude oil into a variety of products including gasoline, jet fuel, diesel fuel, petroleum gases, petroleum coke, residual fuel, sulfur, and various unfinished intermediate feedstocks to maintain a balanced refinery operation. Figure 2.5-1 also lists chemicals/materials and utilities needed to process the crude oil into the petroleum products and some of the key processing units/operations at the Refinery. The primary change associated with the proposed project would be the elimination of MTBE and TAME from gasoline production pursuant to the Governor's Executive Order. Ethanol would replace MTBE and TAME in the blending of gasoline. Ethanol would be blended into the gasoline at the Chevron distribution terminals.

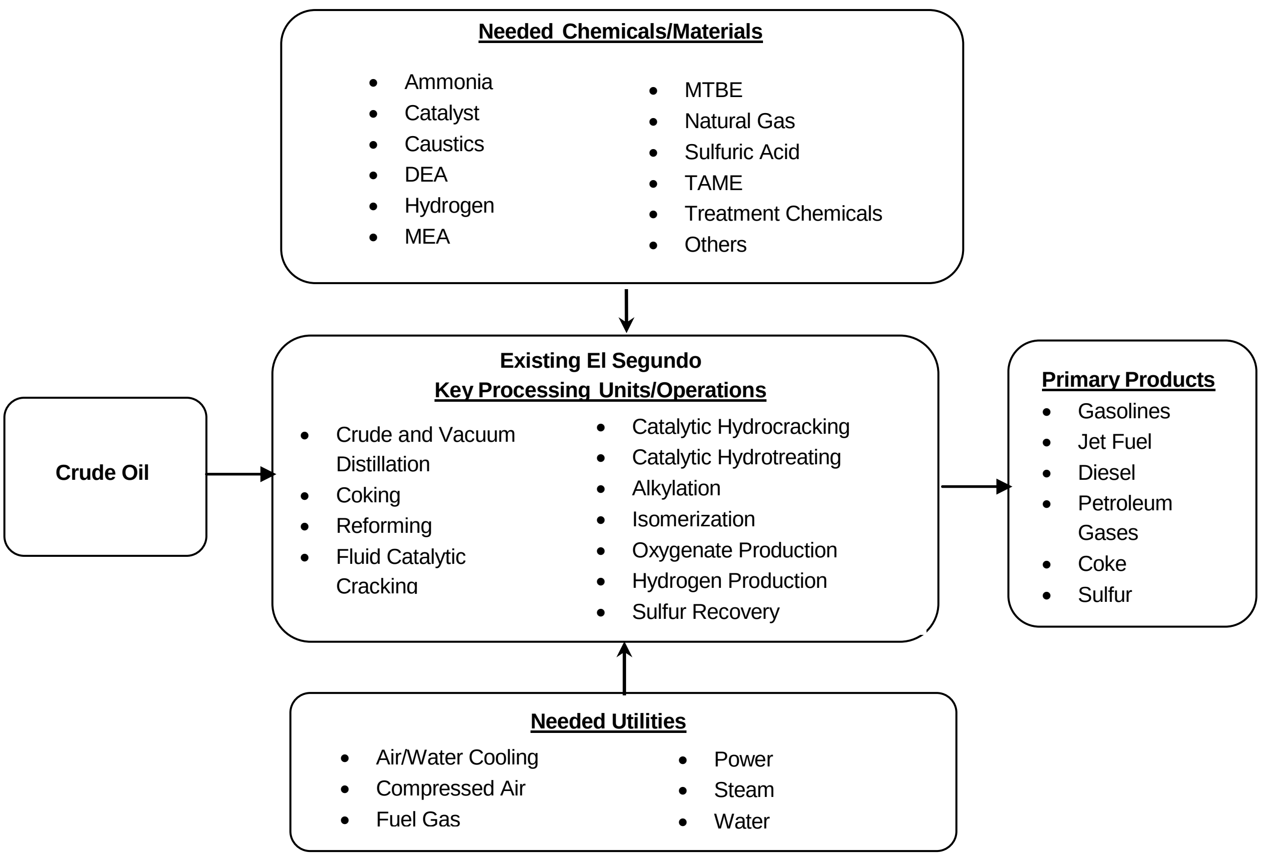

Figure 2.5-1 Simplified Block Diagram – Chevron El Segundo Refinery

There are 34 key processing units/operations at the Refinery. Seven of these (approximately 20 percent) would be modified as part of the proposed project.

2.6 Proposed Project

To meet the CARB Phase 3 specifications, Chevron has developed an overall strategy, which consists of a series of modifications at the Refinery and at the distribution terminals. The strategy and each of the proposed modifications are discussed in this section.

2.6.1 Strategy

To meet the CARB Phase 3 specifications, Chevron would replace MTBE with ethanol and implement a number of related modifications at the Refinery to reduce the sulfur content of gasolines, meet the RVP specifications, and maintain gasoline production volumes.

Currently, MTBE is added to gasoline at the Refinery and the blended gasoline is transported via pipeline to the distribution terminals. Due to ethanol's affinity for water, Chevron would blend the ethanol into the gasoline at the distribution terminals. This approach minimizes the potential for ethanol to come in contact with water. Blending ethanol into gasoline at the terminals also requires a number of modifications at the distribution terminals.

2.6.2 Refinery Modifications

The proposed project at the Refinery consists almost entirely of new equipment and modifications to existing processing units. Table 2.6-1 summarizes the proposed modifications and new equipment. Figure 2.6-1 identifies the general locations of the proposed Refinery additions and modifications. The modifications can be categorized into the four areas listed below:

- Elimination of Ether Blending[*]
- Gasoline Vapor Pressure Reduction
- Gasoline Sulfur Reduction
- Maintain Gasoline Volume

[*] Both MTBE and TAME are ethers. With the phase-out of MTBE, the Refinery will no longer produce or blend ethers.

Table 2.6-1
Proposed Refinery Modifications and New Equipment

Primary Driving Force	Equipment/Process	Nature of Change
Elimination of Ether Blending	TAME Plant – Reaction Section	Demolition
Gasoline Vapor Pressure Reduction	Alkylate Depentanizer – Distillation Column Pumps, Heat Exchangers, Air Cooler	Modifications New Equipment
	Isomax Light Gasoline Depentanizer – Effluent Cooler/Heat Exchanger Distillation Column and Trays; Air Cooler, Heat Exchangers, Vessels, Pumps	Modifications New Equipment
	FCC Light Gasoline Depentanizer – Distillation Column Pumps, Heat Exchangers	Modifications New Equipment
	Pentane Storage Sphere Export Railcar Load Rack Pumps, Sphere, Compressor, Loading Areas	New Equipment Modifications Modifications
	Cogeneration Trains A and B Pumps, Heat Exchanger, Vessel	New Equipment
	Additional Gasoline Storage Pumps, Heat Exchanger, Tank	New Equipment New Equipment
	<u>Alkylation Unit</u>	
	• Refinery Deisobutanizer Reactivation – Distillation Column Cooling Tower, Pumps, Vessel, Heat Exchangers	Modifications New Equipment
	• Alkylation Plant Modifications – Distillation Column Pumps, Contactors, Vessels	Modifications New Equipment
Maintain Gasoline Sulfur Reduction	FCC Light Gasoline Splitter – Air Cooler, Pumps, Vessel, Distillation Column And Trays	New Equipment
	Naphtha Hydrotreater #1 (NHT-1) – Furnace, Pumps, Tank, Air Cooler, Heat Exchanger	New Equipment
	Naphtha Hydrotreater #3 (NHT-3)	Change in Service

Table 2.6-1 (Concluded)
Proposed Refinery Modifications and New Equipment

Primary Driving Force	Equipment/Process	Nature of Change
Maintain Gasoline Volume	<u>Fluid Catalytic Cracking Expansion</u> • FCC Wet Gas Compressor (WGC) Interstage System – Pumps, Vessel, Heat Exchanger	New Equipment
	• FCC Deethanizer – Distillation Column Pumps, Vessel, Heat Exchangers	Modifications New Equipment
	• FCC Debutanizer – Pumps, Vessel, Distillation Column, Heat Exchangers	New Equipment
	• FCC Depropanizer – Pumps, Vessel, Distillation Column, Heat Exchangers	New Equipment
	• FCC C3 Treating – Pumps, Vessels, Distillation Column	New Equipment
	• FCC Main Air Blower Rotor Upgrade – Air Blower Rotor; Turbine Rotor Upgrades	New Equipment
	• FCC Stack Emissions Reduction – Flue Gas Fans, Pump, Vessel, Catalyst Beds Flue Gas Stack	New Equipment Modification
	• FCC Relief/Vapor Recovery System – Heat Exchangers, Compressor, Pumps, Vessels	New Equipment

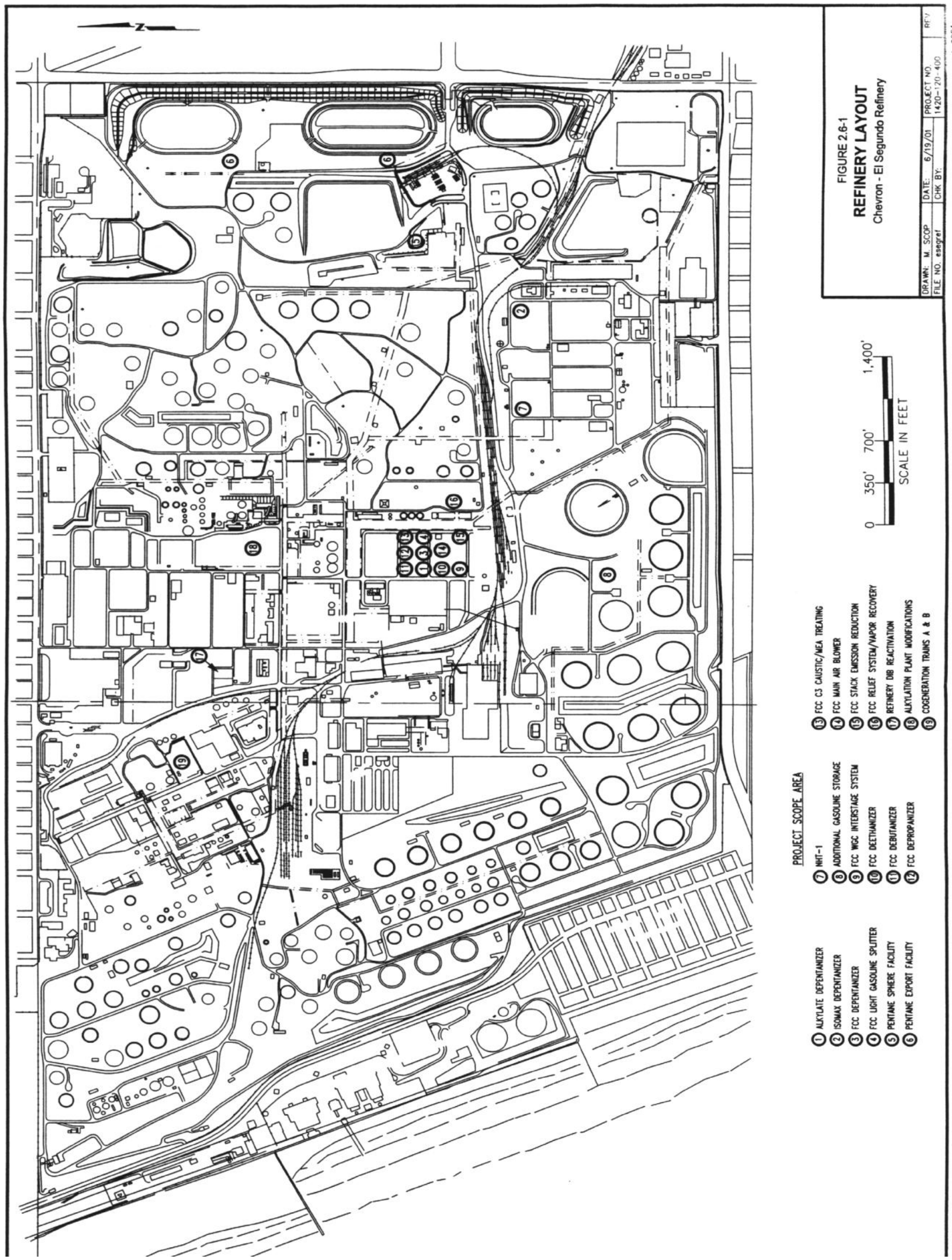

Figure 2.6-1 Refinery Layout Map

Each of the categories and the proposed project modifications summarized in Table 2.6-1 are discussed in more detail in the following subsections.

2.6.2.1 Elimination of Ether Blending (Phasing Out MTBE)

MTBE and TAME are currently produced in the Refinery for oxygenate blending. Ether production and blending at the Refinery would cease and would be replaced by ethanol blending at the distribution terminals. Methanol, which is currently used in the TAME process, would no longer be used. The MTBE and TAME Plants would be shut down and portions converted to other uses.

The purpose of the TAME Plant modifications is to remove idled equipment from service in response to the gasoline ether ban (phasing out MTBE). The TAME Plant consists of two sections. The front section fractionates fluid catalytic cracking (FCC) Light Gasoline to produce TAME Plant feed and includes the selective hydrogenation unit (SHU) for diolefin conversion to olefins. This section would continue to operate. With the phase-out of ether blending (phasing out MTBE), the TAME Plant reaction section, which processes FCC amylenes to produce TAME and a raffinate stream that is sent to the Alkylation Unit, would be shut down and the mixed pentane/pentene stream would be sent directly to the Alkylation Unit. Some of the equipment would be reused in other services and the remaining equipment would be dismantled to make room for new equipment. The MTBE Plant will be shut down and dismantled.

2.6.2.2 Gasoline Vapor Pressure Reduction

Alkylate and Isomax light gasoline are currently blended directly into gasoline. Pentanes would be separated from the alkylate and Isomax light gasoline and routed to a new storage sphere. A varying portion of the pentanes from the storage sphere will be blended back into the gasoline to reduce the amount of excess pentanes, while still meeting the RVP specifications. The balance of pentanes not blended back into the gasoline will either be mixed with reformate and stored, sent to a local power plant or used in the Refinery as fuel, or shipped out of the Refinery by rail.

The following projects are related to gasoline vapor pressure reduction.

Alkylate Depentanizer

The purpose of the Alkylate Depentanizer is to remove pentanes from alkylate to meet the lower gasoline vapor pressure requirements. The Alkylate Depentanizer will utilize an existing distillation column, located in the TAME Plant area, which would be retrofitted for the new service. The Alkylate Depentanizer would split the alkylate product into two streams: a pentane overhead stream and a hexanes-plus-bottoms stream. The feed to the Depentanizer, alkylate product, would come from the Alkylation Unit upstream of the Alkylate Product Cooler. The feed would be preheated by exchange with the Depentanizer bottoms, with trim heating by steam. The overhead stream would be condensed in an air-cooled exchanger. Part of the condensed liquid would be returned to the column as reflux. The rest of the liquid, the overhead product, would be pumped through the Pentane Product Cooler to storage in the new pentane storage sphere. The column reboiler would be heated by steam. The bottoms product would be pumped through the feed/bottoms exchanger, the bottoms cooler, and finally to storage in the existing Alkylate Product Storage Tank. The alkylate product would have a lower vapor pressure than currently produced alkylate product.

Isomax Light Gasoline Depentanizer

The purpose of the Isomax Light Gasoline Depentanizer is to remove pentanes from light gasoline to meet the lower gasoline vapor pressure requirements. The Depentanizer column will utilize an existing column in the MTBE area. The feed to the Depentanizer, Isomax light gasoline, would come from the bottom of the Isomax Gas Recovery Debutanizer. The feed would first be preheated by exchange from the Dependanizer bottoms before being fed to the column. The overhead stream would be condensed in an air-cooled exchanger. Part of the condensed liquid would be returned to the column as reflux. The rest of the liquid, the overhead product, would be pumped through the Pentane Product Cooler to storage in the new Pentane Storage Sphere. The column reboiler would be heated by steam. The bottoms product would be pumped through the feed/bottoms exchanger, the bottoms cooler, and finally to storage in the existing Isomax Light Gasoline Storage Tank. The Isomax light gasoline product would have a lower vapor pressure than currently produced Isomax light gasoline product.

FCC Light Gasoline Depentanizer

The purpose of revamping the FCC Light Gasoline Depentanizer is to improve its removal efficiency of pentanes and pentenes from light gasoline to meet lower gasoline vapor pressure requirements. The FCC Light Gasoline Dependanizer, an existing distillation column, separates pentanes and pentenes from FCC light gasoline for feed to the TAME Plant. Currently, hexanes that go overhead with the pentanes are removed in the TAME Catalytic Distillation (CD) column. Under the proposed project, these hexanes would go to the Alkylation Unit, where they would contribute to higher acid consumption and a higher alkylate endpoint. Pentanes that are left in FCC Light Gasoline Dependanizer bottoms would raise the vapor pressure of the FCC light gasoline (hexane/heptane cut), requiring greater pentane removal elsewhere.

Modifications would be made to improve the separation efficiency of the distillation column. A second reboiler would be added in parallel with the existing reboiler and the existing trays would be replaced with higher efficiency trays.

Pentane as a Cogeneration Turbine Fuel

Cogeneration Trains A and B are currently configured to use propane, butane or natural gas as the primary fuel to the gas turbines. The duct burners are fueled exclusively by Refinery fuel gas. As part of the proposed project, the propane and butane vaporizer, feed pumps, and knock out pot would be replaced to allow the system to feed propane, butane or pentane to the gas turbines. Some of the excess pentane will be vaporized and mixed with natural gas and fed to the gas turbines in Cogeneration Trains A and B. This will reduce the amount of natural gas the Refinery will need to purchase, thereby reducing the consumption of a non-renewable natural resource. The duct burners will continue to be operated exclusively on Refinery fuel gas.

Pentane Storage Sphere and Export Railcar Load Rack

The purpose of the Pentane Storage Sphere is to provide intermediate storage for pentanes removed from gasoline for vapor pressure control. The purpose of the Rail Facilities is to facilitate movement of excess pentanes from the Refinery. Currently, pentanes are contained in the individual blend streams (e.g., alkylate, Isomax light gasoline) and are not available separately for blending. For CARB Phase 3, pentane removal would be required for vapor pressure control. Pentanes separated from their source streams would be stored in a pressure storage sphere. Excess pentanes would be exported from the Refinery by rail or sent to a local power plant or used in the Refinery as a fuel.

The new Pentane Storage Sphere would have the capacity to store 30,000 barrels (bbls) of pentane, and would include pumps for rail car loading, pipeline shipment, and blending. The rail loading rack would include loading spots for 10 rail cars. Due to the reduction in butane rail activity associated with the conversion of butanes to alkylate in the alkylation unit, overall refinery rail activity will not increase as a result of this portion of the proposed project.

Additional Gasoline Storage

In order to minimize the volume of pentanes exported from the Refinery, some pentanes would be blended with Isomax heavy gasoline and stored in conventional floating roof tankage. Blending with heavy gasoline reduces the vapor pressure of the pentane-gasoline mix to the point where it can be stored in non-pressurized aboveground storage tankage. An existing MTBE aboveground storage tank would be converted to gasoline storage, and an additional aboveground storage tank would be constructed. The new tank would include a pump and piping to feed the gasoline blender.

Alkylation Unit

The purpose of the Alkylation Unit modification would be to provide capacity to process the increased olefin available from the FCC to increase production of CARB Phase 3 gasoline. The additional conversion of butanes into alkylate will also help alleviate the RVP/volatility problem associated with the removal of MTBE and the addition of ethanol into gasoline. Ether phase-out would increase the feed to the Alkylation Unit by shutting down the reaction portion of the TAME Plant. An increase in FCC feed rate would increase the available Alkylation Plant feed, which could be used to produce more gasoline to make up for the CARB Phase 3 gasoline pool shrinkage. Two modifications would be made to handle the increased feed rate:

- Retray the Deisobutanizer and Debutanizer
- Reactivate C-1 (existing column) as a utility Deisobutanizer

Retraying the Deisobutanizer and Debutanizer would involve replacing the existing trays with higher capacity trays. This portion of the project would not involve modifications to the exterior of the Deisobutanizer or Debutanizer towers.

- **Refinery Deisobutanizer Reactivation**

  Currently, mixed butanes are fed to the front end of the Alkylation Unit, and the butamer product is fed to the Alkylation Unit Deisobutanizer. These streams increase the fractionation load on the Alkylation Unit Deisobutanizer and Debutanizer, as well as the Alkylation Unit reaction section. An idle deisobutanizer would be returned to service to help reduce the load on the Alkylation Unit by removing normal butane for recycle directly to the Butamer Unit. The column and associated equipment would be refurbished and a new cooling tower would be installed to supply cooling water to this equipment.

- **Alkylation Plant Modifications**

The trays in the existing Alkylation Plant Deisobutanizer would be replaced to provide additional Alkylation Unit capacity. The Alkaline Water Wash Exchangers would be modified or replaced to compensate for the increased alkylate production.

2.6.2.3 Gasoline Sulfur Reduction

FCC light gasoline is currently blended directly into gasoline. The FCC light gasoline would be separated into light and heavy fractions, with the heavy fraction going to NHT-3 for hydrotreating to remove sulfur compounds and the light fraction going directly to gasoline blending.

Currently, NHT-3 shares the straight run naphtha treating load with NHT-1. (NHT-2 treats a small mixed butane-pentane-hexane stream.) All of the Refinery naphtha from the Crude Units and Coker would be routed to NHT-1 for processing, freeing up NHT-3 for FCC gasoline hydrotreating service. The existing feed furnace at NHT-1 would be replaced with a larger, more efficient furnace, and additional heat exchangers would be installed.

The following subsections describe components of the proposed project related to reducing the sulfur content of the Refinery gasoline as required pursuant to CARB Phase 3 specifications.

FCC Light Gasoline Splitter

The purpose of the new FCC Light Gasoline Splitter is to segregate the highest sulfur portion of the light gasoline for subsequent sulfur removal to meet the lower gasoline sulfur requirements. Currently, FCC light gasoline is blended directly into gasoline. FCC light gasoline contains the majority of the sulfur in the gasoline blend pool, and most of the sulfur is in the heavier portion of this stream. The FCC Light Gasoline Splitter would separate the light gasoline into two streams, with the bottoms product containing most of the sulfur. The bottoms product would be sent to NHT-3 for hydrotreating.

The FCC Light Gasoline Splitter consists of a new distillation column located in the TAME Plant area. The feed to the FCC Light Gasoline Splitter, FCC light gasoline, would come from the bottom of the existing Depentanizer. The overhead stream would be condensed in an air-cooled exchanger. Part of the condensed liquid would be returned to the column as reflux. The rest of the liquid, the overhead product, would be pumped through the overhead product cooler to storage in one of the existing FCC Light Gasoline Storage Tanks. The column reboiler would be heated by steam. The bottoms product would be pumped through the bottoms cooler and then sent to NHT-3 for hydrotreating for sulfur removal.

NHT-1

Upgrading the NHT-1 would allow it to process all of the Refinery naphtha and free up the NHT-3 to process only FCC gasoline for sulfur removal. Currently, NHT-1 and NHT-3 share the Refinery naphtha-treating load. Because NHT-3 would be dedicated to FCC gasoline treating service, all of the Refinery naphtha would need to be processed in NHT-1. The NHT-1 feed rate would increase with CARB Phase 3, but the total amount of naphtha would remain the same.

A major modification to NHT-1 would be replacement of an existing feed furnace, with a new, larger, more efficient furnace. Environmental controls would include SCR control for NO_x reduction of the furnace flue gas. Additional fin-fan heat exchangers would also be added.

<u>NHT-3</u>

The purpose of the change in service for NHT-3 is to remove additional sulfur from the FCC gasoline to meet lower gasoline sulfur requirements. NHT-3 operation would change with CARB Phase 3. Currently, NHT-3 processes refinery naphtha from the crude units. NHT-3 would be dedicated to hydrotreating FCC gasoline and would normally be unavailable for processing crude unit naphtha. No modifications to NHT-3 would be required to meet the new operation.

2.6.2.4 Maintain Gasoline Volume

Expansion of the FCC from the current capacity of about 65 thousand barrels per day (MBPD) to 71 MBPD would minimize the loss of CARB Phase 3 gasoline volume production. The additional intermediate FCC gasoline products would help to make up for the reduction in the gasoline volume produced due to the removal of MTBE and pentane. There will be no increase in the crude throughput capacity as a result of the proposed project. To produce more gasoline to partially offset the loss of gasoline volume from ether phase-out and vapor pressure reduction, the Refinery is proposing a number of changes at the FCC and Alkylation Unit.

<u>FCC Expansion</u>

As previously noted, the proposed project will not involve increasing the crude throughput capacity at the Refinery. Some of the proposed modifications, however, will involve increasing the production of intermediate products. For example, the proposed project includes expanding the FCC to increase the current feed rate from about 65 MBPD to 71 MBPD. The feed to the FCC consists of light and heavy gas oils from the crude oil vacuum/distillation units. Increasing the FCC feed is designed to help supplement gasoline production that would otherwise be lost due to the elimination of MTBE and complying with CARB Phase 3 gasoline specifications. The elements of the FCC expansion would include FCC air blower modifications, FCC WGC interstage system modifications, FCC Gas Recovery Unit revamp (including new Debutanizer, Depropanizer, and propane/propylene treating), and modifications at the Alkylation Unit. Each of these modifications is discussed in the following subsections.

- **FCC WGC Interstage System**

  The FCC WGC increases the pressure of the wet gas to allow its utilization in the refinery fuel gas system. The FCC WGC interstage cooling and separation facilities would be modified or replaced to accommodate the higher FCC feed rate. The new compressor interstage system would include coolers, a knockout drum, and pumps to replace the existing equipment.

- **FCC Deethanizer**

  The FCC Deethanizer removes ethane and lighter materials from the FCC intermediate gasoline stream. The capacity of the existing deethanizer would be supplemented by adding a second deethanizer in parallel with the existing deethanizer. This would be done by modifying an existing column, which is currently in debutanizer service, and was formerly the main deethanizer. The overhead condensers, reflux drum, and related equipment associated with this column would be removed from service.

- **FCC Debutanizer**

  The FCC Debutanizer removes butanes and lighter materials from the FCC intermediate gasoline stream. A new debutanizer would be installed to accommodate the higher FCC feed rate and improve fractionation. This column would replace three smaller columns currently in this service, and would be located in the existing TAME Plant area. The associated equipment would include a condenser, reflux drum, reboiler, feed/effluent exchangers, and associated product coolers, pumps and piping. One of the idled columns would be reused as a deethanizer, as discussed above.

- **FCC Depropanizer**

  The FCC Depropanizer removes propane and lighter materials from the FCC intermediate gasoline stream. A new depropanizer would be installed to accommodate the higher FCC feed rate. The new depropanizer would replace three smaller columns currently in this service, and would be located in the existing TAME Plant area. The associated equipment would include a condenser, reflux drum, reboiler, and associated product coolers, pumps, and piping.

- **FCC C3 Treating**

  The new FCC C3 (propane/propylene) treating facilities would replace existing treating facilities, and would be located in the existing TAME Plant area. They would use the same treating configuration as the existing facilities, which includes amine treating for H_2S removal followed by batch caustic treating for mercaptan removal and water washing for trace caustic removal. The existing caustic treating facilities, located in the FCC area, would be dismantled.

- **FCC Main Air Blower Rotor Upgrade**

  The existing FCC main air blower rotor would be upgraded to provide additional air flow to the FCC regenerator to accommodate the higher FCC feed rate.

- **FCC Stack Emissions Reduction**

  An emissions reduction system would be installed on the FCC flue gas to reduce NO_x and CO emissions. The emissions reduction system consists of a CO catalyst bed to reduce CO emissions and installation of SCR technology to reduce NO_X emissions.

- **FCC Relief System/Vapor Recovery System**

  The FCC relief system would be modified to accommodate the relocated (TAME area) FCC Gas Recovery Unit equipment. This would include new relief system piping and new vapor recovery compressors.

2.6.3 Terminal Modifications

To meet the oxygenate requirements of the CARB Phase 3 gasoline without MTBE, fuel ethanol will be blended into the gasoline. However, because of the affinity of ethanol for water, blending activities will be conducted at the distribution terminals. Fuel ethanol is not produced commercially in southern California, so it will be transported to the greater Los Angeles area by marine vessel, displacing the large amounts of MTBE that are currently brought by marine vessel from the Gulf Coast. Ethanol may also be transported into the area by train.

The ethanol may be purchased and shipped to the Los Angeles/Long Beach harbor on marine vessels and unloaded into existing storage tanks at a third-party marine terminal. At this time, it is unclear which third-party terminal will be used to unload ethanol and what, if any, modifications will be required at this third-party terminal. Once the third-party terminal is identified, the owner of the terminal would be responsible for obtaining the necessary permits and approvals for any required modifications. Thus, the third-party terminal modifications are not part of the proposed project and the potential environmental impacts from the modifications have not been analyzed as part of this EIR. Any subsequent modifications at a third-party terminal will be evaluated for CEQA applicability and, if necessary, an analysis of potential adverse environmental impacts, including cumulative impacts, will be conducted.

From the third-party terminal, the ethanol will be loaded in Chevron tanker trucks and taken to the three Chevron distribution terminals in Montebello, Van Nuys, and Huntington Beach. Ethanol will also be imported by rail to new unloading facilities constructed at the Montebello Terminal.

The ethanol would be blended into non-oxygenated gasoline blendstock at the three distribution terminals as the gasoline is loaded onto tanker trucks for delivery to service stations throughout the Los Angeles area.

As stated above, ethanol may also be transported by train into the area. When this occurs, the ethanol will be delivered to the Montebello Terminal and as necessary distributed to the Van Nuys and Huntington Beach Terminals by truck.

Table 2.6-2 presents an overview of the various modifications and additions that are required at the three distribution terminals to enable ethanol blending at the terminals and other related modifications to meet CARB Phase 3 fuel specifications.

Table 2.6-2
Proposed Terminal Changes

Terminal	Proposed Change and/or Addition
Montebello Terminal	Ethanol Storage • New 50,000-bbl storage tank. Ethanol Unloading (Truck) • Two new pumps and grounding systems and associated piping and hoses. • Two new concrete pads, each 12 feet by 70 feet, for containment and drainage. • New card reader and touchscreen at unloading area. Ethanol Unloading (Rail) • New rail spur • Two new pumps and 12 ~~eight~~ new hoses manifolded for simultaneous unloading of 12 ~~eight~~ rail cars. • New piping from the unloading pumps to the new storage tank. Ethanol Blending (On Rack) • Two new pumps and associated filters and piping. • New meters and control valves to provide ratio blending at loading rack. Ethanol Blending (Off Rack) • Two new pumps and associated filters and piping.
Van Nuys Terminal	Ethanol Storage • Convert two existing gasoline storage tanks to ethanol service. Ethanol Unloading • Two new pumps and associated piping and hoses. • New card reader and touchscreen at unloading area. Ethanol Blending (On Rack) • Two new pumps and associated filters and piping. • New controllers to provide ratio blending of gasoline at loading rack. • New turbine meters, control valves, and related equipment for ethanol blending at loading rack.

Table 2.6-2 (Concluded)
Proposed Terminal Changes

Terminal	Proposed Change and/or Addition
Huntington Beach Terminal	Ethanol Storage • Convert one existing diesel fuel aboveground storage tank to ethanol service. Ethanol Unloading • Two new pumps and associated piping and hoses. • New card reader and touchscreen at unloading area. Ethanol Blending (On Rack) • Two new pumps and associated filters and piping. • New controllers to provide ratio blending of gasoline at loading rack. • New turbine meters, control valves, and related equipment for ethanol blending at loading rack. Ethanol Blending (Off Rack) • Two new pumps and associated filters and piping.

Montebello Terminal

Ethanol would be brought to the Montebello Terminal by tanker truck or rail car and unloaded into a new 50,000 bbl internal floating roof storage tank on a new foundation. The tank would be designed to meet applicable building code standards, as well as Federal New Source Performance Standards (NSPS) requirements for air quality and would be equipped with an automatic tank gauge and independent high-level alarm. Additionally, new foam piping for fire protection would be installed on the new tank and the tank would be located within existing secondary containment.

Sixteen ~~Twenty-three~~ additional tanker trucks per day would transport ethanol to the facility. When ethanol is delivered by rail, 23 ~~27~~ additional tanker truck trips per day would occur from the facility to transport ethanol to the Van Nuys and Huntington Beach Terminals. There would be no change to other operating truck traffic as a result of the proposed project.

A new two-lane unloading station would be constructed to unload the ethanol from the tanker trucks to the storage tank. The unloading station would be equipped with two new pumps rated at 400 gallons per minute (gpm). Unloading hoses would be manifolded to each pump's suction to allow simultaneous unloading of two truck compartments. New piping would be installed from the unloading pumps to the tank fill valve. Two new concrete foundations, each 12 feet by 70 feet, would be constructed at the unloading station for containment and drainage. The new unloading station would also be equipped with new grounding systems and new card readers/touchscreens.

The existing loading rack would be modified to allow ethanol blending. Two new loading pumps rated at 1,200 gpm would be added to the loading rack, as well as two new ethanol filters, also rated at 1,200 gpm. New suction piping would be added from the new storage tank to the ethanol pumps and new discharge piping would be added from the ethanol pumps to the loading rack. Additionally, new preset controllers would be installed to provide ratio blending on the loading arms for the different grades of gasoline, and new turbine meters, control valves, and related equipment would be added for the blending of ethanol and other fuel additives.

A new rail car unloading area would be constructed to allow for the simultaneous unloading of up to 12 ~~eight~~ rail cars. The new rail spur would come from the existing tracks to the north of the terminal. The spur would start just west ~~east~~ of ~~and cross~~ Vail Avenue. The rail car unloading area would be equipped with two new pumps rated at 800 gpm, as well as 12 ~~eight~~ unloading hoses connected to a common manifold. In addition, new piping from the rail car unloading area to the new storage tank would also be installed at the Montebello terminal.

There would be no change in water or natural gas usage as a result of the proposed project at the Montebello Terminal. There would be a small incremental increase in electricity usage for the six new pumps and additional lighting. No additional employees would be required to operate the proposed changes at this terminal.

Figure 2.6-2 depicts the locations of proposed additions and modifications at the Montebello Terminal.

Van Nuys Terminal

Ethanol would be brought to the Van Nuys Terminal by tanker truck and unloaded into two existing gasoline tanks converted to ethanol service. No modifications to the tanks would be required, as the tanks are equipped with fire protection, leak detection, and are contained in adequate secondary containment.

Ten ~~Fifteen~~ additional tanker trucks per day would transport ethanol to the facility. There would be no change to other operating truck traffic as a result of the proposed project.

A new two-lane unloading station would be constructed to unload the ethanol from the tanker trucks to the storage tanks. The unloading station would be equipped with two new pumps rated at 400 gpm. Unloading hoses will be manifolded to each pump's suction to allow simultaneous unloading of two truck compartments. New piping would be installed from the unloading pumps to the tank fill valve. The new unloading station would also be equipped with new card readers and touchscreens.

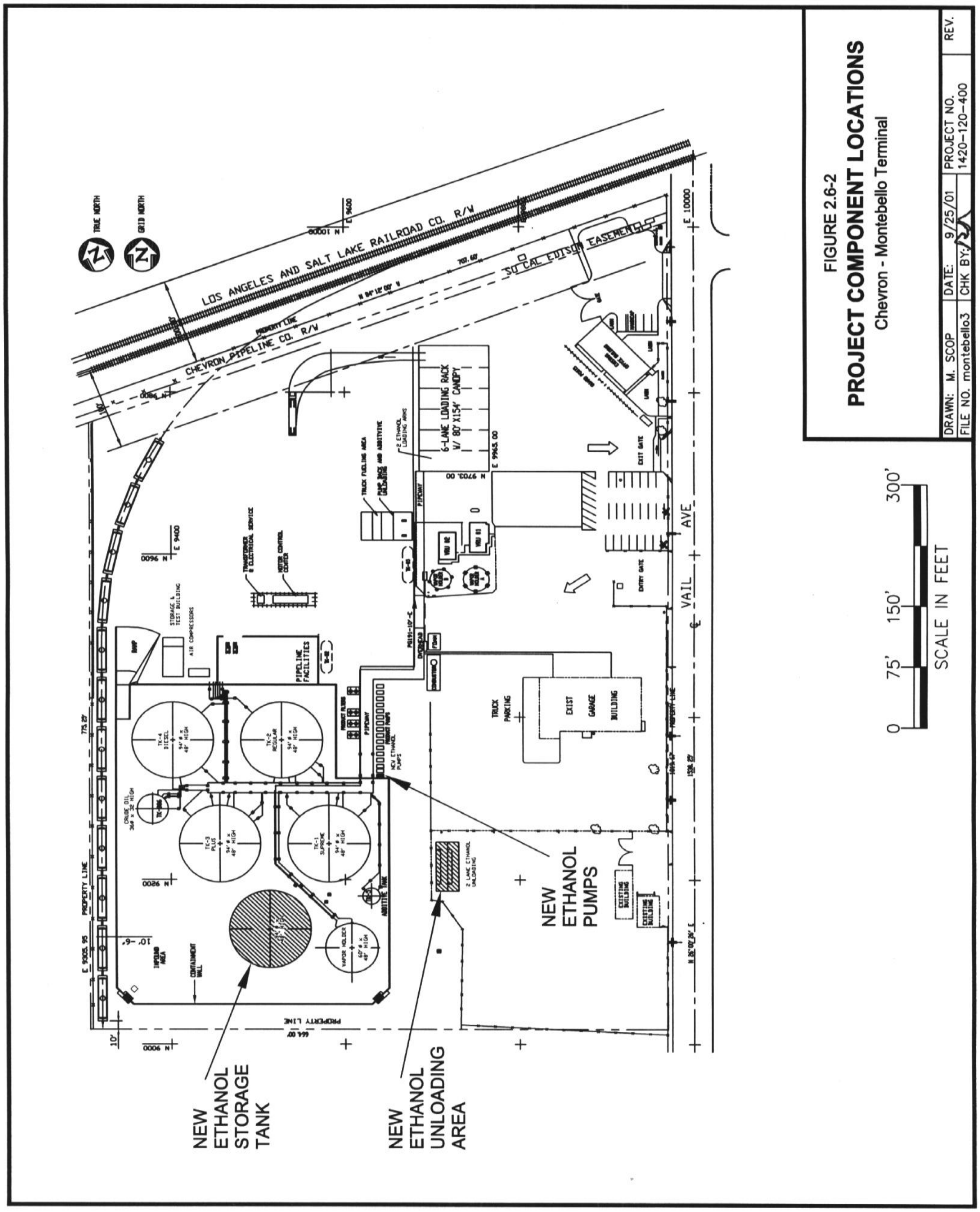

Figure 2.6-2 Project Component Locations, Montebello Terminal

The existing loading rack would be modified to allow ethanol blending. Two new loading pumps rated at 1,200 gpm would be added to the loading rack, as well as two new ethanol filters, also rated at 1,200 gpm. Only minor new suction piping would be added from the converted storage tanks to the ethanol pumps as existing midgrade piping would be used. However, new discharge piping would be added from the ethanol pumps to the loading rack. Additionally, new preset controllers would be installed to provide ratio blending on the loading arms for the different grades of gasoline, and new turbine meters, control valves, and related equipment would be added for the blending of ethanol and other fuel additives.

There would be no change in water or natural gas usage as a result of the proposed project at the Van Nuys Terminal. There would be a small incremental increase in electricity usage for the four new pumps and additional lighting. No additional employees would be required for the operation of proposed changes at this terminal.

Figure 2.6-3 depicts the locations of proposed additions and modifications at the Van Nuys Terminal.

Huntington Beach Terminal

Ethanol would be brought to the Huntington Beach Terminal by tanker truck and unloaded into one existing diesel fuel storage tank converted to ethanol service. No modifications to the tank would be required, as the tank is equipped with fire protection, leak detection, and is contained in adequate secondary containment.

Thirteen ~~Twelve~~ additional tanker trucks per day would transport ethanol to the facility. There would be no change to other operating truck traffic as a result of the proposed project.

A new two-lane unloading station would be constructed to unload the ethanol from the tanker trucks to the storage tank. The unloading station would be equipped with two new pumps rated at 400 gpm. Unloading hoses will be manifolded to each pump's suction to allow simultaneous unloading of two truck compartments.

New piping would be installed from the unloading pumps to the tank fill valve. The new unloading station would also be equipped with new card readers and touchscreens. The existing loading rack would be modified to allow for ethanol blending. Two new loading pumps, each rated at 600 gpm, would be added to the loading rack. Two new ethanol filters would also be added, each rated at 600 gpm.

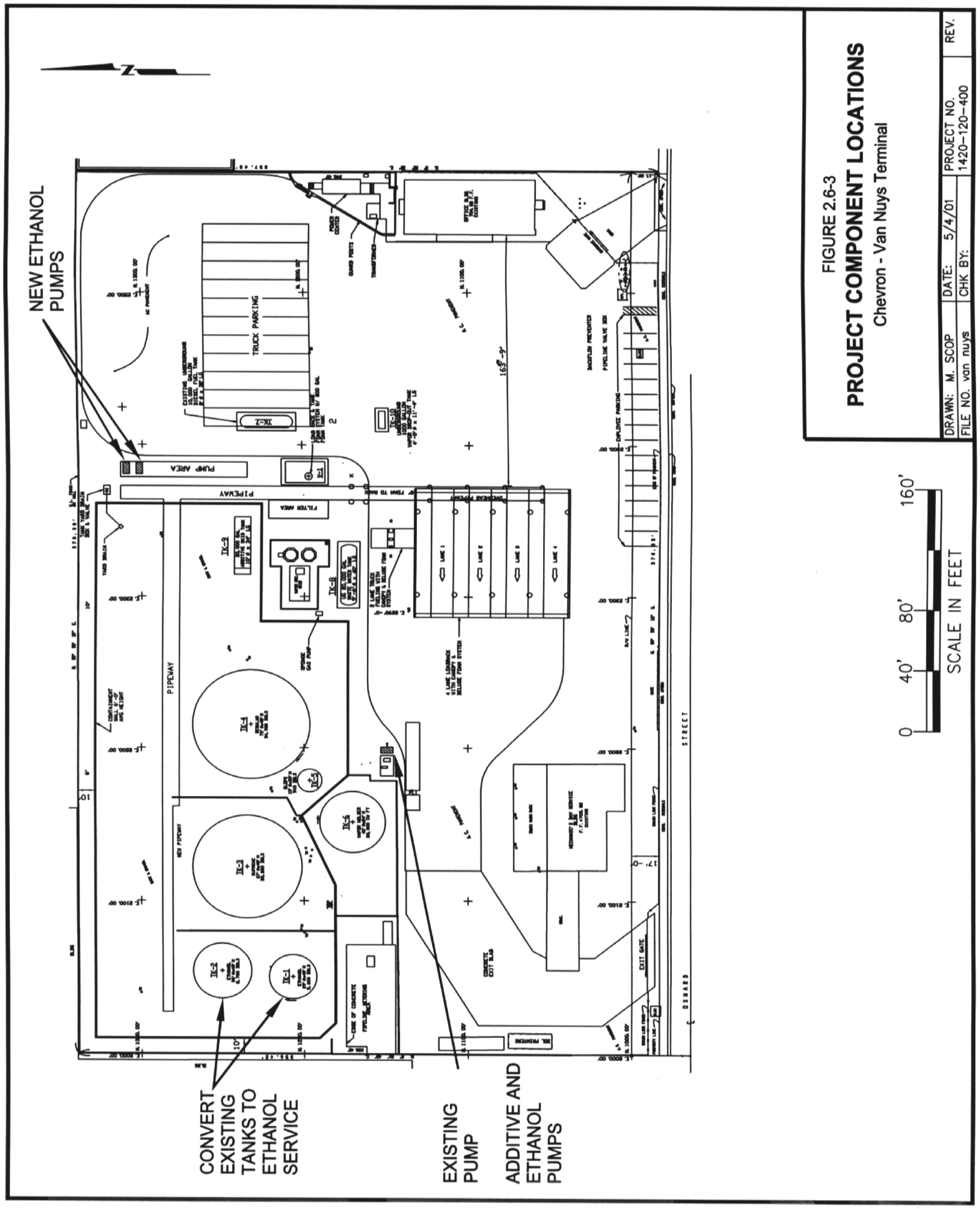

Figure 2.6-3 Project Component Locations, Van Nuys Terminal

New suction piping would be added from the converted storage tank to the ethanol pumps and new discharge piping would be added from the ethanol pumps to the loading rack. Additionally, new preset controllers would be installed to provide ratio blending on the loading arms for the different grades of gasoline. New turbine meters, control valves, and related equipment would be added for the blending of ethanol and other fuel additives.

There would be no change in water or natural gas usage as a result of the proposed project at the Huntington Beach Terminal. There would be a small incremental increase in electricity usage for the four new pumps and additional lighting. No additional employees would be required for the operation of the proposed changes at the Huntington Beach Terminal.

Figure 2.6-4 depicts the locations of proposed additions and modifications at the Huntington Beach Terminal.

2.7 Construction

2.7.1 Schedule

Construction of the proposed project at the Refinery would be conducted in two phases. Phase I includes four components: MTBE phase-out, CARB Phase 3 modifications, ~~converting the existing MTBE unit into an Isooctene Unit~~, and gasoline component storage construction. Phase II includes two components: FCC modifications and Alkylation Plant modifications. The two phases of construction will be conducted in series. The construction of Phase I will allow for CARB Phase 3 requirements to be satisfied by January 1, 2003. Phase II will be constructed to maintain the gasoline volume and will take place subsequent to Phase I. Phase I construction is scheduled to begin in January 2002 and be completed in December 2002. Phase II construction is scheduled to begin in January 2003 and be completed in September 2003.

Both Phase I and II of construction at the refinery is anticipated to take place five days per week, Monday through Friday, from 6:30 AM to 5:00 PM. Occasional double or weekend shifts may be required to maintain the construction schedule.

Construction activities at the terminals would begin some time during the second quarter of 2002 (April to June) and are expected to last from three to six months. Construction activities would occur during one 10-hour shift per day, Monday through Friday, from 7:00 AM to 6:00 PM.

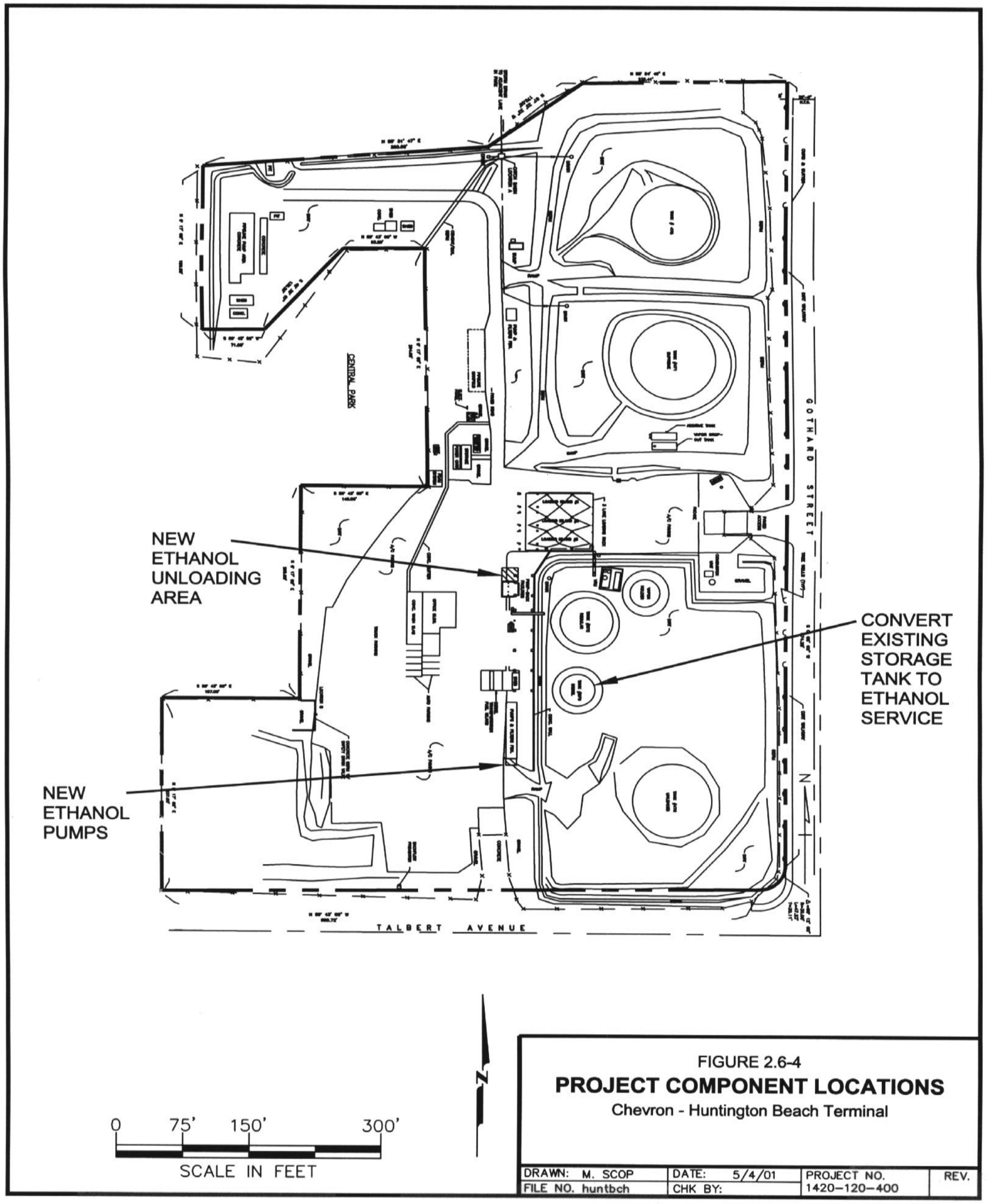

Figure 2.6-4 Project Component Locations, Huntington Beach Terminal

2.7.2 Labor Force

Construction activities at the Refinery would require an average of 200 workers for the length of the project, with a two- to three-month peak of 340 workers occurring between January and December 2002. The construction activities at the terminals would require between six and 20 workers at each terminal for the duration of construction (three to six months).

2.7.3 Construction Plan

Pre-construction planning would occur as engineering design drawings are finalized. A construction plan would be prepared and would include the following components: project tasks; allocation of personnel resources; identification of critical path activities; scheduling/sequencing of work; emergency and health & safety protocols; procedures for the assessment and disposal of hazardous materials encountered during construction; appropriate handling and disposal of hazardous materials/waste; permits and material safety data sheets; traffic control measures; equipment, security, and laydown area guidance; and mitigation monitoring compliance.

Initial construction operations would include the mobilization of construction forces, and determination of the location of necessary support facilities required within the Refinery and terminal boundaries. Construction laydown and personnel parking at the Refinery and terminal locations would be staged from contractor service areas located within Refinery and terminal and boundaries. Construction equipment would include earthmovers, backhoes, light and heavy cranes, portable welding equipment, air compressors, trucks, and pumps.

Cut-and-fill activities would take place at the Refinery to provide stable foundations for the new pentane storage sphere, the pentane export railcar loading facility, and the additional gasoline storage. Foundation depths would range from six to nine feet below the existing grade. These areas would be backfilled to the surrounding grade elevation. The installation of underground piping and electrical systems would be sequenced with the excavation and placement of the foundations as appropriate. In addition, it is anticipated that some minor ground preparation would be required at the Refinery and the terminals in those areas where new pumps, feed drums, or heat exchangers would be placed. Additionally, limited ground preparation will be required for the construction of the rail spur at the Montebello Terminal.

2.7.4 Materials and Services

Construction materials furnished in bulk quantities, such as concrete and steel, would be procured locally when possible. Consumable materials, such as construction equipment fuel, would be procured locally when possible and stored in the designated contractor service areas at the Refinery and the terminals. Appropriate measures would be taken when storing, dispensing, and using fuels and other flammable materials to prevent fires and accidental releases. The construction contractors would fence, provide appropriate signage, and properly secure the mobilization/laydown areas to reduce the potential for vandalism or injuries.

2.8 Project Operation

2.8.1 Labor Force

No additional employees would be required at either the Refinery or the terminals as a result of the operation of the proposed project.

2.8.2 Project Termination and Decommissioning

The estimated lifetime of the proposed project additions and modifications to the Refinery and terminals is over 20 years. The appropriate equipment may then be shut down and/or decommissioned, modified, and/or expanded in accordance with the applicable regulations and market conditions prevailing at the time of termination. The form of decommissioning would likely involve a combination of salvage or disposal at an approved landfill, as well as site restoration.

2.9 Permits and Approvals

The proposed project would require a number of permits and approvals before construction and operation can commence. Table 2.9-1 outlines the federal, state, and local agencies, with approval authority over the project, and the various permits and approvals specific to each agency. The table also includes a listing of regulations and requirements that must be met during construction and/or operation.

Table 2.9-1
List of Federal, State, and Local Agency Permits, Approvals, and Other Requirements

Agency Permit or Approval	Requirement	Applicability to Project
Federal		
Federal Aviation Administration (FAA)	*Notice of Proposed Construction or Alteration* (FAA Form 7460-1) to comply with FAA Advisory Circular 70/7460-2I, Proposed Construction or Alteration of Objects that May Affect Navigable Airspace (14 Code of Federal Regulations [CFR] Part 77)	Construction or alteration of a structure more than 200 feet above the ground level at its site or higher than an imaginary surface extending outward and upward at slope of 50:1 for a horizontal distance of 10,000 feet from the nearest runway at Los Angeles International Airport. Construction equipment, such as cranes, are subject to this requirement.
Environmental Protection Agency (U.S. EPA)	NSPS 40 CFR Part 60 General Provisions (Subpart A)	Requires facilities subject to a NSPS to provide notification, maintain and submit records, and in some cases undertake performance tests.
	NSPS for VOC equipment leaks in Synthetic Organic Chemicals Manufacturing Industry, 40 CFR Part 60 Subpart GGG/VV	Contains performance standards for equipment leaks from sources with fugitive components.
	Accidental Release Prevention Risk Management Program, 40 CFR 68 (and California Accidental Release Program, Title 19, Div. 2, Chapter 4.5)	Offsite consequence analysis required for pentane, ethanol, and butane.
	Benzene Waste National Emission Standards for Hazardous Air Pollutants, 40 CFR Part 61 Subpart FF	Reporting and recordkeeping.
	Refinery Maximum Achievable Control Technology (MACT) Standard, 40 CFR Part 63 Subpart CC	Requires a startup, shutdown, and malfunction plan for process vents and onsite gas loading.
	Gasoline Distribution MACT, 40 CFR Part 63 Subpart RR	Gasoline distribution
	Superfund Amendments and Reauthorization Act (SARA) Title III	Requires reporting offsite releases of hazardous substances.
	Emergency Planning and Community Right-to-Know Act, Section 302	Requires disclosure of hazardous substances being used.

Table 2.9-1 (Continued)
List of Federal, State, and Local Agency Permits, Approvals, and Other Requirements

Agency Permit or Approval	Requirement	Applicability to Project
EPA (Continued)	Pretreatment Standards, 40 CFR Part 400 et seq.	Standards for wastewater discharges.
	Resource Conservation and Recovery Act (RCRA), 40 CFR Parts 260-279	Requires proper handling of hazardous waste material.
	National Pollutant Discharge Elimination System (NPDES), 40 CFR Part 112	Requires compliance with Clean Water Act (CWA) standards for discharges to Santa Monica Bay.
	Toxic Substances Control Act, 40 CFR Part 700	Requires premanufacturing notification (if necessary).
Department of Transportation (DOT)	Compliance with DOT regulations regarding transportation of hazardous substances (as defined in 49 CFR Part 172)	Project-related transportation of hazardous substances such as sodium hydroxide and sulfuric acid, as well as hydrocarbons such as pentanes.
Occupational Safety and Health Administration (OSHA)	Process Safety Management OSHA 29 CFR Part 1910	Worker process safety standards.
State		
California Department of Transportation (Caltrans)	Transportation permit	Application to transport overweight, oversize, and wide loads on state highways.
Cal-OSHA	Construction-related permits	Excavation, construction, demolition, and tower and crane erection permit.
California State Water Resources Control Board	Aboveground Petroleum Storage Tank registration Health and Safety Code Chapter 6.67	Required for new aboveground storage tanks (ASTs) storing petroleum products.
Office of Environmental Health Hazard Assessment	Proposition 65 warnings for known exposures to listed chemicals	Required if significant risk identified exceeds regulatory limit.
Local		
Regional Water Quality Control Board (RWQCB)	NPDES permit for stormwater runoff and point source associated with construction activities in addition to new stormwater outfalls	Required for stormwater runoff from construction activities involving 5 acres or more.
	Remedial action plan	Required if contaminated soil is found and remediated.

Table 2.9-1 (Continued)
List of Federal, State, and Local Agency Permits, Approvals, and Other Requirements

Agency Permit or Approval	Requirement	Applicability to Project
<u>SCAQMD</u>	CEQA Review/EIR	AQMD is the lead agency for certification of the proposed project EIR.
	AB2588: Air Toxics Hot Spots Information and Assessment Act reporting	Periodic updating of air toxic emissions inventories and health risk assessment.
	AQMD Rule 201: Permit to Construct	Applications are required to construct or modify stationary emissions sources.
	AQMD Rule 203: Permit to Operate	Applications are required to operate stationary emissions sources.
	AQMD Rule 212: Standards for Approving Permits	Requires public notification for a "significant project."
	AQMD Rule 401: Visible Emissions	Provides limitations to visible emissions from single emission sources.
	AQMD Rule 402: Nuisance	Discharges which cause a nuisance to the public are prohibited.
	AQMD Rule 403: Fugitive Dust	Contains control requirements for operations or activities that cause or allow emission of fugitive dust.
	AQMD Rule 442: Use of Solvents	Limits use of solvents based on photochemical reactivity unless emissions reduced by 85 percent.
	AQMD Rule 462: Organic Liquid Loading	Requires vapor recovery systems for loading of organic liquids.
	AQMD Rule 463: Storage of Organic Liquids	Provides design requirements for tanks storing organic liquids.
	AQMD Rule 1113: Architectural Coatings	Specifies allowable VOC content of coatings for structures.
	AQMD Rule 1123: Refinery Process Turnarounds	An approved VOC control plan must be implemented during refinery process turnarounds.
	AQMD Rule 1142: Marine Tank Vessel Operations	Loading products into ships. Requires emissions controls, limits emissions
	AQMD Rule 1149: Storage Tank Cleaning and Degassing	Requires certain methods be used for degassing tanks. Tanks converted for other uses will require cleaning.
	AQMD Rule 1158: Storage, Handling, and Transport of Coke, Coal, and Sulfur	Places requirements on handling of solid sulfur and coke to control dust.
	AQMD Rule 1166: Excavation of VOC Contaminated Soils	Required if soils to be excavated are impacted by hydrocarbons.

Table 2.9-1 (Continued)
List of Federal, State, and Local Agency Permits, Approvals, and Other Requirements

Agency Permit or Approval	Requirement	Applicability to Project
SCAQMD (Continued)	AQMD Rule 1173: Fugitive Emissions of VOC	Contains requirements for inspection and maintenance of fugitive VOC emitting components.
	AQMD Rule 1176: Sumps and Wastewater Separators	A compliance plan is required for VOC control from wastewater systems.
	AQMD Rule 1401: New Source Review (NSR) of Toxic Air Contaminants	New or modified permit units must apply Toxics - Best Available Control Technology (BACT) if over maximum allowed risk levels.
	AQMD Rule 1415: Reduction of Refrigerant Emissions from Stationary Refrigeration and Air Conditioning Systems.	Certain requirements for installation and operation of refrigerant systems, such as refrigerated pentane storage tank.
	AQMD Regulation XIII: Non-Regional Clean Air Incentives Market (RECLAIM) Pollutants	New source review requirements for non-RECLAIM emissions sources.
	AQMD Regulation XX, Rule 2005	New source review requirements for FCC modification, including BACT and allocation and credits.
	AQMD Regulation XXX: Title V Operating Permits	Title V operating permit system implemented to comply with the federal Clean Air Act as amended in 1990.
Los Angeles County Sanitation District	Industrial wastewater discharge approval	Required when discharging into sewer.
Orange County Sanitation District	Industrial wastewater discharge permit	Required when discharging into county sewer.
El Segundo Fire Department - Hazardous Materials Division	Permit for ASTs and storage of flammable materials; business disclosure form, building plan check	Required for ASTs and areas where storage of flammable materials occur; required for storage of hazardous materials; required to review plans for construction.
	Hazardous Materials Business Plan revision approval (AB 2185 et. al.)	Project-related onsite storage of regulated materials.
Montebello Fire Department	Permit for new AST and storage of flammable materials; business disclosure form, building plan check	Required for ASTs and areas where storage of flammable materials occur; required for storage of hazardous materials; required to review plans for construction.
	Hazardous Materials Business Plan revision approval (AB 2185 et. al.)	Project-related onsite storage of regulated materials.

Table 2.9-1 (Concluded)
List of Federal, State, and Local Agency Permits, Approvals, and Other Requirements

Agency Permit or Approval	Requirement	Applicability to Project
City of Los Angeles Fire Department – Bureau of Fire Prevention	Permit for change of use of ASTs and storage of flammable materials; business disclosure form, building plan check	Required for ASTs and areas where storage of flammable materials occur; required for storage of hazardous materials; required to review plans for construction.
	Hazardous Materials Business Plan revision approval (AB 2185 et. al.)	Project-related onsite storage of regulated materials.
Huntington Beach Fire Department – Petro/Chemical Section	Permit for new AST and storage of flammable materials; business disclosure form, building plan check	Required for ASTs and areas where storage of flammable materials occur; required for storage of hazardous materials; required to review plans for construction.
	Hazardous Materials Business Plan revision approval (AB 2185 et. al.)	Project-related onsite storage of regulated materials.
Cities of El Segundo, Montebello, Los Angeles, and Huntington Beach	Sewer connection permit	Required for new sewer connections.
	Building permit	Required for foundations, buildings, etc.
	Grading permit	Required prior to grading land
	Plumbing permit	General construction permit
	Electrical permit	General construction permit

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