

CHAPTER 2

ENVIRONMENTAL CHECKLIST FORM

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INTRODUCTION

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

GENERAL INFORMATION

Project Title:	Paramount Petroleum Refinery 7.5 MW Cogeneration Project
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 E. Copley Drive Diamond Bar, CA 91765
Contact Person:	Mike Krause
Contact Phone Number:	(909) 396-2706
Project Sponsor's Name:	Paramount Petroleum Corporation
Project Sponsor's Address:	14700 Downey Avenue, Paramount, California 90723
General Plan Designation:	Heavy Manufacturing
Zoning:	M-2
Description of Project:	Paramount is proposing to install and operate a 7.5 megawatt cogeneration facility to produce steam and electricity to operate its refinery.
Surrounding Land Uses and Setting:	The Paramount refinery is located in Paramount, California and accounts for slightly more than half of the total acreage within the Somerset Ranch Area of the 1990 Paramount General plan. The Somerset Ranch Area is designated as "Mixed Use" and includes a mix of residential, commercial, industrial, and public uses. The refinery is zoned M2, Heavy Manufacturing.
Other Public Agencies Whose Approval is Required:	The proposed project will require building permits and possibly other development permits from the City of Paramount.

ENVIRONMENTAL RESOURCES POTENTIALLY AFFECTED

The following environmental impact areas have been assessed to determine their potential to be affected by the proposed project. As indicated by the checklist on the following pages, environmental topics marked with an "✓" may be adversely affected by the proposed project. An explanation relative to the determination of impacts can be found following the checklist for each area.

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

DETERMINATION

On the basis of this initial evaluation:

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

Date: November 27, 2001

Signature: Steve Smith

Steve Smith, Ph.D.
Program Supervisor

ENVIRONMENTAL CHECKLIST AND DISCUSSION

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

1.1 Significance Criteria

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

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

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

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

1.2 Environmental Setting and Impacts

Paramount Refinery is located within a mixed use area which is surrounded by residential, commercial, and other industrial land uses. The refinery is only partially shielded by landscaping and fencing along Lakewood and Somerset Boulevards, while denser foliage screens the refinery from the Cinderella Mobile Home Community. Refinery structures and equipment are visible above the fencing and landscaping from adjacent residential and commercial uses. Structural components at the refinery include white cylindrical tanks including several which are

nearly 40 feet tall, and gray-toned industrial equipment with structures approximately 60 feet tall. In general, the larger tanks and industrial structures are supported on concrete pads. The remaining areas of the site have been graded and are overlaid with dirt. Most of the Paramount Refinery roads are paved. The DWP easement and the Union Pacific railroad line define the site's southern boundary.

The main truck entrance to the Paramount Refinery is located along Andry Drive, with right turns permitted on Lakewood Boulevard, and both right and left turns permitted on Somerset Boulevard. Trucks queue within stalls located along Andry Drive. Employees and visitors to the site use the driveway located on Downey Avenue. Landscaping along Lakewood and Somerset Boulevards and Downey Avenue consists of lawn grass, eucalyptus trees, cypress trees, and various shrubs.

1. a) and b). There are no scenic views or scenic highways in the vicinity of the proposed sites. The proposed project will occur completely within the confines of the existing refinery and, therefore, will not damage scenic resources such as trees, rock outcroppings, etc. No significant adverse impacts on scenic views or highways are expected.

1. c). The proposed new facilities will include a new gas turbine, SCR, and truck rack. Most of these facilities will not be visible to the surrounding areas. The exception is that a 50-foot stack will be included as part of the new cogeneration facilities. This stack will be visible from various sites surrounding the refinery. Due to the existing industrial setting of the site, this additional structure will not significantly change the visual qualities of the refinery site so that no significant impacts are expected from the proposed project. The refinery changes will be indistinguishable by most observers.

1. d). The proposed project facilities will comply with all relevant land use and zoning designations.

Operations at Paramount Petroleum occur throughout the day on a 24-hour basis. The refinery employs nighttime illumination on top of the taller refinery structures for security and operational purposes. The existing refinery towers are illuminated by lighting at night and are visible above the fencing and landscaping along the refinery's periphery. Additional lighting is expected to be necessary at the Paramount refinery for the proposed project, as lighting for safety and security reasons is required for the new equipment. The increase in lighting is expected to be minor and will not be noticeable outside of the refinery since the cogeneration facilities will be located within the operating portions of the refinery. Therefore, no significant impacts on aesthetics are expected to occur from the proposed project.

1.3 Mitigation Measures

The impacts of the proposed project on aesthetics are less than significant so no mitigation measures are required.

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

2.1 Significance Criteria

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

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

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

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

2.2 Environmental Setting and Impacts

2. a), b), and c). There are no agricultural resources, i.e., food crops grown for commercial purposes, located in or near the vicinity of the Paramount refinery. The proposed project will not involve construction outside of the existing boundaries of the refinery and no agricultural resources are located within the refinery. The zoning of the refinery will remain heavy industrial and refinery uses are allowed within this zone. No existing agricultural land will be converted to

non-agricultural land uses. Further, the project will not conflict with a Williamson Act contract. Therefore, the proposed project will have no impacts on agricultural resources.

2.3 Mitigation Measures

The impacts of the proposed project on agricultural resources are less than significant so no mitigation measures are required.

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

3.1 Significance Criteria

To determine whether or not air quality impacts from the proposed project are significant, impacts will be evaluated and compared to the significance criteria in Table 1. If impacts equal or exceed any of the following criteria, they will be considered significant. All feasible mitigation measures will be identified and implemented to reduce significant impacts to the maximum extent feasible.

TABLE 1
AIR QUALITY SIGNIFICANCE THRESHOLDS

Mass Daily Thresholds		
Pollutant	Construction	Operation
NO _x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
SO _x	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day
TAC, AHM, and Odor Thresholds		
Toxic Air Contaminants (TACs)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment) Hazard Index ≥ 3.0 (facility-wide)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants		
NO ₂ 1-hour average annual average	20 ug/m ³ (= 1.0 pphm) 1 ug/m ³ (= 0.05 pphm)	
PM10 24-hour annual geometric mean	2.5 ug/m ³ 1.0 ug/m ³	
Sulfate 24-hour average	1 ug/m ³	
CO 1-hour average 8-hour average	1.1 mg/m ³ (= 1.0 ppm) 0.50 mg/m ³ (= 0.45 ppm)	

ug/m³ = microgram per cubic meter; pphm = parts per hundred million; mg/m³ = milligram per cubic meter; ppm = parts per million; TAC = toxic air contaminant; AHM = Acutely Hazardous Material

3.2 Environmental Setting and Impacts

Meteorological Conditions

The proposed project site is located within the South Coast Air Basin (Basin) which consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The climate in the Basin generally is characterized by sparse winter rainfall and hot summers tempered by cool ocean breezes. A temperature inversion, a warm layer of air that traps the cool marine air layer underneath it and prevents vertical mixing, is the prime factor that

allows contaminants to accumulate in the Basin. The mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds. The climate of the area is not unique but the high concentration of mobile and stationary sources of air contaminants in the western portion of the Basin, in addition to the mountains, which surround the perimeter of the Basin, contribute to poor air quality in the region.

The annual average temperature varies little throughout the Basin, averaging 75°F. The coastal areas show little variation in temperature on a year round basis due to the moderating effect of the marine influence. On average, August is the warmest month while January is the coolest month. Most of the annual rainfall in the Basin falls between November and April. Annual average rainfall varies from nine inches in Riverside to 14 inches in downtown Los Angeles.

Wind flow patterns play an important role in the transport of air pollutants in the Basin. The winds flow from offshore and blow eastward during the daytime hours. In summer, the sea breeze starts in mid-morning, peaks at 10-15 miles per hour and subsides after sundown. There is a calm period until about midnight. At that time, the land breeze begins from the northwest, typically becoming calm again about sunrise. In winter, the same general wind flow patterns exist except that summer wind speeds average slightly higher than winter wind speeds. This pattern of low wind speeds is a major factor that allows the pollutants to accumulate in the Basin.

The normal wind patterns in the Basin are interrupted by the unstable air accompanying the passing storms during the winter and infrequent strong northeasterly Santa Ana wind flows from the mountains and deserts north of the Basin.

Existing Air Quality

Criteria air pollutants are those pollutants for which the federal and state governments have established ambient air quality standards or criteria for outdoor concentrations in order to protect public health with a margin of safety (see Table 2). National Ambient Air Quality Standards were first authorized by the federal Clean Air Act of 1970 and have been set by the U.S. Environmental Protection Agency (U.S. EPA). California Ambient Air Quality Standards were authorized by the state legislature in 1967 and have been set by the California Air Resources Board (CARB). Air quality of a region is considered to be in attainment of the standards if the measured concentrations of air pollutants are continuously equal to or less than the standards.

Health-based air quality standards have been established by the U.S. EPA and the CARB for ozone, CO, NO_x, particulate matter less than ten microns in diameter (PM₁₀), sulfur dioxide (SO₂), and lead. The California standards are more stringent than the federal air quality standards. California also has established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride. Hydrogen sulfide and vinyl chloride currently are not monitored in the Basin because they are not a regional air quality problem but are generally associated with localized emission sources. The Basin is not in attainment for CO, PM₁₀, and ozone for both state and federal standards. The Basin, including the project area, is classified as attainment for both the state and federal standards for NO₂, SO₂, sulfates, and lead.

TABLE 2
AMBIENT AIR QUALITY STANDARDS

POLLUTANT	NATIONAL STANDARDS	STATE STANDARDS
Ozone 1-hour (federal)	0.12 ppm ⁽¹⁾	0.09 ppm
Carbon Monoxide 1-hour 8-hour	35 ppm 9 ppm	20 ppm 9 ppm
Nitrogen Dioxide 1-Hour Annual	None 0.053 ppm	0.25 ppm None
Suspended Particulates PM10: 24-hour Annual PM2.5: ⁽³⁾ 24-hour Annual	150 ug/m ³ ⁽²⁾ 50 ug/m ³ 65 ug/m ³ 15 ug/m ³	50 ug/m ³ 30 ug/m ³ None None
Sulfur Dioxide 1-hour 24-hour Annual	None 0.14 ppm 0.03 ppm	0.25 ppm 0.04 ppm None
Lead 30-Day Average Quarterly Average	None 1.5 ug/m ³	1.5 ug/m ³ None
Sulfate 24-hour	None	25 ug/m ³
Visibility 8-hour (10 am -6 p.m.)	None	10 miles for hours with humidity less than 70%
Hydrogen Sulfide 1-hour	None	0.03 ppm
Vinyl Chloride 24-hour	None	0.01 ppm

Notes:

(1) ppm = parts per million

(2) ug/m³ = micrograms per cubic meter

(3) In 1997, the U.S. EPA promulgated a new national ambient air quality standard for particulate matter 2.5 microns or less in diameter (PM2.5) and a new PM10 standard as well. The PM2.5 standard complements existing national and state ambient air quality standards that target the full range of inhalable PM10. However, a court decision ordered that the U.S. EPA couldn't enforce the new PM10 standard until adequate justification for the new standard is provided. U.S. EPA is complying with the decision by considering separate fine (PM2.5) and course (PM2.5-10) standards. Meanwhile, CARB and local air districts continue to collect technical information in order to prepare for an eventual SIP to reduce unhealthful levels of PM2.5 in areas violating the new federal standard.

Regional Air Quality: The SCAQMD monitors levels of various criteria pollutants at 30 monitoring stations. In 2000, the Basin or district exceeded the federal and state standards for ozone at most monitoring locations on one or more days. The federal and state ozone standards were exceeded most frequently (17 and 85 days, respectively) in the Central San Bernardino Mountains. Other areas that frequently exceeded the state ozone standards included the Perris Valley, Banning Airport and San Bernardino Valley.

In 2000, the state and federal maximum concentrations of CO were only exceeded at the South Central Los Angeles and West San Fernando Valley SCAQMD monitoring areas. No other source receptor areas of the Basin exceeded the CO standards.

In 2000, PM10 was monitored at 20 locations in the district; 18 of those locations exceeded the state 24-hour standards (50 ug/m^3) but none exceeded the federal 24-hour standard (150 ug/m^3). The federal PM2.5 standard was exceeded at most monitoring locations in the Basin on one or more occasions.

In 2000, no areas of the Basin exceeded state or federal standards for NO₂, SO₂, or lead. Currently, the district is in attainment with the ambient air quality standards for lead, SO₂, and NO₂ (SCAQMD, 1998). The SCAQMD predicts that the Basin will comply with the federal PM10 requirements by 2006, and the federal ozone standard by 2010 (SCAQMD, 1997). Compliance with the state standards for ozone and PM10 are not expected until after 2010 (SCAQMD, 1997).

Local Air Quality: The project site is located within the SCAQMD's South Coastal Los Angeles monitoring area. Recent background air quality data for criteria pollutants for the South Coast Los Angeles monitoring station are presented in Table 3. Air quality in the South Coast Los Angeles monitoring area is considered to be in attainment for the state and federal ambient air quality standards for CO, NO₂, SO₂, lead, and sulfate. The air quality in the area also is in compliance with the federal one-hour and eight-hour ozone standards, and the 24-hour and annual PM10 standard. The air quality in the South Coast Los Angeles area is not in compliance with the state one-hour average ozone standard, the state 24-hour PM10, and federal PM2.5 standard. The area has shown a general improvement in air quality with decreasing concentrations of most pollutants.

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants which may cause or contribute to an increase in mortality or severe illness, or which may pose a potential hazard to human health. The California Health and Safety Code (§39655) defines a toxic air contaminant as an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. Under California's toxic air contaminant program (Assembly Bill 1807, Health and Safety Code §39650 et seq.), the CARB, with the participation of the local air pollution control districts, evaluates and develops any needed control measures for air toxics. The general goal of regulatory agencies is to limit exposure to toxic air contaminants to the maximum extent feasible.

TABLE 3
AMBIENT AIR QUALITY
SOUTH COASTAL LOS ANGELES COUNTY MONITORING STATION (1996-2000)
Maximum Observed Concentrations (ppm and No. Days Standard Exceeded)

CONSTITUENT	1996	1997	1998	1999	2000
Ozone: 1-hour (ppm)	0.11	0.10	0.12	0.13	0.12
Federal Standard (days)	(0)	(0)	(0)	(1)	(0)
State Standard (days)	(5)	(1)	(2)	(3)	(3)
8-hour (ppm)	--	0.07	0.08	0.08	0.080
	--	(0)	(0)	(0)	(0)
Carbon Monoxide:					
1-hour (ppm)	10	9	8.0	7	10
Federal Standard (days)	(0)	(0)	(0)	(0)	(0)
8-hour (ppm)	6.9	6.7	6.6	5.4	5.8
State Standard (days)	(0)	(0)	(0)	(0)	(0)
Nitrogen Dioxide:					
1-hour (ppm)	0.17	0.20	0.16	0.15	0.14
State Standard (days)	(0)	(0)	(0)	(0)	(0)
Annual (ppm)	0.034	0.0333	0.0339	0.0342	0.0313
PM10:					
24-hour (ug/m ³)	113	87	69	79	105
Federal standard	(0)	(0)	(0)	(0)	(0)
State standard	(14.6%)	(17.5%)	(10.2%)	(13%)	(21%)
Annual (ug/m ³)					
Geometric	30.8	38.2	29.2	38.9	34.0
Arithmetic	35.3	40.5	32.3	36.4	37.6
PM2.5:					
24-hour (ug/m ³)	--	--	--	66.9	81.5
Federal standard	--	--	--	(1%)	(1.3%)
Annual Arithmetic Mean	--	--	--	21.5	19.2
Sulfur Dioxide:					
1-hour (ppm)	0.04	0.04	0.08	0.05	0.05
(Days exceeding)	(0)	(0)	(0)	(0)	(0)
24-hour (ppm)	0.013	0.011	0.013	0.011	0.014
(Days exceeding)	(0)	(0)	(0)	(0)	(0)
Annual (ppm)	0.0025	0.0024	--	0.0027	0.0015
Lead:					
30-day (ug/m ³)	0.08	0.05	0.07	0.06	0.05
(Days exceeding)	(0)	(0)	(0)	(0)	(0)
Quarter (ug/m ³)	0.08	0.03	0.04	0.05	0.04
(Days exceeding)	(0)	(0)	(0)	(0)	(0)
Sulfate:					
24-hour (ug/m ³)	19.9	11.4	14.5	13.7	26.7
	(0%)	(0%)	(0%*)	(0%)	1**

Source: SCAQMD Air Quality Data Annual Summaries 1996-2000. Notes: (18) = Number of days or percent of samples exceeding the state standard, -- = Not monitored, ppm = parts per million, ug/m³ = micrograms per cubic meter, * = Less than 12 full months of data, so data may not be representative. ** = 1 day exceeded 24 hour state standard.

Monitoring for toxic air contaminants is limited compared to monitoring for criteria pollutants because toxic pollutant impacts are typically more localized than criteria pollutant impacts. CARB conducts air monitoring for a number of toxic air contaminants every 12 days at approximately 20 sites throughout California (CARB, Mike Redgrave, personal communication, April 1999). A summary of the averaged data from 1997 and 1998 monitoring from the Long Beach station for various toxic air contaminants is considered to be an appropriate estimate of the toxic air contaminant concentration in the Long Beach and surrounding areas (see Table 4).

The SCAQMD measured toxic air contaminant concentration as part of its Multiple Air Toxic Exposure Study, referred to as the MATES-II study. The purpose of the study is to provide a complete estimate of exposure to toxic air contaminants to individuals within the South Coast Air Basin. The SCAQMD conducted air sampling at about 24 different sites for over 30 different toxic air contaminants between April 1998 and March 1999. The SCAQMD has released a Final Report from this study which indicate the following: (1) cancer risk levels appear to be decreasing since 1990 by about 44 percent to 63 percent; (2) mobile source components dominate the risk; (3) about 70 percent of all risk is attributed to diesel particulate emissions; (4) about 20 percent of all risk is attributed to other toxics associated with mobile sources; (5) about 10 percent of all risk is attributed to stationary sources; and (6) no local “hot spots” have been identified. The average carcinogenic risk in the Basin is about 1,400 per million people. This means that 1,400 people out of a million are susceptible to contracting cancer from exposure to the known TACs over a 70-year period of time. The cumulative risk averaged over the four counties (Los Angeles, Orange, Riverside, San Bernardino) of the South Coast Air Basin is about 980 in one million when diesel sources are included and about 260 in one million when diesel sources are excluded (SCAQMD, 2000h).

The CARB has estimated cancer risk based on exposure to the background concentrations of toxic air contaminants in the Long Beach area (see Table 5). CARB provides cancer risk estimates for carcinogens for which CARB recognizes a unit risk factor. A unit risk factor is needed to calculate cancer risk. The estimated background cancer risk at the Long Beach monitoring station, based on CARB monitoring data is about 305 per million (see Table 5).

TABLE 4
AMBIENT AIR QUALITY
TOXIC AIR CONTAMINANTS – NORTH LONG BEACH
1997-1998

POLLUTANT	ANNUAL AVERAGE	POLLUTANT	ANNUAL AVERAGE
VOC's	ppb/v ⁽¹⁾		ppb/v
Acetaldehyde ⁽²⁾	1.43	Methyl Ethyl Ketone ⁽³⁾	0.21
Benzene	0.87	Methyl Tertiary Butyl Ether ⁽²⁾	2.73
1,3-Butadiene	0.29	Methylene Chloride	0.67
Carbon Tetrachloride ⁽³⁾	0.12	Perchloroethylene	0.16
Chloroform	0.04	Styrene ⁽³⁾	0.13
o-Dichlorobenzene ⁽³⁾	0.12	Toluene	2.75
p-Dichlorobenzene ⁽³⁾	0.16	Trichloroethylene	0.29
Ethyl Benzene	0.39	meta-Xylene	1.02
Formaldehyde ⁽²⁾	3.68	ortho-xylene ⁽³⁾	0.41
Methyl Chloroform	0.21		
PAH's	nanograms/m ³⁽⁴⁾		nanograms/m ³
Benzo(a)pyrene	0.17	Benzo(k)fluoranthene	0.81
Benzo(b)fluoranthene	0.20	Dibenz(a,h)anthracene	0.03
Benzo(g,h,i)perylene	0.64	Indeno(1,2,3-cd)pyrene	0.29
Inorganic Compounds	nanograms/m ³		nanograms/m ³
Aluminum	1,147.5	Nickel	7.0
Antimony	3.3	Phosphorus	44.7
Arsenic	1.5	Potassium	501.5
Barium	41.7	Rubidium	1.95
Bromine	10.3	Selenium	1.5
Calcium	936.5	Silicon	3,000.0
Chlorine	2,215.0	Strontium	12.4
Chromium	5.9	Sulfur	1,235.0
Cobalt	8.0	Tin	4.6
Copper	23.1	Titanium	103.0
Hexavalent Chromium	0.13	Uranium	1.0
Iron	1,057.0	Vanadium	11.9
Lead	14.8	Yttrium	1.1
Manganese	19.4	Zinc	70.7
Mercury	1.6	Zirconium	4.7
Molybdenum	2.6		

Source: CARB, ambient toxics air quality data for 1997 and 1998. The CARB notes that sampling periods shorter than 12 months are inappropriate for purposes of calculating annual averages.

(1) ppb/v = parts per billion by volume.

(2) Data are the annual average for 1997 as the data for 1998 are based on fewer than 12 months of valid data.

(3) Data are the annual average for 1998 as the data for 1997 are based on fewer than 12 months of valid data.

TABLE 5
CANCER RISK BASED ON CARB
NORTH LONG BEACH MONITORING STATION DATA

SUBSTANCE	CANCER RISK (per million)
Acetaldehyde ⁽²⁾	6.9
Arsenic	5.0
Benzene	80.3
Benzo(a)pyrene	0.2
Benzo(b)fluoranthene	0.02
Benzo(k)fluoranthene	0.009
1,3-Butadiene	110.5
Carbon Tetrachloride ⁽¹⁾	31.3
Chloroform	0.9
Chromium (VI)	19.0
Dibenz(a,h)anthracene	0.01
Dichlorobenzene	10.3
Formaldehyde ⁽²⁾	27.1
Indeno(1,2,3-cd)pyrene	0.03
Lead	0.15
Methylene Chloride	2.4
Nickel	1.85
Perchloroethylene	8.4
Trichloroethylene	0.3
TOTAL	305

Source: Average of CARB 1997 and 1998 toxic air contaminant monitoring data, unless otherwise noted.

(1) Based on 1998 data only as incomplete data were collected in 1997.

(2) Based on 1997 data only as incomplete data were collected in 1998.

PROJECT IMPACTS

3.a) Existing emissions from the industrial facilities are included in the Air Quality Management Plan (AQMP). The SCAQMD identifies air emission reductions from existing sources and air pollution control measures that are necessary in order to comply with the state and federal ambient air quality standards (SCAQMD, 1993). New emission sources associated with the proposed project are required to comply with the SCAQMD's New Source Review regulations that include the use of BACT and the requirement that all new emissions be offset. Pursuant to SCAQMD Rule 1304(c)(4), offsets are required for projects with increase in emissions. The control strategies in the AQMP are based on projections from the local general plans from various cities in southern California (including the City of Paramount). Projects that are consistent with the local General Plans are consistent with the air quality related regional plans.

Therefore, the proposed project is considered to be consistent with the air quality related regional plans since it is consistent with the City of Paramount’s General Plan.

3. b), c) and f) Construction Emissions

Construction activities associated with the proposed project would result in emissions of NO_x, CO, SO_x, VOCs, and PM₁₀. Construction activities include demolition of the existing concrete pad, construction of new foundations, and installation of the new equipment. The site is already graded so no major grading activities are expected at the site. Construction emissions are expected from the following equipment and activities:

- Construction Equipment (cranes, welding machines, etc.)
- Equipment Delivery/On-Site Travel
- Heavy Diesel Trucks
- Construction Workers Commuting
- Fugitive Dust Associated with Site Construction Activities
- Fugitive Dust Associated with Travel on Unpaved and Paved Roads

Daily construction emissions were calculated for the peak construction day activities based on activities at all facilities. Peak day emissions are the sum of the highest daily emissions from employee vehicles, fugitive dust sources, construction equipment, and transport activities at all affected facilities for the construction period. Overall construction emissions for the proposed project are summarized in Table 6. Detailed construction emissions calculations for the proposed project are provided in Appendix A.

TABLE 6
PEAK DAY CONSTRUCTION EMISSIONS
(lbs/day)

ACTIVITY	CO	VOC	NO_x	SO_x	PM₁₀
Construction Equipment	25.9	5.5	49.5	5.8	3.5
Heavy-duty Diesel Trucks	21.6	0.7	8.5	--	0.3
Light Duty Trucks	2.5	0.1	0.1	--	<0.1
Workers Commuting	17.8	2.0	1.7	--	0.1
Fugitive Dust From Construction	--	--	--	--	66.6
Fugitive Dust from Travel on Paved & Unpaved Roads	--	--	--	--	9.0
Total Project Construction Emissions	67.8	8.3	59.8	5.8	79.6
SCAQMD Significance Threshold Level	550	75	100	150	150
Significant?	NO	NO	NO	NO	NO

Construction Emission Summary: Construction emissions are summarized in Table 6, together with the SCAQMD daily construction threshold levels. The construction phase of the proposed project will not exceed the significance thresholds for CO, VOC, NO_x, SO_x, or PM₁₀. Therefore, the air quality impacts associated with construction activities are not significant.

Operational Emissions

Modifications associated with the proposed project will result in an increase in emissions. Emission increases are expected primarily from the combustion of natural gas associated with operation of the gas turbine and supplemental fuel firing to produce steam.

The emissions increases were calculated based on emission factors developed by U.S. EPA AP-42 for gas turbines (Tables 3.1-1 and 3.2-2a) and the SCAQMD emission fee factors for external fire boilers (for the duct burner). Where appropriate, the emission factors have been modified to include best available control technology (BACT), lowest achievable emission reductions (LAER), and manufacturers’ emission guarantees. BACT for the proposed project is considered to be 2.5 ppm for NO_x emissions, 2.0 ppm for VOC emissions, 6.0 ppm for CO emissions and the use of natural gas or refinery fuel gas (with 40 ppm or less of total sulfur). As required by SCAQMD regulations, modifications to existing equipment and new equipment are required to comply with Rule 1303 BACT requirements. The calculations for the emission increases are provided in Table 7.

**TABLE 7
EMISSION INCREASE ESTIMATES**

	Turbine Emissions		Duct Burner Emissions		Combined Emissions to SCR (lbs/day)	Controlled Emissions (lbs/day)⁽³⁾
	Emission Factor⁽¹⁾ (lb/mmBtu)	Emissions (lbs/day)	Emission Factor⁽²⁾ (lb/MMCF)	Emissions (lbs/day)		
NO _x	3.20E-01	691.20	100	118.23	809.43	30.96
VOC	2.10E-03	4.54	5.5	6.5	11.03	11.04
CO	8.20E-02	177.12	84	99.31	276.43	45.26
SO _x	3.40E-03	7.34	0.6	0.71	8.05	8.05
PM ₁₀	6.6E-03	14.26	7.6	8.99	23.24	23.24

(1) Source: AP-42 for Turbines, Tables 3.1-1 and 3.2.-2a.

(2) Source: SCAQMD EFB factors for external fired boilers.

(3) Assumes the following manufacturer’s guarantee: NO_x = 2.5ppm, CO = 6 ppm, and VOC = 2 ppm.

The proposed project is expected to result in emission decreases associated with the reduction in use of the existing Boilers 7, 8, and 9. The NO_x emission decreases associated with Boilers 7, 8, and 9 were calculated on operating data from the facility’s continuous emission monitors (CEMs) data. The calculations for the expected NO_x emission decreases are provided in Table 8.

TABLE 8
NO_x EMISSION DECREASE ESTIMATES

BOILER	Mscf/year	lbs NO_x/year	lbs NO_x/day
Boiler 7	68,062	5,775	15.8
Boiler 8	80,504	8,532	23.4
Boiler 9	189,749	25,274	69.2
Total NO _x decreases	--	39,581	108.4

The emission decreases for other pollutants associated with Boilers 7, 8, and 9 were calculated based on the gas fuel usage and standard AQMD emission factors for boilers using refinery fuel gas. The calculations for VOC, CO, SO_x, and PM10 are provided in Table 9.

TABLE 9
EMISSION DECREASE ESTIMATES

	Boiler 7	Boiler 8	Boiler 9	Totals
MMscf/day	0.19	0.22	0.52	
VOC Emission Factor (mmscf)	7	7	7	
VOC Emissions (lbs/ day)	1.33	1.54	3.64	6.51
CO Emission Factor (lbs/mmscf)	60.9	60.9	60.9	
CO Emissions (lbs/day)	11.9	13.4	31.6	56.9
SO _x Emission Factor (mmscf)	16.9	16.9	16.9	
SO _x Emissions (lbs/day)	3.21	3.72	8.79	15.7
PM10 Emission Factor (mmscf)	21	21	21	
PM10 Emissions (lbs/day)	3.99	4.62	10.92	19.53

Boilers 7, 8, and 9 are not expected to operate contemporaneously with the cogeneration unit. Therefore, when the cogeneration unit is operating, the boilers will not be operating, thus generating the emission reductions estimated in Tables 8 and 9. Paramount wants the flexibility to continue operating Boilers 7, 8, and 9 should unexpected circumstances arise. Therefore, in order to provide a conservative analysis under CEQA and since permit conditions have not been developed between Paramount and the SCAQMD, no emission reductions will be assumed in the operational emissions summary (see Table 10). It should be noted that if enforceable permit

conditions are not developed, Paramount will be required to provide Emissions Reduction Credits (ERC's). Additional documentation of the procedures used to calculate the proposed project emissions estimates is provided in Appendix A. All new process components will conform to the SCAQMD Best Available Control Technology (BACT) Guidelines, offset requirements and modeling requirements, as required by SCAQMD Regulation XIII – New Source Review.

Indirect Emissions

Indirect emission sources are those that are related to the project but that would not be directly emitted from the project sites, i.e., trucks, marine vessels, and worker vehicles. It is anticipated that the new equipment can be operated with existing staffing. The only truck trips associated with the project would be for the delivery of aqueous ammonia, which requires less than one trip per month. Emissions associated with the increase in truck traffic on a “worst-case” day are included in Table 10. The indirect emissions are negligible.

Operational Emission Summary: Operational emissions are summarized in Table 10, together with the SCAQMD daily operational threshold levels. The operation of the project will not exceed the significance thresholds for the CO, VOC, NO_x, SO_x or PM₁₀. Therefore, the air quality impacts associated with operational emissions from the proposed project are less than significant. Therefore, the project is not expected to violate any air quality standard, contribute to an existing or project air quality violation, or result in a cumulatively considerable net increase in nonattainment air emissions. Based on this analysis, no mitigation measures are required for operational emissions.

TABLE 10
OPERATIONAL EMISSIONS
(lbs/day)

SOURCE	CO	VOC	NO_x	SO_x	PM₁₀
Gas Turbine and Duct Burner Emission Increases	45.3	11.0	31.0	8.1	23.2
Increase Ammonia Truck Trips	10.8	0.3	4.2	-	2.2
Total Emission Changes	56.1	11.3	35.2	8.1	25.4
Significance Threshold	550	55	55	150	150
Significant?	NO	NO	NO	NO	NO

3. d). Toxic Air Contaminants

Construction Impacts: The proposed project would generate emissions from construction equipment during construction activities, including emissions from diesel trucks and heavy construction equipment. Diesel particulate emissions were designated a carcinogen by the state Scientific Review Panel in 1998. The Risk Management Subcommittee was formed to identify the: (1) operating parameters; (2) emission factors; and (3) modeling methodologies. This information will be used to develop the scenarios to evaluate the risks associated with exposure to diesel particulate emissions. The SCAQMD is waiting for this guidance before initiating quantitative risk analyses for diesel particulate emissions.

Significant impacts associated with exposure to diesel particulate emissions during construction of the proposed project are not expected because construction at the site is only expected to last about three to four months. Exposures would only occur for a short time period. A quantitative cancer risk analysis is based on exposure of 70 years (for residential exposures) or 46 years (for occupational exposures) and exposure to project-related emissions would be for a much shorter time period. Further, the maximum particulate emissions from diesel engines during the construction period is about five pounds per day. Therefore, because of the short exposure period and the small amount of diesel particulate emissions, the emissions of toxic air contaminants during the construction period are expected to be less than significant.

Operational Impacts: A Health Risk Assessment (HRA) was performed to determine if emissions of toxic air contaminants (TACs) generated by the proposed project would exceed the SCAQMD thresholds of significance for cancer and noncancer risks. Chemicals in the emissions from the project are included in the SCAQMD Rule 1401 – New Source Review for Toxic Air Contaminants. The health risks were evaluated using the SCAQMD *Risk Assessment Procedures for Rules 1401 and 212 Version 6.0* (August 2000). The analysis for cancer and non-cancer risks is presented below. The project is expected to emit 14 chemicals listed in Appendix G – six are considered carcinogens, 13 are considered to have adverse chronic health effects, and seven are considered to have adverse acute health effects (see Table 11).

Emission Estimates: Emission estimates for the cogeneration plant are based on a total of 140 mmBTU/hr used with 90 mmBTU/hr fed to the turbine and 50 mmBTU/hr fed to the duct burner. Natural gas combustion emission factors used for the turbine are from EPA AP-42 Tables 3.1-1, 3.1-2a, and 3.1-2b. Natural gas external combustion emission factors used for the duct burner are from the SCAQMD Emission Fee Billing form for external fired boilers and the Toxics Emission Factors from Combustion Process Table I published on the SCAQMD web page. The calculated emissions are presented in Appendix A.

TABLE 11

POTENTIALLY EMITTED CHEMICAL AND ASSOCIATED HEALTH EFFECTS

CHEMICAL	Carcinogen	Noncarcinogen	
		Chronic	Acute
Acetaldehyde	X	X	
Acrolein		X	X
Ammonia		X	X
Benzene	X	X	X
1,3-Butadiene	X	X	
Ethylbenzene		X	
Formaldehyde	X	X	X
Hexane		X	
Naphthalene		X	
PAHs	X		
Propylene		X	
Propylene Oxide	X	X	X
Toluene		X	X
Xylenes		X	X

Emission estimates for the proposed 238 barrel aqueous ammonia tank were calculated using EPA Tanks Version 4.09 model. The maximum one-hour emission rate is based on one tank turnover occurring in half an hour.

The Unit Risk Factors (URFs), Reference Exposure Limits (RELs), and target endpoints for each TAC are presented in Appendix B.

Health Risk Assessment: In order to determine the ground level concentrations, the U.S. Environmental Protection Agency’s ISCST3 (Version 00101) air dispersion model is used to calculate the annual average and maximum one-hour concentrations. The cogeneration plant is modeled as a stack source 54 inches in diameter with release point 50 feet above the ground. The aqueous ammonia tank is modeled as an area source with a diameter of 12 feet at a release height of 12 feet above the ground. The emissions calculated are used with the ISCST3 model output to determine the ground level concentration of each TAC using ACE2588.

The location of the source was identified based on data provided by Paramount Petroleum and the South Gate USGS Quadrangle. The nearest off-site residential receptors are approximately 100 meters east and southwest of the refinery. The nearest off-site occupational receptor is approximately 100 meters southeast of the refinery. A unitized emission rate of one gram per second was used in the ISCST3 model and the output used with ACE2588. The ACE2588 model calculates the cancer risk and the chronic and acute hazard indices at each receptor point

modeled and identifies the maximum impacted receptors. The locations of the maximum impacts are verified for the type of receptor and are reported below.

The ISCST3 model is run using a receptor grid of 3000 meters by 2600 meters centered on the facility with a receptor spacing of 100 meters. The receptor grid extended a minimum of 1000 meters from the fence line of the facility in all directions. Additionally, schools, daycare facilities, hospitals, and nursing homes located within one-mile are included in the model. Fence line locations are modeled separately. The input and output results from ISCST3 and ACE2588 are included on the attached disk.

Cancer Risk Analysis: The SCAQMD cancer risk thresholds are not expected to be exceeded at any receptor location. The maximum cancer risk for an exposed individual is located at the residential area east of the facility (see Figure 4). The cancer risk associated with operation of the cogeneration unit is 3.82×10^{-7} or 0.3 in a million. Polycyclic aromatic hydrocarbons contribute 85 percent of the risk with ingestion of homegrown produce accounting for approximately 58 percent of the risk. The maximum incremental increased cancer risk at an occupational exposure is 4.24×10^{-8} or 0.04 in a million located approximately 100 meters southeast of the refinery. The worker exposure is adjusted by a factor of 0.14 to account for the reduced hours present at the location. The cancer risk contributions by pathway and pollutants are presented in Appendix B.

Non-Cancer Risk Analysis: The SCAQMD chronic and acute hazard index thresholds are not expected to be exceeded at any receptor location. Formaldehyde and acrolein are the major contributors to the chronic hazard index for the target endpoint of the respiratory system. The maximum chronic hazard index total for the respiratory system is 0.0044 and is located in a residential area east of the facility (see Figure 4). The contribution by pollutant to the chronic hazard index for the maximum receptor location is presented in Appendix B.

The maximum acute hazard index total for the target endpoints of the respiratory system is 0.27. The maximum acute hazard index occurs in a residential area immediately southwest of the facility (see Figure 4). The contribution by pollutant to the acute hazard index for the maximum receptor location is presented in Appendix B.

HRA Conclusions: No significant impacts on toxic air contaminants are expected from the proposed project. The cancer risk for the TACs emitted from the cogeneration plant is below the SCAQMD's CEQA significance threshold of ten per million and chronic and acute hazard indices are below the SCAQMD's significance threshold of 1.0 established for non-cancer risk under SCAQMD Rule 1401. Therefore, the SCAQMD cancer risk and hazard index thresholds are not expected to be exceeded at any receptor location.

Figure 4 goes here

3. e) Odors

Fugitive emissions or leaks from project equipment could result in potential odor impacts. Fugitive emission components are under the purview of formal regulatory inspection and maintenance programs required under federal New Source Performance Standards and SCAQMD Rule 1173. These programs ensure correction of conditions that may cause odor events. The refinery maintains a 24-hour environmental surveillance effort. This activity also has the effect of minimizing the frequency and magnitude of odor events. In addition, the use of BACT (e.g., leakless valves) also reduces the emissions of compounds that could produce odor impacts. Potential odor impacts from the proposed project are not expected to be significant.

3.3 Mitigation Measures

No mitigation measures are required for the proposed project since no significant impacts to air quality are expected.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
4. BIOLOGICAL RESOURCES. Would the project:			
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by §404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- | | | | |
|--|--------------------------|--------------------------|-------------------------------------|
| d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Conflicting with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with the provisions of an adopted Habitat Conservation plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
-

4.1 Significance Criteria

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

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

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

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

4.2 Environmental Setting and Impacts

4. a.) through f). The proposed project will be located in a heavy industrial area. The Paramount refinery has been fully developed and is essentially void of vegetation with the exception of some landscape vegetation. Paramount controls the growth of vegetation at the site for fire prevention purposes. All native habitat has long since been removed from the site. The proposed project does not include the acquisition of additional land for use by Paramount or expansion outside of the refinery's current boundaries which further eliminates the potential for biological resources impacts. The project will not have an adverse effect, either directly or indirectly or through habitat modifications, on any sensitive biological species, riparian habitat, or other sensitive natural habitat. The project will not result in the addition or the elimination of water ponds that could be used by animals or migratory fowl. Further, the proposed project will not adversely affect federally protected wetlands as defined in §404 of the Clean Water Act. There are no significant plant or animal resources, locally designated species, natural

communities, wetland habitats, or animal migration corridors that would be impacted by the proposed project. There are no rare, endangered, or threatened species at the Paramount site. The project would not impact any local policies or ordinances that protect biological resources or conflict with the provisions of a Habitat Conservation Plan or other similar plan. Based on the above, no significant impacts on biological resources are expected from the proposed project.

4.3 Mitigation Measures

No mitigation measures are required for the proposed project since no significant impacts to biological resources are expected.

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

5.1 Significance Criteria

Impacts to cultural resources will be considered significant if:

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

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

The project would disturb human remains.

5.2 Environmental Setting and Impacts

5. a). There are no prehistoric or historic structures or objects within the refinery or adjacent areas. The Los Angeles County Historical Directory does not record any historic sites within the City of Paramount. The Old Downey Cemetery is the nearest historic site to the Paramount refinery. The cemetery is located at the corner of Lakewood Boulevard and Gardendale Street, about 0.75 mile northeast of the project site. The proposed improvements will not affect this historic site or other historic structures in the area. No existing structures at the refinery are considered architecturally or historically significant by the City or any other group.

5. b) and c). The entire refinery site has been previously graded and developed. The larger refinery structures and equipment are supported on concrete foundations. The remainder of the site is unpaved. Any archaeological or paleontological resources that may have been present prior to development are not expected to be found at the site due to past disturbance. In addition, no known recorded archaeological sites are located at or near the refinery.

5. d). No known human remains or burial sites have been identified at the refinery during previous construction activities so the proposed project is not expected to disturb any human remains.

Based on the above, no significant impacts to archaeological/historical/paleontological or cultural resources are expected at the refinery.

5.3 Mitigation Measures

The impacts of the proposed project on cultural resources are less than significant so that no mitigation measures are expected.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
6. ENERGY. Would the project:			
a) Conflict with adopted energy conservation plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the need for new or substantially altered power or natural gas utility systems?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Create any significant effects on local or regional	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

energy supplies and on requirements for additional energy?

- | | | | |
|--|--------------------------|--------------------------|-------------------------------------|
| d) Create any significant effects on peak and base period demands for electricity and other forms of energy? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Comply with existing energy standards? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
-

6.1 Significance Criteria

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

The project conflicts with adopted energy conservation plans or standards.

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

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

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

6.2 Environmental Setting and Impacts

6. a). The proposed project is not expected to conflict with an adopted energy conservation plan. The proposed project will generate additional electricity for use by the refinery and potentially other users providing additional electricity in southern California and increasing the availability of electricity.

6. b), c), d), and e). The Paramount refinery is currently served by SCE for electricity and Southern California Gas Company for natural gas service.

An incremental increase in gasoline and diesel usage will occur during construction activities, e.g., operation of construction equipment, material delivery trucks, and worker commute vehicles. Gasoline and diesel fuel usage for transportation activities in the Los Angeles region in 2000 were projected by the CEC to be 6.5 billion gallons per year and 1.1 billion gallons per year, respectively (CEC, 1999). Assuming construction-related activities in the future years would yield similar results, the gasoline and diesel fuel required by the proposed project would represent a very small portion of the projected demand. This demand is one-time only and represents a very small percentage of the total demand for fuels in the Los Angeles region. Therefore, the gasoline and diesel fuel usage for project construction is not considered a significant impact.

The Paramount Refinery is currently served by Southern California Edison for electricity. Electricity required during construction activities is expected to be minimal as most of the project construction equipment will be powered by gasoline or diesel fuel. Construction could include electric welders and may be an electric pump but most of the equipment is expected to be powered by gasoline or diesel fuel. In addition, the electricity demand during construction will be for a limited duration (three- to four-months) and represents a very small percentage of the total electricity demand in the Los Angeles area. Therefore, the increase in electricity usage for project construction is not considered a significant impact. Electrical consumption during construction will be temporary and can be handled by the existing infrastructure.

The Paramount refinery is currently served by the Southern California Gas Company for natural gas service. Construction of the proposed project is not expected to require additional natural gas supplies so no impacts to natural gas service are expected.

Operation of the proposed project will require some modifications of power and natural gas systems on the Paramount Refinery property. Natural gas lines run parallel to the refinery along Lakewood and Somerset Boulevards and also connect to refinery equipment on site. The installation and operation of the cogeneration facility will require additional natural gas to run the turbine and for supplemental fuel firing to generate electricity. A maximum of about 132,000 standard cubic feet (scf) per day (1,340 therms) of natural gas will be required. In 2000, California consumed more than 14,400 million therms of natural gas, which is equivalent to approximately 1400 billion scf per day (CEC, 2000). The service area of the Southern California Gas Company includes the greater Los Angeles area and consumed over 8,200 million therms in 2000, nearly 60 percent of the statewide total (CEC, 2000). Statewide natural gas consumption is forecast to increase by 1.5 percent per year between 2001 and 2010, with virtually all of that increase stemming from increased electrical generation (CEC, 2001a).

Factors including growth in natural gas demand in California, and limitations in the ability of the gas transmission pipeline system that supplies the state to serve this increased demand, have led to increases in natural gas prices in California in 2001. Existing pipelines transport up to 7,000 million cubic feet per day of natural gas to California. There are a number of planned projects to increase natural gas pipeline delivery capacity to California. These projects are expected to add 915 million cubic feet per day of capacity by 2002, an increase in capacity of 13 percent (CEC, 2001).

The proposed project will result in an increased use of natural gas. The proposed project's annual natural gas consumption would represent about one-thousandth of one percent (132,000 scf per day/1400 billion scf per day) of the total natural gas consumption in Southern California. Therefore, no significant impact to the natural gas supply is expected as a result of operation of the proposed project.

The project itself will enhance the availability and reliability of electricity by producing an additional 7.5 megawatts of electricity. The electricity will be used to operate the refinery. Therefore, the proposed project will generate additional electricity providing beneficial impacts

to electrical generation in southern California by reducing demand for electricity by the refinery on the statewide grid system.

6.3 Mitigation Measures

The impacts of the proposed project on energy resources are less than significant so that no mitigation measures are expected.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
7. GEOLOGY AND SOILS. Would the project:			
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Strong seismic ground shaking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?
-

7.1 Significance Criteria

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

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

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

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

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

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

7.2 Environmental Setting and Impacts

7. a) Topography and Soils

The proposed project is located within the confines of the existing Paramount refinery. Concrete pavement presently supports several of the refinery structures and equipment. Most of Paramount Refinery roads, including all high traffic roads have been paved. Some portions of the site have also been landscaped. Some excavation may be required for the construction of concrete foundations. The local topography for the refinery site is level. Elevations at the site range between 85 feet above sea level at the northeastern portion of the site to 75 above sea level feet at the southwest corner of the site. No unstable earth conditions or changes in geologic substructures are anticipated to occur with the project because of the limited grading and excavation involved and the character of the local topography. No significant impacts on topography and soils are expected.

During construction of the proposed project, the possibility exists for temporary erosion resulting from excavation and grading activities. These activities are expected to be minor since the proposed project will occur within already developed facilities in areas with generally flat topography. The proposed project involves the addition of new equipment to existing facilities

so major grading/trenching is not expected to be required and is expected to be limited to minor foundation work and minor trenching for piping. Therefore, no significant impacts related to soil erosion are expected. No significant change in topography is expected because little grading/trenching is required that could substantially increase wind erosion or runoff from affected sites. The proposed project will be required to comply with SCAQMD Rule 403 – Fugitive Dust which imposes requirements to minimize emissions associated with wind erosion. Relative to operation, no change in surface runoff is expected because surface conditions will remain relatively unchanged. Further, surface runoff is minimized because surface runoff at all facilities is typically captured, treated, and released to the public sewerage system or storm drain system.

7.b) Earthquakes

The City of Paramount is located within a seismically active region. The most significant potential geologic hazard at the refinery is estimated to be seismic shaking from future earthquakes generated by active or potentially active faults in the region. Table 12 identifies those faults considered important to the project site in terms of potential for future activity. Seismic records have been available for the last 200 years, with improved instrumental seismic records available for the past 50 years. Based on a review of earthquake data, most of the earthquake epicenters occur along the Whittier-Elsinore, San Andreas, Newport-Inglewood, Malibu-Santa, Monica-Raymond Hills, Palos Verdes, Sierra Madre, San Fernando, Elysian Park-Montebello, and Torrance-Wilmington faults (Jones and Hauksson, 1986). All these faults are elements of the San Andreas Fault system. Past experience indicates that there has not been any substantial damage, structural or otherwise to the refinery as a result of earthquakes. Table 13 identifies the historic earthquakes over magnitude 4.5 in southern California, between 1915 and the present, along various faults in the region.

Whittier-Elsinore Fault Zone: The Whittier-Elsinore Fault is located about 7.5 miles northeast of the site. The Whittier fault is one of the more prominent structural features in the Los Angeles Basin. It extends from Turnbull Canyon near Whittier, southeast to the Santa Ana River, where it merges with the Elsinore fault. Yerkes (1972) indicated that vertical separation on the fault in the upper Miocene strata increases from approximately 2,000 feet at the Santa Ana River northwestward to approximately 14,000 feet in the Brea-Olinda oil field. Farther to the northwest, the vertical separation decreases to approximately 3,000 feet in the Whittier Narrows of the San Gabriel River.

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

TABLE 12

MAJOR ACTIVE OR POTENTIALLY ACTIVE FAULTS
SOUTHERN CALIFORNIA

FAULT ZONE	FAULT LENGTH (Miles)	MAXIMUM CREDIBLE EARTHQUAKE	MAXIMUM ACCELERATION (G)
Malibu-Santa Monica-			
Raymond Hill	65	7.5	0.49
Newport-Inglewood	25	7.0	0.42
Northridge	12	6.7	0.16
Palos Verdes	20	7.0	0.24
San Andreas	200+	8.25	0.21
San Jacinto	112	7.5	0.11
San Fernando	8	6.8	0.17
Sierra Madre	55	7.3	0.23
Whittier-Elsinore	140	7.1	0.46
Elysian Park-Montebello	15	7.1	0.27

Notes: G = acceleration of gravity.

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

TABLE 13
SIGNIFICANT HISTORICAL EARTHQUAKES
IN SOUTHERN CALIFORNIA

DATE	LOCATION (epicenter)	MAGNITUDE
1915	Imperial Valley	6.3
1925	Santa Barbara	6.3
1920	Inglewood	4.9
1933	Long Beach	6.3
1940	El Centro	6.7
1940	Santa Monica	4.7
1941	Gardena	4.9
1941	Torrance	5.4
1947	Mojave Desert	6.2
1951	Imperial Valley	5.6
1968	Borrego Mountain	6.5
1971	Sylmar	6.4
1975	Mojave Desert	5.2
1979	Imperial Valley	6.6
1987	Whittier	5.9
1992	Joshua Tree	6.3
1992	Landers	7.4
1992	Big Bear	6.5
1994	Northridge	6.7
1999	Hector Mine	7.1

Sources: Bolt (1988), Jennings (1985), Gere and Shah (1984), Source Fault Hazard Zones in California (1988), Yanev (1974), and personnel communication with the California Division of Mines and Geology.

The Newport-Inglewood Fault Zone: The Newport-Inglewood fault is a major tectonic structure within the Los Angeles Basin. This fault is best described as a structural zone comprising a series of echelon and sub-parallel fault segments and folds. The faults of the Newport-Inglewood uplift in some cases exert considerable barrier influence upon the movement of subsurface water (DWR, 1961). Offsetting of sediments along this fault usually is greater in deeper, older formations. Sediment displacement is less in younger formations. The Alquist-Priolo Act has designated this fault as an earthquake fault zone. The purpose of designating this area as an earthquake fault zone is to mitigate the hazards of fault rupture by prohibiting building structures across the trace of the fault. This fault poses a seismic hazard to the Los Angeles area (Topozada, et al., 1988, 1989), although no surface faulting has been associated with earthquakes along this structural zone during the past 200 years. Since this fault is located within the Los Angeles Metropolitan area, a major earthquake along this fault would produce more destruction than a magnitude 8.0 on the San Andreas fault. The largest instrumentally recorded event was the 1933 Long Beach earthquake, which occurred on the offshore portion of the Newport-Inglewood structural zone with a magnitude of 6.3. A maximum credible

earthquake of magnitude 7.0 has been assigned to this fault zone (Yerkes, 1985). A portion of the Newport-Inglewood fault is sometimes referred to as the Compton fault.

Malibu-Santa Monica-Raymond Hills Fault Zone: The Raymond Hills fault is part of the fault system that extends from the base of the San Gabriel Mountains westward to beyond the Malibu coast line. The fault has been relatively quiet, with no recorded seismic events in historic time; however, recent studies have found evidence of ground rupture within the last 11,000 years (Triad, 1995).

The Palos Verdes Fault Zone: The Palos Verdes fault extends for about 50 miles from the Redondo submarine canyon in Santa Monica Bay to south of Lausen Knoll and is responsible for the uplift of the Palos Verdes Peninsula. This fault is both a right-lateral strike-slip and reverse separation fault. The Gaffey anticline and syncline are reported to extend along the northwestern portion of the Palos Verdes hills. These folds plunge southeast and extend beneath recent alluvium east of the hills and into the San Pedro Harbor, where they may affect movement of ground water (DWR, 1961). The probability of a moderate or major earthquake along the Palos Verdes fault is low compared to movements on either the Newport-Inglewood or San Andreas faults (Los Angeles Harbor Department, 1980). However, this fault is capable of producing strong to intense ground motion and ground surface rupture. This fault zone has not been placed by the California State Mining and Geology Board into an Alquist-Priolo special studies zone.

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

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

The 1994 Northridge earthquake occurred on a fault parallel to the 1971 Sylmar earthquake. However, the dip direction of the two faults is opposite. The Northridge fault dips down to the south, and the Sylmar fault dips down to the north.

Elysian Park-Montebello System: The Elysian Park fault is a blind thrust fault system, i.e., not exposed at the surface, whose existence has been inferred from seismic and geological studies.

The system as defined by Dolan, et al. (1995) comprises two distinct thrust fault systems; 1) an east-west-trending thrust ramp located beneath the Santa Monica Mountains; and 2) a west-northwest-trending system that extends from Elysian Park Hills through downtown Los Angeles and southeastward beneath the Puente Hills. The Elysian Park thrust is capable of producing a magnitude 7.1 earthquake every 1,475 years.

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

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

No faults or fault-related features are known to exist at the project site. The site is not located in any Alquist-Priolo Earthquake fault zone and is not expected to be subject to significant surface fault displacement. Therefore, no significant impacts to the proposed project facilities are expected from seismically-induced ground rupture.

Based on the historical record, it is highly probable that earthquakes will affect the Los Angeles region in the future. Research shows that damaging earthquakes will occur on or near recognized faults which show evidence of recent geologic activity. The proximity of major faults to the refinery increases the probability that an earthquake may impact the refinery. There is the potential for damage to the new structures in the event of an earthquake. Impacts of an earthquake could include structural failure, spill, etc. The hazards of a release during an earthquake are addressed in the “8. Hazards and Hazardous Materials” section below.

New structures at each site must be designed to comply with the Uniform Building Code Zone 4 requirements since the proposed project is located in a seismically active area. The City of Paramount is responsible for assuring that the proposed project complies with the Uniform Building Code as part of the issuance of the building permits and can conduct inspections to ensure compliance. The Uniform Building Code is considered to be a standard safeguard against major structural failures and loss of life. The goal of the code is to provide structures that will: (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage, but with some non-structural damage; and (3) resist major earthquakes without collapse, but with some structural and non-structural damage.

The Uniform Building Code bases seismic design on minimum lateral seismic forces (“ground shaking”). The Uniform Building Code requirements operate on the principle that providing

appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. The basic formulas used for the Uniform Building Code seismic design require determination of the seismic zone and site coefficient, which represent the foundation conditions at the site.

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

7. c) and d) Liquefaction

Liquefaction would most likely occur in unconsolidated granular sediments that are water saturated less than 30 feet below ground surface (Tinsley et al., 1985). Based on the latest seismic hazards maps developed under the Seismic Hazards Mapping Act, the Paramount refinery is located in an area of historic or has the potential for liquefaction (California Division of Mines and Geology, Map of Seismic Hazard Zones, South Gate Quadrangle). Site specific soil boring records completed for the Paramount refinery show that liquefaction is not expected at the proposed project location, because ground water levels are greater than 30 feet below the site surface. There is no evidence of expansive soils at the site. The issuance of building permits from the local agency will assure compliance with the Uniform Building Code requirements, which include requirements for building within potential liquefaction zones. No significant impacts from liquefaction are expected since the project will be required to comply with the Uniform Building Codes.

The proposed project site are not subject to landslide or mudflow since the site is flat. No other unique geological resources have been identified at the Paramount refinery.

7. e) The proposed project is not expected to generate additional wastewater discharged by the Refinery. The Refinery discharges wastewater to the local sewer system under an Industrial Wastewater Discharge Permit. The refinery nor the proposed project will not use septic tanks or alternative wastewater disposal systems, therefore, no significant impacts on soils from alternative wastewater disposal systems are expected.

7.3 Mitigation Measures

No mitigation measures are required for the construction/operation of the project since no significant impacts to geology are expected.

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

urbanized areas or where residences are intermixed with wildlands?

- i) Significantly increased fire hazard in areas with flammable materials?
-

8.1 Significance Criteria

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

Non-compliance with any applicable design code or regulation.

Non-conformance to National Fire Protection Association standards.

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

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

8.2 Environmental Setting and Impacts

The Paramount Refinery currently uses a number of hazardous materials at the site to manufacture petroleum products. The major types of public safety risks at the refinery consist of risk from releases of toxic substances and from major fires and explosions. The discussion of the hazards associated with the existing refinery is available in the Paramount Petroleum 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 hydrogen sulfide and regulated flammable substances including propane, butane, and other petroleum products including gasoline, fuel oils, diesel and other products, which pose a risk of fire and explosion.

8. a), b), and c). The proposed project will change the amount or type of hazardous materials, regulated under the RMP/CalARP regulations, which are transported to or stored at the refinery. The proposed SCR system requires ammonia to react with NOx emissions in the exhaust gases to reduce the NOx emissions. Therefore, the proposed project will result in the transport, storage and handling of aqueous ammonia (19 percent). Along with the use and handling of aqueous ammonia comes the hazards associated with its use. The hazards associated with the use of aqueous ammonia are reduced through design, operations, maintenance, regulatory, and administrative controls. Design standards are developed through industry groups, various independent institutes, and government agencies. (Design standards come from a number of

sources and define the minimum requirements for the equipment and system detailed designs. Many of these standards relate to safety. Others relate to service life, e.g., paint, or ease of operation. Together, they make a complete package.) Operational controls include automatic devices to control and monitor process variables and documented procedures for manual operations. Routine preventative maintenance and inspections of critical equipment help to prevent unscheduled process shutdowns and potential equipment failures. Administrative controls include operator training, documentation of equipment inspection and maintenance history, and procurement prequalification controls over contractors and vendors.

Paramount adheres to and will continue to adhere to the following safety design and process standards in the operations of the equipment for the existing refinery:

- The California Code of Regulations, Title 8 – contains minimum requirements for equipment design.
- Industry Standards and Practices – standards for design of various equipment, including the American National Standards Institute (ANSI), American Petroleum Institute (API), American Society of Mechanical Engineers (ASME), and National Fire Protection Association (NFPA).

ANSI standards generally cover individual components such as valves. Detailed dimensional and material requirements are provided which make these parts interchangeable. API standards generally cover good practice for the various systems used in the petroleum industry (e.g., storage tanks). ASME standards include the pressure vessel and boiler code requirements. The state of California requires conformance with these codes. NFPA standards cover fire related subjects. The fire code often refers to these standards and make them requirements. The electrical code comes in this group of standards and the building code makes it a requirement.

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

The proposed project includes the addition of one 238 barrel above ground aqueous ammonia storage tank to service the new SCR unit. The aqueous ammonia at a concentration of 19 percent would be delivered to the Paramount refinery and stored on-site. Nineteen percent ammonia is being used to reduce the inherent risk of handling ammonia. Use and transport of anhydrous ammonia involves greater risk than aqueous ammonia because it is stored and transported under pressure. In the event of a leak or rupture of a tank, anhydrous ammonia is released and vaporizes into the gaseous form which is its normal state at atmospheric pressure and produces a toxic cloud. Aqueous ammonia is a liquid at ambient temperatures and gas is only produced when a liquid pool from a spill evaporates.

Aqueous ammonia at concentrations less than 20 percent is not considered a toxic substance under federal RMP requirements. However, under current California Office of Emergency Services regulations implementing the CalARP requirements, aqueous ammonia is regulated under California Health and Safety Code Section 2770.1.

Hazard Analysis

The onsite storage and handling of the ammonia creates the possibility of an accidental spill and release of aqueous ammonia, which would evaporate and present a potential offsite public exposure. To further evaluate the potential for significant adverse environmental impacts due to an accidental release of aqueous ammonia, various scenarios were evaluated that could occur during the onsite storage, transportation, and transfer of ammonia. These scenarios and their consequences are discussed in detail below.

Transportation Release Scenario:

Paramount plans to receive ammonia from a local ammonia supplier located in the greater Los Angeles area. Deliveries of aqueous ammonia would be made to the facility by tanker truck via public roads. The maximum capacity of a tanker truck is 150 barrels. Based on the onsite storage capacity and consumption of ammonia, delivery frequency from the supplier to the refinery would be eight to nine trucks per year. Regulations for the transport of hazardous materials by public highway are described in 49 Code of Federal Regulations (CFR) 173 and 177. Nineteen percent aqueous ammonia is considered a hazardous material under 49 CFR 172, therefore Parts 173 and 177 apply to the proposed project.

Although trucking of aqueous ammonia and other hazardous materials is regulated for safety by the U.S. Department of Transportation, there is a possibility that a tanker truck could be involved in an accident spilling its contents. The factors that enter into accident statistics include distance traveled and type of vehicle or transportation system. Factors affecting automobiles and truck transportation accidents include the type of roadway, presence of road hazards, vehicle type, maintenance and physical condition, and driver training. A common reference frequently used in measuring risk of an accident is the number of accidents per million miles traveled. Complicating the assessment of risk is the fact that some accidents can cause significant damage without injury or fatality.

Every time hazardous materials are moved from the site of generation, opportunities are provided for accidental (unintentional) release. A study conducted by the U.S. EPA indicates that the expected number of hazardous materials spills per mile shipped ranges from one in 100 million miles to one in one million miles, depending on the type of road and transport vehicle used. The U.S. EPA analyzed accident and traffic volume data from New Jersey, California, and Texas, using the Resource Conservation and Recovery Act Risk/Cost Analysis Model and calculated the accident involvement rates presented in Table 14. This information was summarized from the Los Angeles County Hazardous Waste Management Plan (Los Angeles County, 1988).

In the study completed by the U.S. EPA, cylinders, cans, glass, plastic, fiber boxes, tanks, metal drum/parts, and open metal containers were identified as usual container types. For each container type, the expected fractional release en route was calculated. The study concluded that the release rate for tank trucks is much lower than for any other container type (Los Angeles County, 1988).

The accident rates developed based on transportation in California were used to predict the accident rate associated with trucks transporting aqueous ammonia to the refinery. Assuming an average truck accident rate of 0.28 accidents per million miles traveled (Los Angeles County, 1988), the estimated accident rate associated with transporting aqueous ammonia is 0.000126 or about one accident every 7,937 years.

TABLE 14

TRUCK ACCIDENT RATES FOR CARGO ON HIGHWAYS

Highway Type	Accidents Per 1,000,000 miles
Interstate	0.13
U.S. and State Highways	0.45
Urban Roadways	0.73
Composite*	0.28

Source: U.S. Environmental Protection Agency, 1984.

* Average number for transport on interstates, highways, and urban roadways.

The actual occurrence of an accidental release of a hazardous material cannot be predicted. The location of an accident or whether sensitive populations would be present in the immediate vicinity also cannot be identified. In general, the shortest and most direct route that takes the least amount of time would have the least risk of an accident. Hazardous material transporters do not routinely avoid populated areas along their routes, although they generally use approved truck routes that take population densities and sensitive populations into account.

The hazards associated with the transport of regulated (CCR Title 19, Division 2, Chapter 4.5 or the CalARP requirements) hazardous materials, including aqueous ammonia, would include the potential exposure of numerous individuals in the event of an accident that would lead to a spill. Factors such as amount transported, wind speed, ambient temperatures, route traveled, distance to sensitive receptors are considered when determining the consequence of a hazardous material spill.

In the unlikely event that the tanker truck would rupture and release the entire 150 barrels of aqueous ammonia, the ammonia solution would have to pool and spread out over a flat surface in order to create sufficient evaporation to produce a significant vapor cloud. For a road accident,

the roads are usually graded and channeled to prevent water accumulation and a spill would be channeled to a low spot or drainage system, which would limit the surface area of the spill and the subsequent toxic emissions. Additionally, the roadside surfaces may not be paved and may absorb some of the spill. Without this pooling effect on an impervious surface, the spilled ammonia would not evaporate into a toxic cloud and impact residences or other sensitive receptors in the area of the spill. Although significant adverse hazard impacts from an accidental release of ammonia during transport could occur, the SCAQMD will impose mitigation measures to further minimize hazard impacts associated with a transportation accident.

Ammonia Tank Rupture Scenario

A release scenario was identified to calculate the hazard impact from a spill of 238 barrels (the entire contents of the ammonia storage tank) of 19 percent aqueous ammonia into a containment dike sized to hold the tank contents plus an additional 10 percent (see Appendix C). A series of release and dispersion calculations were completed to quantify the dispersion of ammonia gas evolving from a pool of aqueous ammonia following a release from a storage tank on the premises of the Paramount refinery. The dispersion calculations were performed until specific ammonia concentrations were reached in the downwind direction. Two ammonia concentrations were chosen for evaluation:

ERPG-2 (200 ppm): The maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair their ability to take protective action.

ERPG -3 (1,000 ppm): The maximum airborne concentration below which it is believed nearly all individuals could be exposed for up to one hour without experiencing or developing life-threatening health effects.

The hazard zones resulting from liquid releases into the storage containment area (referred to as bund) were evaluated to determine the extent and location of the gas cloud containing ammonia. Details on the modeling assumptions are included in Appendix C. The dispersion analysis was completed for a range of impoundment sizes ranging from 100 to 1,000 feet. The following conclusions were drawn from this analysis:

1. Under “worst-case” atmospheric conditions (e.g., low winds and stable air), the lowest ammonia concentration of interest (ERPG2 level of 200 ppm), does not reach the closest Paramount refinery property line, providing the liquid impounding area is no larger than 700 square feet (ft²).
2. Under all other atmospheric conditions (e.g., high winds, less stable atmospheres), the distances to the 200 ppm ammonia concentration level would be shorter.

3. Under no condition does the 1,000 ppm ammonia concentration level extend further than 45 feet from the tank (assuming a maximum 700 ft² impounding area). This distance is always well within the Paramount refinery fence line.

Based on the above, a mitigation measure is required to limit the containment area to no larger than 700 ft².

Ammonia Transfer Release Scenario

This analysis was conducted to evaluate the impacts of a tanker truck release on an impervious surface while ammonia was being transferred at the Refinery. The modeling analysis completed above for the ammonia tank release would also apply to a release of ammonia when the tank truck is unloaded and transferred to the storage tank. Containment facilities will be provided at the truck loading rack to contain ammonia in the event of a spill during transfer activities. The ammonia concentration will be less than the ERPG 2 level of 200 ppm at the refinery boundaries, as long as the containment area is limited to 700 ft².

Other Hazard Issues

The proposed project site is located within one-quarter of a mile of an existing or proposed school. Based on the release scenarios analyzed above, an onsite aqueous ammonia release would not result in significant health effects (exposures that exceed the ERPG2 threshold levels) to the local population surrounding the refinery because the proposed project will be designed to prevent offsite exposures to the ERPG2 levels of ammonia.

8. d) The proposed project is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The Refinery is included on the list because it was issued a Cleanup and Abatement Order by the State Water Resources Control Board (Order No. 97-118). For sites which are listed pursuant to Government Code Section 65962.5, the following information is requested:

Applicant:	Paramount Petroleum Corporation
Address:	14700 Downey, Paramount, California 90723
Phone:	(562) 531-2060
Address of Site:	14700 Downey, Paramount, California 90723
Local Agency:	City of Paramount
Assessor's Book Nos:	7157 007 003 01 000, 7157 007 002 01 000, 6268 005 014 01 000, 6268 005 013 01 000, 6268 005 002 01 000, 6268 005 001 01 000, 6268 005 003 01 000, 6268 003 017 01 000, 6268 003 016 01 000, 6268 003 005 01 000, 6268 003 004 01 000, 6268 003 003 01 000, 6268 003 001 01 000, 6268 003 014 01 000, 6268 002 019 01 000, 6268 002 017 01 000, 6268 002 011 01 000, 6268 002 010 01 000, 6268 002 009 01 000, 6268 002 008 01 000, 6268 002 006 01 000, 6268 002 004 01 000, 6268 002 003 01 000, 8940 389 429 01 000
List:	Hazardous Waste and Substances Sites List
Regulatory ID No:	4B192595N02
Date of List:	April 1998

The proposed project is not expected to impact the Paramount Petroleum Cleanup and Abatement Order. The Order will remain in effect and continue to establish requirements for site monitoring and clean up of existing contamination.

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

8. g) The proposed project is not expected to interfere with an emergency response plan or emergency evacuation plan. The proposed project will result in modifications to the existing refinery. All construction activities will occur within the confines of the existing refinery so that no emergency response plans should be impacted. Paramount has implemented emergency response plans at its facility, but no modifications to the plans are expected as a result of the proposed project. The proposed project is not expected to alter the route that employees would take to evacuate the site, as the evacuation routes generally directs employees outside of the main operating portions of the refinery. It is expected that the emergency response plan will be modified to include the hazards associated with the aqueous ammonia.

8. h) and i). The proposed project will not increase the existing risk of fire hazards in areas with flammable brush, grass, or trees. Additional natural gas will be used at the site. Natural gas and refinery fuel gas (which has the same flammable properties as natural gas) are currently used at the site. The hazards associated with natural and refinery fuel gas would result in a torch fire in the event that a release occurred and caught fire. Because of the location of the proposed project facilities, a torch fire would be expected to remain on-site so that there would be no public exposure to the fire hazards. No substantial or native vegetation exists within the operational portions of the refinery. Therefore, no significant increase in fire hazards are expected at the refinery associated with the proposed project.

8.3 Mitigation Measures

Mitigation measures are required because offsite exposures to ERPG2 levels of ammonia could occur, which could create potentially significant adverse hazard impacts.

- The storage tank containment area shall be limited to 700 ft². Other regulations that pertain to storage tank containment shall also apply, e.g., the containment facility must contain 110 percent of the content of the tank.
- The containment facilities associated with the ammonia truck unloading rack shall be limited to 700 ft².

To further reduce the potential risk of exposure, Paramount will ensure transportation of ammonia to the facility uses a route that provides the minimum exposure to sensitive populations and that shipments are made during off-peak times to minimize risk by implementing the following mitigation measures:

CHAPTER 2: ENVIRONMENTAL CHECKLIST

- Prior to the first delivery of aqueous ammonia to the site, a truck haul route map shall be submitted to the SCAQMD for review and approval.
- The haul route shall minimize rail crossings, crossing of busy intersections and proximity to schools.
- The haul route shall be resubmitted if suppliers are changed.

Based on the fact that conditions are typically not present on Basin roadways for an accidental release of ammonia to evaporate creating ERPG2 levels of ammonia (200 ppm), and the incorporation of mitigation measures, the conclusion of this analysis is that potential impacts due to accidental release of ammonia during transportation are less than significant.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
9. HYDROLOGY AND WATER QUALITY. Would the project:			
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Paramount Petroleum Cogeneration Project

- | | | | |
|--|--------------------------|--------------------------|-------------------------------------|
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Otherwise substantially degrade water quality? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| j) Inundation by seiche, tsunami, or mudflow? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| k) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| l) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| m) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| n) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| o) Require in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

9.1 Significance Criteria

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

Water Quality:

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

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

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

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

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

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

Water Demand:

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

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

9.2 Environmental Setting and Impacts

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

The County Sanitation Districts of Los Angeles County provides sewer service to the City of Paramount with existing lines maintained by the Department of County Engineers – Facilities Sanitation Division. The wastewater is carried to the Joint Water Pollution Control (JWPCP) in Carson, California. The JWPCP has a design capacity of 385 million gallons per day receiving secondary treatment. The JWPCP is part of the regional system known as the Joint Outfall Ssystem which consists of five upstream sewage treatment plants and the JWPCP. Wastewater exceeding the capacities of the upstream plants and all solids are diverted to the JWPCP for processing.

The refinery maintains onsite wastewater treatment equipment. Wastewater from the refinery is treated and sampled in compliance with the County Sanitation Districts of Los Angeles County Industrial Wastewater Discharge Permit. The County Sanitation Districts of Los Angeles County places limitations on wastewater parameters including oil and grease, pH, temperature, heavy metals, organic compounds and so forth. Wastewater that complies with the County Sanitation Districts of Los Angeles County permit requirements is discharged to the sewer. Wastewater that does not comply is sent back for further treatment.

The proposed project is not expected to result in an increase in wastewater generated by the refinery because the SCR does not use water or generate wastewater as part of the NOx control process so no significant adverse impacts on wastewater are expected. Wastewater will continue to be discharged in compliance with the County Sanitation Districts of Los Angeles County Industrial Wastewater Discharge permit. No modifications to the Industrial Wastewater Discharge permit is expected to be required due to the proposed project.

Ground Water

Pursuant to the Regional Water Quality Control Board (RWQCB) Order No. 97-118, a ground water monitoring program was implemented in 1985 to evaluate ground water quality at and in the vicinity of the Paramount refinery. Ground water monitoring consists of a network of monitoring wells, which includes wells located within and down gradient of the site. Previous ground water contamination has been identified at the refinery and recent ground water monitoring results indicate that ground water contamination still exists.

Paramount has implemented hydrocarbon removal and recovery activities for ground water at the refinery. The proposed project includes the installation of a new above ground ammonia tank. The new tank will be equipped with a double bottom and a leak detection system. A containment system will also be designed around the storage tank to prevent the migration of ammonia from the area of the tank in the event of a spill.

Construction activities could uncover contaminated soils, given the heavily industrialized nature of the refinery and the fact that refining activities, petroleum storage, and distribution have been conducted at the site for a number of years. Currently, there is no evidence that soil contamination is located within the areas proposed for grading, trenching or excavation. The excavation at the refinery is anticipated to be limited to less than 200 cubic yards.

Contaminated soils or water may require remediation (cleanup and safe removal and disposal) if detected above certain concentrations during construction activities. Even if soils or ground water at a contaminated area do not have the characteristics required to be defined as hazardous wastes, remediation of the area may be required by regulatory agencies. Soil that is found to be contaminated will be analyzed by a State-certified laboratory to determine the concentration and type of contamination. To the extent feasible, all excavated non-contaminated soil will be used for backfill and/or grading at the project site. Contaminated soil may be treated on-site, as required, or taken to an approved off-site treatment/disposal facility.

Excavated soils which contain concentrations of certain substances including heavy metals and hydrocarbons, generally are regulated under California hazardous waste regulations. No significant impacts are expected from the construction-related potential for contaminated soils excavation since there are numerous local, state (Title 22 of the California Code of Regulations) and federal rules which regulate the handling, transportation, and ultimate disposition of these soils. Title 22 of the California Code of Regulations establishes many requirements for hazardous waste handling, transport and disposal, including requirements to use approved disposal/treatment facilities, use certified hazardous waste transporters, and use manifests to track hazardous materials, among many other requirements.

9. b) and n) Water Demand

Water service to the site is provided by the City of Paramount Water Department. Approximately 80 percent of the City's water supply is provided by ground water pumped through wells and distributed throughout the City. The remaining 20 percent of the water is purchased through agreements with the Metropolitan Water District.

Small quantities of water may also be required during the construction phase for dust control. The water use will be minor and will cease following the construction phase. The construction phase is not expected to generate wastewater.

Water service to the site is provided from water utility lines extending from Lakewood and Somerset Boulevards. Paramount Petroleum does not maintain any ground water wells on site. The refinery uses about 600,000 gallons of water per day. The cooling equipment is responsible for the majority of the water used onsite. The proposed project is not expected to result in an increase in water use at the site so that no significant impacts on water demand are expected. No increase in the amount of ground water supplies used at the refinery is expected and the proposed project would not substantially deplete ground water supplies or interfere with ground water recharge.

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

The Los Angeles County Flood Control District is responsible for maintaining flood control and storm drainage facilities in the City of Paramount. The City's storm drainage system is supported by the southwestern slope of the area and its proximity to the Los Angeles River. The project site slopes to the southwest, and runoff follows this pattern.

No significant changes to surface water runoff are expected due to the proposed project. The project will be constructed within currently developed sites. An existing concrete pad is located at the site for the cogeneration facilities so that no significant increase in paved areas is expected as part of the proposed project. Runoff from the facilities will be handled in the existing surface water treatment systems. Runoff will be collected, treated (if applicable), and discharged under the requirements of the existing storm water permit, NPDES permit or the Industrial Wastewater Discharge Permit. Because the topography of the site will remain unchanged during operation, the proposed project is not expected to increase the surface water runoff at any location.

Therefore, no significant impacts are expected to result from water runoff associated with the proposed project.

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

The proposed project is located at an existing refinery, which is not located within a 100-year flood hazard area. Consequently, the proposed project would not expose people or property to any known water-related hazards or impede or redirect flood flows. Therefore, no significant impact on flooding is expected from the proposed project.

9. j) Other Hazards

There is no open ponds at the site so that the potential for seicheing is considered to be less than significant. The proposed project site is located about 20 miles from the coast so there is no potential for a tsunami to impact the refinery site. The proposed project site is located in a flat area with no hills or mountains nearby so the potential for significant impacts from mudflows is considered less than significant.

9.3 Mitigation Measures

No mitigation measures are required for the construction/operation of the proposed project since no significant impacts to water resources are expected.

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

10.1 Significance Criteria

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

10.2 Environmental Setting and Impacts

The Paramount refinery accounts for slightly more than half of the total acreage within the Somerset Ranch Area of the 1990 Paramount General Plan. The Somerset Ranch Area of Paramount is designated as “Mixed Use” and includes a mix of residential, commercial, industrial, and public uses. The refinery is zoned M-2, Heavy Manufacturing. In a number of settings throughout the area, the land use pattern varies widely on a parcel by parcel basis and reflects an area in transition from a variety of older land uses (that include the refinery) to newer, more consistent development (including apartment houses and commercial land uses, e.g., grocery stores and a Walmart).

Wirtz School is located at the corner of Contreras and Downey Avenues; the Cinderella Mobile Home Community, and single-family homes are located further east along Contreras Avenue. The two parcels northeast of the site have been developed with commercial uses, e.g. Albertson’s and Walmart. The Baxter School is located east of Lakewood Boulevard in the City of Bellflower. The west side of Lakewood Boulevard is developed with commercial uses, including several auto-related uses, the Rainbow Trailer Park, Fox Trailer Court, and the Hazy 8 Motel. The Department of Water and Power easement and the UPRR tracks run diagonally across Somerset Boulevard and Downey Avenue and separate the refinery from the Somerset Village condominiums and a neighboring that consists of single-family dwellings. Further south along Somerset Boulevard, there are single-family neighborhoods and commercial and industrial land uses. The opposite side of Downey Avenue contains a mix of single- and multiple-family developments and Paramount High School. Figure 5 shows the existing land uses in the vicinity of the refinery.

10 a), b) and c). The proposed modifications to the Refinery are consistent with the M-2 zoning classification, although the proposed improvements and operations may require a modification to the refinery’s existing conditional use permit prior to the installation of the cogeneration equipment. The applicant is proposing to modify the existing refinery capabilities by adding the cogeneration equipment to enable the Refinery to generate electricity onsite that would still be consistent with the refinery’s M-2 zoning classification.

Operation of the proposed project will not alter existing land uses at the Paramount refinery and will not conflict with the land use patterns delineated by the local cities. All operations will occur within the confines of the existing refinery so that no change in land use is expected. The proposed new facilities are expected to be consistent with the existing zoning and land uses, which are currently developed within industrial areas. Therefore, the proposed project is not expected to create significant adverse impacts on land use.

Figure 5 goes here

The proposed project will occur within heavy industrial areas where there are no agricultural resources or operations on or near the project site. There are no habitat conservation or natural community conservation plans in the area. Therefore, no significant adverse impacts to a habitat or natural community conservation plan are expected.

10.3 Mitigation Measures

No mitigation measures are required for the construction/operation of the proposed project since no significant impacts to land use are expected.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
11. MINERAL RESOURCES. Would the project:			
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

11.1 Significance Criteria

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

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

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

11.2 Environmental Setting and Impacts

11. a) and b). There are no known mineral resources located in the City of Paramount. There are no mineral resources located within the vicinity of the Paramount facility. The proposed project

will not involve construction outside of the existing boundaries of the existing refinery. Therefore, the proposed project will have no impacts on mineral resources.

11.3 Mitigation Measures

No significant impacts on mineral resources have been identified so that no mitigation measures are required.

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

12.1 Significance Criteria

Impacts on noise will be considered significant if:

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

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

12.2 Environmental Setting and Impacts

12. a), b), d). The existing noise environment at the refinery is dominated by vehicular traffic along Lakewood and Somerset Boulevards and Downey Avenue, trucks entering and exiting the refinery, and refinery equipment. Single- and multiple-family residences including mobile home parks and motels, schools, libraries and hospital facilities are considered noise sensitive land uses because noise during the late evening and early morning hours is often perceived as troublesome to its users. Within the general vicinity of the project area there are single-family residences, a grammar school, and the Cinderella Mobile Home Community along Contreras Street and Castana Avenue; single- and multiple-family residential developments and school facilities along Downey Avenue; two mobile home parks and a motel on the opposite side of Lakewood Boulevard; and, single-family and multiple family residential developments along Somerset Boulevard.

According to noise surveys conducted for the Health and Safety Element of the Paramount General Plan, the ambient noise level for all sources within the City of Paramount ranges from 52 dBA to 82 dBA. Vehicle traffic on Lakewood Boulevard north of Somerset Boulevard creates noise levels up to 66.2 dBA as the Community Noise Exposure Level (CNEL) at areas 100 feet from the roadway centerline. Along Somerset Boulevard east of Downey Avenue, the exterior noise exposure is 61.8 CNEL in areas 100 feet from the roadway centerline.

Noise measurements were taken to assess the noise environment surrounding the refinery. Noise measurement locations included a site at the Castana Avenue cul-de-sac; a site at the Contreras Avenue/Downey Avenue intersection near the Paramount Adult School; and a site at the Somerset Boulevard/Hayter Avenue intersection (see Figure 6). As indicated in Table 15, noise levels along Castana Avenue were approximately 56 dBA most of the time although vehicle starts and acceleration contributed to measurements exceeding 60 dBA for about 10 percent of the time. Noise levels at the Contreras/Downey Avenue intersection ranged between 66 and 74 dBA for most of the time (about 90 percent of the time), fluctuating with traffic flow. Noise

Figure 6 goes here

readings at the Somerset Boulevard/Hayter Avenue intersection ranged between 68 and 74 dBA and also fluctuated with traffic flow (City of Paramount, 1994).

**TABLE 15
EXISTING NOISE LEVELS (dBA)**

SITE	LOCATION	L _{max}	L ₁₀	L ₃₃	L ₅₀	L ₉₀
1	Castana Avenue	64	60	58	56	55
2	Contreras Street./Downey Avenue	76	74	72	70	66
3	Somerset Boulevard/Hayter Ave.	76	74	71	70	68

L_{max} - The maximum sound level recorded during the noise measurement period.
L₁₀ - The sound level exceeded 10 percent of the noise measurement period.
L₃₃ - The sound level exceeded 33 percent of the noise measurement period.
L₅₀ - The sound level exceeded 50 percent of the noise measurement period.
L₉₀ - The sound level exceeded 90 percent of the noise measurement period (i.e., background noise level).
Site locations are shown in Figure 6.

The City of Paramount’s noise ordinance is provided in Table 16.

**TABLE 16
CITY OF PARAMOUNT NOISE ORDINANCE**

NOISE ZONE	DAY (Maximum) 6 a.m. to 10 p.m.	NIGHT (Maximum) 10 p.m. to 6 a.m.
Industrial and Commercial	82 dBA	77 dBA
Residential (R1 and R2)	62 dBA	57 dBA
Multi-Family Residential (R3 and R4)	67 dBA	62 dBA

Source: City Of Paramount, Ordinance No. 317, §1.

11. d). Construction activity for the project will produce noise as a result of operation of construction equipment. Typical sound levels for typical construction equipment are presented in Table 17.

The construction equipment at the refinery will include welding machines, trucks, cranes, compressors, loaders, concrete pumps, graders, and pavers. The estimated noise level during equipment installation is expected to be an average of about 80 dBA at 50 feet from the center of construction activity. Using an estimated six dBA reduction for every doubling distance past 50 feet (100 feet, 200 feet, 400 feet, etc.), the noise levels at the receptors near the refinery were estimated (see Table 18). Most of the construction noise sources will be located near ground level, so the noise levels are expected to attenuate further than analyzed herein. In order to provide a conservative estimate of the noise impact, noise attenuation due to existing structures has not been included in the analysis.

TABLE 17
CONSTRUCTION NOISE SOURCES

EQUIPMENT	TYPICAL RANGE (decibels)⁽¹⁾	ANALYSIS VALUE (decibels)⁽²⁾
Truck	82-95	82
Front Loader	73-86	82
Air Compressor	85-91	85
Concrete Pumps	81-85	81
Scrapers, Graders	80-93	80
Pavers	85-88	85
Cranes	75-89	85

(1) City of Los Angeles, 1998. Levels are in dBA at 50-foot reference distance. These values are based on a range of equipment and operating conditions.

(2) Analysis values are intended to reflect noise levels from equipment in good conditions, with appropriate mufflers, air intake silencers, etc. In addition, these values assume averaging of sound level over all directions from the listed piece of equipment.

TABLE 18
PROJECT CONSTRUCTION NOISE LEVELS

Location⁽³⁾	Baseline Noise Levels (dBA)⁽²⁾	Distance from New Units to Noise Sampling Locations (feet)	Construction Sound Level at Noise Sampling Locations (dBA)	Total Sound Level at Noise Sampling Location (dBA)⁽³⁾	Increased Noise Levels due to Construction at Noise Sampling Locations (dBA)
1	55	1,250	53	57	2
2	66	2,000	47	66	<1
3	68	1,300	52	68	<1

(1) Refers to the sampling locations identified in Figure 6.

(2) Includes all predicted noise sources. Noise levels are from Table 15.

(3) The total sound level was calculated using the following formula: $T_{sl}=10\log_{10}(10^{B_{sl}/10} + 10^{O_{sl}/10})$ where T_{sl} = the total sound level (dBA); B_{sl} = baseline sound level (dBA); and O_{sl} = operational construction sound level (dBA)

The construction activities that generate noise will generally be carried out during the daytime from Monday to Friday, or as permitted by the local city. Because of the nature of the construction activities, the types, number, operation time and loudness of construction equipment will vary throughout the construction period. As a result, the sound level associated with construction will change as construction progresses. Construction noise sources will be

temporary and will cease following construction activities. Noise levels at the areas surrounding the refinery are expected to increase by two decibels or less during construction activities (see Table 18). The noise level from the construction equipment is expected to be within the allowable noise levels established by the local noise ordinance for industrial areas, which is about 70 dBA (see Table 18). Noise impacts associated with the proposed project construction activities are expected to be less than significant.

Workers exposed to noise sources in excess of 85 dBA are required by Occupational Health and Safety Administration (OSHA) requirements to participate in a hearing conservation program. Workers exposed to noise sources in excess of 90 dBA for an eight-hour period will be required (by OSHA regulations) to wear hearing protection devices that conform to OSHA/National Institute for Occupational Safety and Health (NIOSH) standards. Since the maximum noise levels during construction activities are expected to be 80 decibels or less, no significant noise impacts to workers during construction activities are expected.

12. a) and c). The proposed project will add equipment to the existing refinery so that additional noise sources will operate at the facility. The main sources of noise associated with the proposed project would be the gas turbine and compressors. In order to minimize noise levels, Paramount Refinery will require that noise levels associated with the turbine and compressors be limited to no more than 85 dBA at three feet. This noise specification will be enforced and included as part of the equipment purchase agreement for all new and modified equipment. The estimated noise levels associated with the proposed project operation are summarized in Table 19.

TABLE 19

PROJECT OPERATIONAL NOISE LEVELS

Location⁽¹⁾	Baseline Noise Levels (dBA)⁽²⁾	Distance from New Units to Noise Sampling Locations (feet)	Operational Sound Level at Noise Sampling Locations (dBA)	Total Sound Level at Noise Sampling Location (dBA)⁽³⁾	Increased Noise Levels due to Operation Noise Sampling Locations (dBA)
1	55	1,250	34	55	<1
2	66	2,000	29	66	<1
3	68	1,300	33	68	<1

(1) Refers to the sampling locations identified in Figure 6.

(2) Includes all predicted noise sources. Noise levels are from Table 15.

(3) The total sound level was calculated using the following formula: $T_{sl} = 10 \log_{10}(10^{B_{sl}/10} + 10^{O_{sl}/10})$ where T_{sl} = the total sound level (dBA); B_{sl} = baseline sound level (dBA); and O_{sl} = operational construction sound level (dBA)

Assuming an operational “worst-case” noise level of 85 dBA and a six dBA noise attenuation, noise levels would drop off to 60 dBA or less at about 100 feet from the sources. Noise

generated by project equipment would not increase the overall noise levels at the Refinery (when compared to baseline conditions). Therefore, no significant adverse noise impacts related to project operation are expected. The noise levels in the area are expected to comply with the City's Noise ordinance.

12. e) and f). The proposed project site is not located within an airport land use plan or within two miles of a public or private use airport. Therefore, the proposed project would not expose people residing or working in the area to noise related to airports.

12.3 Mitigation Measures

No mitigation measures are required for the proposed project since no significant impacts to noise are expected.

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

13.1 Significance Criteria

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

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

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

13.2 Environmental Setting and Impacts

13. a), b) and c). The City of Paramount was estimated to have 36,407 residents in the 1980 census and 47,666 residents in the 1990 census (City of Paramount, 1993). The 2000 census indicates that about 55,266 people reside in the City of Paramount (www.census.gov).

The Paramount Refinery currently provides jobs for about 167 employees. The majority of the personnel are employed during the day shift. Manufacturing is the dominant economic sector within the City of Paramount, accounting for more than one-third of the City’s employment positions.

The proposed project would require modifications to an existing refinery and will not involve an increase, decrease or relocation of population. Labor (an estimated 35 employees) for construction is expected to come from the existing labor pool in southern California. Operation of the proposed project is not expected to require any new permanent employees at the refinery. Therefore, construction and operation of the proposed project is not expected to have significant impacts on population or housing, induce substantial population growth, or exceed the growth projections contained in any adopted plans.

13.3 Mitigation Measures

No mitigation measures are required for the construction/operation of the project since no significant impacts to population and housing are expected.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
<p>14. PUBLIC SERVICES. Would the proposal result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:</p>			
<p>a) Fire protection?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- | | | | |
|-----------------------------|--------------------------|--------------------------|-------------------------------------|
| b) Police protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Schools? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Parks? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Other public facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
-

14.1 Significance Criteria

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

14.2 Environmental Setting and Impacts

14. a) The City of Paramount contracts with the Los Angeles County Consolidated Fire District which provides fire protection service to 44 incorporated cities and all unincorporated county areas. The northern portion of the City is served by Fire Station No. 57 located at 5720 Gardendale Street in South Gate. All remaining areas are served by Fire Station No. 31, located at 7521 East Somerset Boulevard in Paramount. The station is located about two miles southwest of the project site with an estimated response time of about 3.4 minutes to the refinery.

The Paramount refinery currently maintains personnel and equipment on-site for fire suppression efforts and posts fire emergency procedures. There are fire hydrants along Lakewood and Somerset Boulevards, and Downey Avenue which provide additional fire flow in the event of an emergency. The refinery will continue to operate fire protection services needed at the refinery. It is not expected that the proposed project will require an increase in the level of fire protection service needed to protect and serve the refinery.

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

Compliance with State and local fire codes is expected to minimize the need for additional fire protection services. The refinery has its own emergency response team, along with the local fire department and other emergency services. On-site fire training exercises with the City Fire Department staff are conducted. The proposed project will not increase the requirements for additional or altered fire protection. Fire-fighting and emergency response personnel and equipment will continue to be maintained and operated at the refinery.

14. b) The City of Paramount contracts with the Los Angeles County Sheriff's Department for police protection and law enforcement services. The main sheriff's station servicing the area is located at 5130 Clark Avenue in Lakewood, California. This station is about four miles

southeast of the refinery. The Sheriff's Department provides canine services, an arson-explosives unit, hazardous materials unit, and emergency operations bureau. In addition, a Sheriff's substation is located at the central intersection of Paramount and Somerset Boulevards. The substation is located about 1.25 miles west of the project site.

Trucks enter the Paramount refinery through a manned, gated entrance along Andry Drive, which controls access to the refinery. Employees and visitors use the Downey Avenue driveway entrance, which is also gated. The gated entrances, landscaping and fencing surrounding the site act as deterrents to unlawful site entry. Video surveillance cameras monitor the entrances to the site.

The existing refinery staff will monitor construction activities within the refinery. The refinery is fenced and entry is restricted to authorized individuals. Entry and exit of the construction work force will be monitored and no additional or altered police protection is expected to be necessary. The operation of the proposed project will not require additional workers and entry to the facilities is restricted. Therefore, no impact to the local police department is expected related to the proposed project.

14 c), d), and e). Construction activities at the refinery will not involve the relocation of individuals, impact housing or change the distribution of the population. No additional permanent workers are required as part of the proposed project. Thus, the proposed project will not alter existing, or require additional schools or parks.

No increase in the number of employees is expected due to the operation of the proposed project. Although the proposed project is expected to generate eight to nine ammonia truck transport trips per year, as indicated in Section 17 "Transportation/Traffic," this minor increase in truck traffic is not considered to be a significant adverse traffic impact. Therefore, the proposed project would not affect the maintenance of public facilities, create an increase in demand for additional public facilities such as parks, or create an increase in demand for new roads.

Because, the proposed project consists of minor changes in operations at an existing facility, it will not require other governmental services than are currently provided to the facility. Therefore, the project impacts on public services are expected to be less than significant.

14.3 Mitigation Measures

The proposed project impacts on public services are less than significant so no mitigation measures are required.

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

15.1 Significance Criteria

The impacts to recreation will be considered significant if:

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

The project adversely effects existing recreational opportunities.

15.2 Environmental Setting and Impacts

15. a) and b). The proposed project will not increase the local population growth or alter the population distribution so there will be no significant adverse impacts or demand for new neighborhood or regional parks, or other recreational facilities. The City of Paramount operates and maintains three full service community parks, one full service neighborhood park, five passive parks, and one athletic activities park to serve residents. Paramount Park, located along Paramount Boulevard and Progress Park on Downey Avenue are the closest City parks to the refinery. Currently, employees may use this picnic area or City provided facilities for breaks and lunch periods. The proposed project will be located in the central portion of the site and will not affect the refinery's own recreation area. Therefore, no significant impacts to recreation are expected from the proposed project.

15.3 Mitigation Measures

The proposed project is not expected to have significant impacts on recreation. Therefore, no mitigation measures are required.

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

16.1 Significance Criteria

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

The generation and disposal of hazardous and non-hazardous waste exceeds the capacity of designated landfills.

16.2 Environmental Setting and Impacts

16. a) Non-Hazardous Solid Waste

The refinery also generates non-hazardous solid or municipal wastes. Most of these wastes are generated in the administrative operations of the refinery. The status of the landfills to which the refinery may send municipal solid wastes is summarized in Table 20.

The LACSD anticipates that landfill capacity in the county will be exceeded in the near future. Because of community resistance to the extension of operating permits for existing facilities and to the opening of new landfills in the county and the dwindling capacity of those landfills with operating permit time left, the exact date on which that capacity will be exceeded is uncertain. The LACSD is currently exploring out of county disposal options in addition to continuing

negotiations to extend current operating permits. The proposed project is not expected to result in an increase in solid waste generated at the refinery so no significant impacts are expected.

TABLE 20

LOS ANGELES COUNTY NON-HAZARDOUS LANDFILL STATUS

FACILITY NAME	PERMITTED tons/day	2000 Average tons/day	Remaining Permitted Capacity (tons)	Notes
Antelope Valley I	1,400	695	3,429,000	
Antelope Valley II	1,800	N/O	8,206,000	See footnote (1)
Azusa	6,500	500	34,100,000	See footnote (2)
Bradley W.	10,000	4,961	9,885,000	
Chiquita Canyon	6,000	3,293	45,889,000	
Lancaster	1,000	588	414,000	
Pebbly Beach	49	4.8	31,000	
Puente Hills	13,200	11,808	33,884,000	See footnote (3)
Sunshine	6,600	3,481	17,200,000	

Sources: California Integrated Waste Management Board Web Site (www.ciwmb.ca.gov/swis/); Martin Ayetiwa, Los Angeles County Department of Public Works, Personal Communication, June 2000; and the Los Angeles County Countywide Siting Element prepared by the Los Angeles County Public Works Department, June 1997.

- (1) Facility is planned and permitted, but not yet operational.
 - (2) Facility only accepts inert waste.
 - (3) Origin of waste limited to all jurisdictions except Orange County and the portion of the City of Los Angeles outside the jurisdictional boundary of the County Sanitation Districts.
- N/O Not in operation.

16. b) Hazardous Solid Waste

Process units at the refinery generate materials classified as hazardous waste including oil/water separation sludge, spent catalyst from various process units, and tank bottom sludge. A small portion of the hazardous waste generated is sent to an out-of state incineration facility. Hazardous waste, which is not reused on-site, or recycled off-site, is disposed of at a licensed in-state hazardous waste disposal facility. Two such facilities are the Chemical Waste Management Inc. (CWMI) Kettleman Hills facility in Kings County, and the Safety-Kleen facility in Buttonwillow (Kern County). Kettleman Hills has an estimated six million cubic yard capacity and expects to continue receiving wastes for approximately six years under its current permit, or for approximately another 12 years with an approved permit modification that is pending (Personal Communication, Terry Yarbough, Chemical Waste Management Inc., May 2001). Buttonwillow receives approximately 960 tons of hazardous waste per day and has a remaining capacity of approximately 10.8 million tons. The expectant life of the Buttonwillow Landfill is approximately 35 years (Personal Communication, Marianna Buoni, Safety-Kleen at Buttonwillow, Inc., May 2001).

As part of ongoing site maintenance, the refinery also disposes of contaminated soils. If contaminated soils are encountered, soil samples are collected and analyzed by a state certified laboratory to determine the level of contamination. Based on laboratory results, contaminated soils are excavated and hauled to the appropriate landfill, or recycling facility.

The proposed project will result in an increase in the amount of SCR catalyst used at the refinery. The SCR unit for the proposed cogeneration unit requires a catalyst to accelerate the NOx reduction reaction process. The catalyst may require replacement every three to four years. The catalyst is expected to be sent to a recycling facility to reclaim the heavy metal contained in the catalysts so that no significant impacts on hazardous waste facilities are expected. Following removal of the heavy metals from the catalyst, the remainder of the material is expected to be non-hazardous waste and disposed at a non-hazardous waste facility. The metal recycling facilities are generally out of California so the disposal of non-hazardous waste from the reclamation of the catalyst would occur at an out of state facility.

16.3 Mitigation Measures

The proposed project impacts on solid and hazardous waste facilities are less than significant, so no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
17. TRANSPORTATION/TRAFFIC. Would the project:			
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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|--|--------------------------|--------------------------|-------------------------------------|
| d) Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access or? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Result in inadequate parking capacity? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
-

17.1 Significance Criteria

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

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

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

A major roadway is closed to all through traffic, and no alternate route is available.

There is an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.

The demand for parking facilities is substantially increased.

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

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

17.2 Environmental Setting and Impacts

17. a) and b). The project site is bounded by Lakewood to the east, Somerset Boulevards to the south, the Department of Water and Power easement and the UPRR railroad tracks to the southwest, and Downey Avenue to the west. Trucks enter the Paramount refinery via Andry Drive, an L-shaped street with access to Lakewood Boulevard and Somerset Boulevard. Regional access to the site is provided by the Rosecrans Avenue and Alondra Boulevard offramps of the San Gabriel River (SR 605) and Long Beach (SR-710) freeways and the

Lakewood Boulevard exit of the Artesia (SR-91) freeway. The existing roadway conditions for vehicular access to and from the project site are summarized below:

Lakewood Boulevard: Lakewood Boulevard has a north-south alignment and runs parallel to the eastern border of the project site. This four lane roadway, divided by a raised median along the project frontage, is 90 feet wide. The median is 18 feet in width with 36 feet of travel width on each side. Parking is currently allowed on both sides of the street.

Somerset Boulevard: Somerset Boulevard has an east-west alignment and provides access to commercial activities and residential developments through the cities of Compton, Paramount and Bellflower. This four-lane roadway is divided by a raised median along the project frontage, and is approximately 90 feet wide. The median is approximately 14 feet wide with 36 feet of travel width in each direction. Parking is permitted on both sides of the street. The Union Pacific Railroad tracks cross Somerset Boulevard and Downey Avenue and continue further northwest towards the industrial heart of Los Angeles. It also forms the southwestern border of Paramount Petroleum and the Somerset Village condominiums. The General plan designates Somerset Boulevard and Lakewood Boulevard as truck routes.

Downey Avenue: Downey Avenue has a north-south alignment and provides commercial and residential access through the cities of Downey, Paramount, and Long Beach. The Paramount refinery's western boundary is between the UPRR tracks and Contreras Street, opposite Paramount High School. Downey Avenue is classified as a secondary arterial. The roadway is approximately 70 feet wide, with a 14-foot median. Parking is allowed on both sides of the street.

Andry Drive: Andry Drive (a private road owned by Paramount Petroleum) is an L-shaped private street providing access to Paramount refinery from Lakewood and Somerset Boulevards. Andry Drive is an undivided street with one lane in each direction. Both left and right turns from Andry Drive onto Somerset Boulevard are permitted. Lakewood Boulevard permits only right turns from Andry Drive. Trucks queue in parking stalls along Andry Drive before entering the refinery. The truck entrance to the site is monitored by scalehouse personnel.

Employee and visitor access to the Paramount refinery is from the main driveway entrance at Downey Avenue. The driveway is a three lane roadway with two entrance lanes and one exit lane. The site entrance is gated and monitored through a watch tower. This driveway separates the refinery from the adjacent Paramount Adult School, the Cinderella Mobile Home Community, and the Castana Avenue single-family neighborhood.

The operating characteristics of an intersection are defined in terms of the level of service (LOS), which describes the quality of traffic flow based on variations in traffic volume and other variables such as the number of signal phases. Intersections with LOS A to C operate well with no traffic delays. LOS C normally is taken as the design level for intersections in urban areas outside a regional core. LOS D typically is the level for which a metropolitan area street system is designed. LOS E represents intersection volumes at or near the capacity of the highway that will result in possible stoppages of momentary duration and fairly unstable traffic flow. LOS F

occurs when an intersection or street is overloaded and is characterized by stop-and-go (forced flow) traffic with stoppages of long duration. The estimated LOS for intersections in the vicinity of the refinery is provided in Table 21. The LOS for the intersections in the area is B or C indicating relatively free flowing traffic conditions.

TABLE 21
ESTIMATED TRAFFIC CONDITIONS

ROADWAY LINK	Average Daily Trips	Design Capacity	V/C Ratio	Level of Service
Lakewood Boulevard n/o Somerset Boulevard	24,040	33,000	0.73	B
Lakewood Boulevard s/o Somerset Boulevard	28,360	33,000	0.85	C
Somerset Boulevard w/o Downey Boulevard	17,760	22,000	0.81	C
Somerset Boulevard e/o Downey Boulevard	15,400	22,000	0.70	B

City of Paramount, 1994

The proposed project is expected to increase the number of trips related to construction workers and construction equipment during the construction phase. The proposed project is expected to require a maximum of 35 construction workers, one light-duty truck, and two heavy-duty trucks per day. Construction workers are expected to arrive at the work site between 6:30-7:00 a.m. and depart at about 5:00 p.m. The construction activities are expected to avoid peak hour traffic during morning hours, between 7-9 a.m. Construction-generated traffic is not expected to have a significant impact on a.m. peak hour traffic as the peak a.m. traffic will arrive in advance of the a.m. peak hour. During the evening peak hour, an additional 35 trips would be generated by the construction workers. An additional 35 trips over the existing daily trips on local streets (15,400 to 28,000 trips per day) is expected to have a negligible impact on the existing traffic conditions. An additional 35 trips over the existing peak hour trips of an estimated 2,000 to 3,000 trips per hour is also expected to have a negligible impact on existing traffic conditions. This volume of traffic related to the proposed project is not expected to change the level of service at any intersection. Therefore, no significant traffic impacts are expected. Construction activities are expected to be limited to a three- to four-month period. Therefore, the increase in traffic in the area is temporary and will cease following the completion of construction activities. The projected increase in traffic during the construction phase of the proposed project is well below a one percent increase in traffic on the local streets and at the local intersections.

No increase in the number of workers or worker-related vehicles is expected due to operation of the proposed project. The proposed project would generate an additional eight to nine truck trips per year associated with the delivery of aqueous ammonia to the refinery. This increase in truck traffic would not impact peak hour traffic, would not change the LOS at any local intersection, and would not result in a noticeable increase in traffic. No significant impacts on traffic associated with the operation of the proposed project are expected. The proposed project will not increase the demand for parking as no new workers are expected to be required at the refinery.

17. c). The proposed project is not located near a public or private airport and is not expected to impact air traffic patterns or result in safety hazards associated with air traffic.

17. d) and e). The proposed project is not expected to substantially increase traffic hazards or create incompatible uses at or adjacent to the site. Truck traffic during construction will be limited to a few additional trucks per day. Traffic associated with operation of the proposed project will be limited to eight or nine additional trucks per year. Emergency access at the refinery will not be impacted by the proposed project and Paramount will continue to maintain the existing emergency access gates to the refinery.

17. f). Parking for the estimated 35 construction workers will be provide within the confines of the existing refinery site. No increase in permanent workers is expected so additional parking will not be required. Therefore, the proposed project will not result in significant impacts on parking.

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

17.3 Mitigation Measures

No mitigation measures are required for the proposed project since no significant impacts to transportation/circulation are expected.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
18. MANDATORY FINDINGS OF SIGNIFICANCE.			
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- b) Does the project have impacts that are individually limited, but cumulatively considerable?
("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)
- c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?
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18. MANDATORY FINDINGS OF SIGNIFICANCE

18. a) The proposed project does not have the potential to adversely affect the environment, reduce or eliminate any plant or animal species or destroy prehistoric records of the past. The proposed project is located at sites that are part of existing industrial facilities, which have been previously disturbed, graded and developed, and this project will not extend into environmentally sensitive areas.

18. b) and c) The only areas where there is the potential for cumulative adverse environmental impacts are air quality and transportation/traffic. The proposed project requires the installation of BACT and will also result in emission reductions associated with the reduced use of Boilers 7, 8, and 9. Therefore, no significant air quality impacts are expected, either individually or cumulatively. Additional traffic is only expected during the three- to four-month construction period. The construction traffic is expected to avoid the morning peak traffic hour and will only result in about 35 trips during the evening peak hour, which is expected to be a small increase in the total traffic in the area. No increase in permanent workers is expected and operation of the project is only expected to result in an increase in eight to nine trucks per year associated with the delivery of aqueous ammonia to the site. No significant increase in traffic (individually or cumulatively) is expected. Therefore, the proposed project is not expected to result in significant cumulative impacts pursuant to CEQA Guidelines Section 15130(a)(2).

Potentially significant adverse impacts were identified for Hazards associated with the proposed project. Mitigation measures were identified which would reduce the proposed project's significant adverse impacts to less than significant. The potential hazard impacts associated with the proposed project are not expected to result in cumulative hazard impacts as a hazard event related to the proposed project (potential release of aqueous ammonia) is not expected to have overlapping impacts associated with another local hazard.

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CHAPTER 2: ENVIRONMENTAL CHECKLIST

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