

CHAPTER 2

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2.0 ENVIRONMENTAL CHECKLIST

2.1 INTRODUCTION

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

2.2 GENERAL INFORMATION

Project Title:	Paramount Petroleum Refinery NOx Reduction Project
Lead Agency Name:	South Coast Air Quality Management District
Lead Agency Address:	21865 Copley Drive Diamond Bar, CA 91765
Contact Person:	James Koizumi
Contact Phone Number:	(909) 396-3234
Project Sponsor's Name:	Paramount Petroleum Corporation
Project Sponsor's Address:	14700 Downey Avenue Paramount, CA 90723
General Plan Designation:	Heavy Industrial
Zoning:	M-2 Heavy Manufacturing
Description of Project:	The proposed project includes a new selective catalytic reduction (SCR) system to control nitrogen oxide emissions either from existing Heater 601, and an upgrade to an existing SCR system for four existing reformer heaters at the Paramount 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 May Be Required:	City of Paramount

2.3 POTENTIALLY SIGNIFICANT IMPACT AREAS

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

- | | | |
|--|--|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> 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 |

2.4 DETERMINATION

On the basis of this initial evaluation:

- I find the proposed project COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be significant effects in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL IMPACT REPORT 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: December 12, 2006 **Signature:** Steve Smith
Steve Smith, Ph.D.
Program Supervisor
Planning, Rules, and Area

2.5 ENVIRONMENTAL CHECKLIST AND DISCUSSION

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.1. 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"/>

2.5.1.1 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.

2.5.1.2 Environmental Setting and Impacts

2.5.1. a), b) and c) The proposed project includes constructing a new SCR unit and upgrading an existing SCR unit. Proposed project construction consists of a new in-stack SCR unit, the installation of new piping, and an additional 55 feet of stack on the existing exhaust stack to accommodate the new in-stack SCR unit. Therefore, the new SCR unit will introduce a visual change to the Paramount Refinery. The additional 55 feet of stack will make the total stack height 156 feet, 10 inches. The new stack will be located in the southern portion of the Refinery, adjacent to the railroad tracks (see Figure 3). Additionally, the Refinery is proposing to upgrade an existing SCR unit. The existing SCR unit is located near the western portion of the Refinery, adjacent to Heaters 303, 304, 305 and 306 (see Figure 3), but is not visible from outside the Refinery. The new SCR reactor cross sectional area will be larger than currently exists, but the

new SCR reactor height will remain the same, which is lower than many surrounding structures. Structural components include heavy industrial equipment including several cylindrical tanks which are nearly 40 feet tall, and grey-toned industrial equipment with structures approximately 60 feet tall.

Structural components at the Refinery include heavy industrial equipment that includes white cylindrical tanks including several which are nearly 40 feet tall, and grey-toned industrial equipment (vessels, reactors, stacks, etc.) with structures approximately 60 feet tall. A 135-foot high crude column and a 97.6-foot high heater (802) stack is located adjacent to the new SCR stack. Additional columns and stacks at the Refinery (including the flare) are about 150 feet high. The views of the facility from various locations before and after the installation of the stack are provided in Appendix A. As shown in the various photographs, the Refinery structure (new SCR stack) will be visible to the surrounding community. The views of the Refinery from adjacent properties are not expected to change substantially because of the proposed project and will blend into the surrounding industrial environment. The new SCR unit will have similar structures (e.g., stack) as the existing equipment and will look similar to existing structures, so that a significant change in the visual characteristics of the Refinery is not expected. The modification to the existing SCR unit is not expected to be visible to the surrounding community. No significant adverse impacts to aesthetics are expected due to the installation of the new SCR units.

No scenic highways or corridors are located in the vicinity of the Paramount Refinery. No significant adverse aesthetic impacts are expected.

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

The proposed project components will be located within existing industrial facilities, which are already lighted at night for nighttime operations, so no overall increase in lighting associated with the proposed project is expected at the Paramount Refinery. Therefore, no significant impacts to light and glare are anticipated from the proposed project.

2.5.1.3 Mitigation Measures

No significant adverse impacts to aesthetics are expected to occur as a result of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.2. 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"/>

2.5.2.1 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.

2.5.2.2 Environmental Setting and Impacts

2.5.2. 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 manufacturing, 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 significant adverse impacts on agricultural resources.

2.5.2.3 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
2.5.3. 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 type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>
f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.5.3.1 Significance Criteria

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.

TABLE 1
Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	Construction	Operation
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5*	55 lbs/day	55 lbs/day
SOx	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	
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 (Carbon Monoxide) 1-hour average 8-hour average	1.1 mg/m ³ (= 1.0 ppm) 0.50 mg/m ³ (= 0.45 ppm)	

PM10 = particulate matter less than 10 microns in size, 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
*SCAQMD, 2006.

2.5.3.2 Environmental Setting and Impacts

2.5.3. a) and f) An inventory of existing emissions from the industrial facilities is included in the baseline inventory in the SCAQMD’s Air Quality Management Plan (AQMP). The AQMP identifies 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, 2003). The 2003 AQMP demonstrates that applicable ambient air quality standards can generally be achieved within the timeframes required under federal law. Paramount is pursuing SCR projects to satisfy the requirements of a Settlement Agreement, which is part of a Stipulated Order for Abatement with the SCAQMD. This proposed project must comply with applicable SCAQMD rules and regulations for new or modified sources. For example, new emission sources associated with the proposed project are required to comply with the SCAQMD’s

Regulation XIII - New Source Review requirements that include the use of Best Available Control Technology (BACT). The project proponent must also comply with prohibitory rules, such as Rule 403, for the control of fugitive dust. By meeting these requirements, the project will be consistent with the goals and objectives of the AQMP to improve air quality in the basin. In addition, the project will result in a reduction in NO_x emissions associated with the operation of Heaters 601, 303, 304, 305, and 306, providing an air quality benefit. Therefore, the proposed project will not conflict with or obstruct an applicable air quality plan and will not diminish an existing rule or future compliance requirement resulting in a significant increase in an air pollutant.

2.5.3. b) Emissions Estimates

Construction Emissions: Construction activities associated with the proposed project would result in emissions of carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM₁₀), volatile organic compounds (VOCs), NO_x and sulfur dioxide (SO_x). Construction activities include construction of new foundations, and installation of NO_x control equipment. The site is already graded, so no major grading activities are necessary.

Construction activities can generate emissions from heavy construction equipment, construction worker vehicles, truck deliveries, and fugitive dust. Daily construction emissions were calculated for the peak construction day under each option. Peak day emissions are the sum of the highest daily emissions from employee vehicles, fugitive dust sources, construction equipment, and transport activities at the Refinery for the entire construction period. The peak day is based on the day in which the highest emissions are expected to occur, calculated separately for each pollutant. Construction of the new SCR unit on Heater 601 is expected to be completed in the first quarter of 2007 as the SCR must be installed by March 31, 2007 as part of the Settlement Agreement with the SCAQMD. The upgrades to the SCR unit for the Reformer Heaters are not required to be installed under the Settlement Agreement until March 31, 2009, so that construction activities are not expected to start until well after construction of the new SCR unit on Heater 601 is completed. Therefore, the two construction periods are not expected to overlap. The criteria pollutant emissions for that peak day were then compared to their respective significance thresholds.

New SCR unit on Heater 601: Peak construction emissions for construction of the new SCR unit on Heater 601 are summarized in Table 2. Detailed construction emissions calculations for the proposed project are provided in Appendix B. Construction equipment that generates air emissions is expected to include an air compressor, backhoe, dump truck, crane, forklift, and saw cutter. An estimated 14 construction workers is expected to be required during peak construction activities. Peak construction activities are expected to occur February-March 2007.

The proposed project emissions during the construction phase of the new SCR unit are compared to the SCAQMD CEQA thresholds in Table 2. The peak construction emissions are expected to be less than the SCAQMD CEQA thresholds so that no significant impacts on air quality are expected during the construction phase.

In addition, the construction emissions were compared to the SCAQMD’s localized significance thresholds (SCAQMD, 2003) (see Appendix B). The localized significance thresholds are used to determine whether or not a project may generate significant adverse localized air quality impacts. The Paramount Refinery is located in source receptor area 5. The estimated construction emissions associated with construction of the new SCR unit were compared to the localized significance thresholds for CO, NOx, and PM10. In all cases, the construction emissions were below the localized significance thresholds (see Appendix B). Therefore, no significant localized air quality impacts are expected.

TABLE 2

Peak Construction Emissions – New SCR Unit

Peak Daily Emissions (lbs/day)						
Activity/Source	CO	VOC	NOx	SOx	PM10	PM2.5⁽¹⁾
Construction Equipment	14.09	4.42	26.02	2.42	1.68	1.68
Vehicle Emissions	8.64	1.00	4.91	0.01	0.12	0.12
Fugitive Construction ⁽²⁾	-	-	-	-	38.03	22.05
Fugitive Road Dust	-	-	-	-	13.19	7.65
Total Emissions	22.7	5.4	30.9	2.4	53.0	31.5
SCAQMD Regional Thresholds	550	75	100	150	150	55
Regionally Significant?	NO	NO	NO	NO	NO	NO
Local Emissions ⁽³⁾	14.1	NA	26.0	NA	39.7	NA
SCAQMD Localized Threshold	997	NA	148	NA	97	NA
Locally Significant?	NO	--	NO	--	NO	--

Notes: SCAQMD Threshold = threshold criteria for determining environmental significance of construction activities, as provided in the South Coast Air Quality Management District’s 1993 Handbook for Air Quality Analysis.

(1) PM2.5 emissions are assumed to be 0.58 fraction of PM10 per the California Emission Inventory Data and Reporting System (CEIDARS) for road and building construction dust and 1.0 for vehicular emissions (SCAQMD, 2006).

(2) Assumes application of water three time per day, i.e., complies with SCAQMD Rule 403, Fugitive Dust

(3) See Appendix B for further details.

Upgraded SCR unit on Heater 303, 304, 305 and 306: Peak construction emissions are summarized in Table 3 for construction of the upgrades to the existing SCR unit which currently services Heaters 303, 304, 305, and 306. Detailed construction emission calculations for the upgrade of the SCR unit are provided in Appendix C. Construction equipment that generates air emissions is expected to include a crane and forklift.. An estimated 14 construction workers is expected to be required during peak construction activities. The months that peak construction activities will occur is unknown because the start of construction is unknown but is expected to occur in late 2007 or 2008.

The proposed project emissions for the upgrade of the SCR unit servicing Heaters 303, 304, 305 and 306 during the construction phase are compared to the SCAQMD CEQA thresholds in Table 3. The peak construction emissions are expected to be less than the SCAQMD CEQA thresholds so that no significant impacts on air quality are expected during the construction phase.

In addition, the construction emissions were compared to the SCAQMD’s localized significance thresholds (SCAQMD, 2003) (see Appendix C). The estimated construction emissions associated with the SCR project were compared to the localized significance thresholds for CO, NOx, and PM10. In all cases, the construction emissions were below the localized significance thresholds (see Appendix C). Therefore, no significant localized air quality impacts are expected during the construction phase.

TABLE 3

Peak Construction Emissions – Upgraded SCR Unit

Peak Daily Emissions (lbs/day)						
Activity/Source	CO	VOC	NO_x	SO_x	PM10	PM2.5⁽¹⁾
Construction Equipment	10.57	3.51	27.64	2.43	1.78	1.78
Vehicle Emissions	8.14	0.95	4.85	0.00	0.12	0.12
Fugitive Construction	-	-	-	-	0.00	0.00
Fugitive Road Dust	-	-	-	-	13.19	7.65
Total Emissions	18.7	4.5	32.5	2.4	15.1	9.6
SCAQMD Regional Thresholds	550	75	100	150	150	55
Regionally Significant?	NO	NO	NO	NO	NO	NO
Local Emissions ⁽³⁾	10.76	NA	27.6	NA	1.8	NA
SCAQMD Localized Threshold	997	NA	148	NA	97	NA
Locally Significant?	NO	--	NO	--	NO	--

Notes: SCAQMD Threshold = threshold criteria for determining environmental significance of construction activities, as provided in the South Coast Air Quality Management District’s 1993 Handbook for Air Quality Analysis.

- (1) PM2.5 emissions are assumed to be 0.58 fraction of PM10 per the California Emission Inventory Data and Reporting System (CEIDARS) for road and building construction dust and 1.0 for vehicular emissions (SCAQMD, 2006).
- (2) Assumes application of water three time per day, i.e., complies with SCAQMD Rule 403, Fugitive Dust.
- (3) See Appendix C for further details.

Operational Emissions: The proposed project involves the installation of air pollution control equipment (i.e., one new and one upgraded SCR) and will result in a decrease in NOx emissions from Heaters 303, 304, 305, 306, and 601. Heater 601 is currently limited to a maximum of 15 ppm NOx under its SCAQMD permit, which translates to about 1.59 pound per hour or 38.11 pounds per day. The NOx emissions from Heater 601 following installation of the new SCR unit are expected to be limited to a maximum of five ppm, which translates to about 0.53 pounds per hour or about 12.70 pounds per day. Therefore, the proposed project will result in a maximum

NOx emission decrease of about 25.4 pounds per day from Heater 601. Upgrading the existing SCR unit will result in a decrease in NOx emissions from Heaters 303, 304, 305, and 306. The existing SCR unit that services these four heaters operates at approximately 25 ppm NOx, which translates to about 4.68 pounds per hour or 112.32 pounds per day. The NOx emissions from Heaters 303, 304, 305, and 306 following modification of the SCR unit are expected to be limited to a maximum of five ppm, which translates to about 0.94 pound per hour or about 22.56 pounds per day. Therefore, the proposed project upgrade will result in a maximum NOx emission decrease of about 89.7 pounds per day. Installation of the two SCR units is expected to result in an overall maximum NOx emissions reduction of 102.4 lbs./day.

The new SCR units will utilize an existing anhydrous ammonia storage tank, and while there will be an increase in the ammonia throughput, the ammonia storage tank is a pressurized tank, so no emissions are expected from the storage tank. The project will involve the transport of anhydrous ammonia to the site. A maximum of eight new truck trips per year will be required to transport anhydrous ammonia to the site, but there will be no more than one truck delivery on any single day. Catalyst in each SCR unit will require replacement once every five to ten years. Only one truck per day would be expected during the infrequent removal and replacement of SCR unit catalyst. Therefore, a maximum of one truck per day is expected to be associated with the proposed new SCR project (i.e., either ammonia or catalyst). The estimated emissions from the truck are as follows: (1) 0.6 lbs/day of CO; (2) 0.1 lb/day of VOC; (3) 3.9 lbs/day of NOx; (4) <0.1 lb/day of SOx; and (5) 2.2 lbs/day of PM10 (see Appendix B for detailed calculations).

The estimated increase in emissions for the new SCR unit (increase in emissions from one truck per day) are below the SCAQMD thresholds, therefore, no significant impacts on air quality are expected during operations. Emission increases of the proposed project are limited to emissions from a maximum of one truck per day. Additionally, the new and upgraded SCR units will not require additional workers for operation preventing trip emissions from commuting workers. Further, the proposed project is expected to result in a NOx emission decrease of about a maximum of 102.4 lbs/day providing an air quality benefit; therefore, no cumulative air quality impacts are expected. Thus, the new SCR project will not diminish an existing air quality rule or future compliance requirement.

Secondary Particulate Emissions: The use of SCR control equipment has become a widespread method of complying with SCAQMD NOx control rules and the SCAQMD has reviewed SCR technology in a number of CEQA documents (e.g., Final EIR for Rule 1135, August 1989, SCH No. 88032315 and Final EIR for Rule 1134, August 1989, SCH No. 86121708). The SCAQMD has evaluated potential air quality impacts resulting from secondary particulate formation from ammonia slip emissions. The SCAQMD concluded in the CEQA documents identified above that secondary particulate formation from ammonia slip would not be considered a significant adverse air quality impact if ammonia slip is limited to 10 ppm or less.

Ammonia slip depends on a variety of factors including space velocity, ammonia to NOx molar ratio, temperature, and NOx inlet concentration. Better technology has allowed operators to control ammonia slip: (1) by ensuring adequate mixing of ammonia in the flue gas to maintain uniform ammonia injection; (2) maintaining the proper ammonia to NOx molar ratio; (3)

decreasing the exhaust gas flow rate; (4) maintaining consistent exhaust velocity, and maintaining an optimal temperature regime (SCAQMD, 1990). The potential for secondary particulate emissions can be alleviated by reducing ammonia slip (SCAQMD, 1990), as will be done for the SCR units for the proposed project by imposing a five ppm ammonia slip limit on the SCAQMD permits for each SCR unit.

2.5.3. c) CEQA Guidelines indicate that cumulative impacts of a project shall be discussed when the project's incremental effect is cumulatively considerable, as defined in CEQA Guidelines §15065(c). SCAQMD policy defines cumulatively considerable air quality impacts as impacts that exceed project-specific significance thresholds. Indeed, it is for this reason the SCAQMD's air quality significance thresholds apply to both project-specific and cumulative impacts. Since criteria and toxic air contaminant emissions from the proposed project do not exceed the applicable significance threshold, they are not considered to be cumulatively considerable. As a result, the proposed Paramount NOx Reduction project is not expected to create significant adverse cumulative air quality impacts for criteria or toxic air contaminants (see Sections 2.5.3 b).

Toxic Air Contaminants Impacts

2.5.3. d) The proposed project will increase the use of ammonia at the Refinery and potentially generate ammonia emissions through ammonia slip. Ammonia is regulated as a toxic air contaminant under SCAQMD Rule 1401, New Source Review for Toxic Air Contaminants. A Tier 1 screening health risk assessment was prepared for the proposed emissions increase for both the new SCR unit and the upgraded SCR unit using the SCAQMD Rule 1401 Risk Assessment Procedures (Version 6.0).

New SCR Unit for Heater 601: The ammonia emission estimates for the new SCR unit of the proposed project were calculated using the SCAQMD permit limit for ammonia slip of five ppm (see Appendix B). The annual estimated emissions of 1,650 lbs/year were compared to the chronic screening level (51,700 lbs/year). The chronic screening level of 51,700 lbs/year is the highest level of ammonia emissions that can be emitted before triggering a chronic hazard index of 1.0. The estimated ammonia emissions are substantially below the yearly screening level for ammonia; therefore, the chronic hazard index for the proposed project is expected to be less than the chronic hazard index significance threshold of 1.0. Therefore, no significant adverse chronic health impacts are expected due to exposure to ammonia.

A screening health risk assessment was also prepared to evaluate the potential for acute health impacts. The maximum one-hour ammonia emission estimate (0.19 lb/hour) was compared to the acute screening level for ammonia (8.57 lbs/hour). The acute screening level of 8.57 lbs/hour is the highest level of ammonia emissions that can be emitted before triggering an acute hazard index of 1.0. The estimated hourly ammonia emission rate is substantially below the hourly screening threshold for ammonia; therefore, the acute hazard index for the proposed project is expected to be less than the acute hazard index significance threshold of 1.0. Therefore, no significant adverse acute health impacts are expected due to exposure to ammonia from the new SCR unit.

Upgraded SCR Unit for Heaters 303, 304, 305 and 306: The existing SCR unit has an ammonia slip limit of 20 ppm. The ammonia slip emissions for the upgraded SCR unit will be limited to five parts per million. Therefore, the modifications to this SCR will result in a reduction in the ammonia slip emissions from the existing SCR. Therefore, no significant adverse chronic or acute health impacts are expected due to exposure to ammonia.

New SCR Unit for Heater 601 and Upgraded SCR Unit for Heaters 303, 304, 305 and 306: The ammonia emission estimates for the new and upgraded SCR units of the proposed project were combined and reviewed using the SCAQMD permit limit for ammonia slip (five parts per million). The annual estimated combined emissions of 4,840 lbs/year were compared to the chronic screening level (51,700 lbs/year). The chronic screening level of 51,700 lbs/year is the highest level of ammonia emissions that can be emitted before triggering a chronic hazard index of 1.0. The estimated combined ammonia emissions are below the yearly screening level for ammonia; therefore, the chronic hazard index for the proposed project is expected to be less than the chronic hazard index threshold of 1.0. Therefore, no significant adverse chronic health impacts are expected due to exposure to ammonia from the new and upgraded SCR units.

A screening health risk assessment was also prepared to evaluate the potential for acute health impacts for the combined SCR units. The one-hour ammonia emission estimates (0.554 lbs/hour) were compared to the acute screening level for ammonia (8.57 lbs/hour). The acute screening level of 8.57 lbs/hour is the highest level of ammonia emissions that can be emitted before triggering an acute hazard index of 1.0. The estimated hourly ammonia emission rate is below the hourly screening threshold for ammonia; therefore, the acute hazard index for the proposed project is expected to be less than the acute hazard index significance threshold of 1.0. Therefore, no significant adverse acute health impacts are expected due to exposure to ammonia from the new and upgraded SCR units.

Odors

2.5.3 e) The proposed project is not expected to result in an increase in odors. Ammonia can have a strong odor; however, the proposed project is not expected to generate substantial ammonia emissions, since the project will use ammonia, and the ammonia will be stored in an enclosed pressurized tank, which prevents fugitive ammonia emissions. Ammonia emissions from the SCR unit stack (also referred to as ammonia slip) will be limited to five ppm for both proposed SCR units as emitted from the stack. Since exhaust emissions are buoyant as a result of being heated, ammonia will disperse and ultimate ground level concentrations will be substantially lower than five ppm. Five ppm is below the odor threshold for ammonia of 20 ppm (OSHA, 2005). The Refinery maintains a 24-hour environmental surveillance effort, which helps to minimize the frequency and magnitude of odor events. No odors are expected from the new equipment. Potential odor impacts from the proposed project are not expected to be significant. Therefore, no significantly adverse incremental odor impacts are expected due to the proposed NOx Reduction project.

2.5.3.3 Mitigation Measures

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

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.4. 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"/>

2.5.4.1 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.

2.5.4.2 Environmental Setting and Impacts

2.5.4 a), b), c), d), e), and f). The proposed project would be located entirely within the existing boundaries of the Paramount Refinery, which has already been developed, therefore, no conflict with local, regional or state Conservation Plans are expected. The area contains industrial activities and does not support riparian habitat, federally protected wetlands, or migratory corridors. Based on a review of California Natural Diversity Database maps for the project area, there are no sensitive, threatened, or endangered plant or animal species in the immediate vicinity of the Refinery (SCAQMD, 2001).

2.5.4.3 Mitigation Measures

No mitigation measures are required since no significant adverse impacts to biological resources are expected.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.5 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 an 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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

geologic feature?

- d) Disturb any human remains, including those interred outside a formal cemeteries?

2.5.5.1 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.

2.5.5.2 Environmental Setting and Impacts

2.5.5 a), b), c), and d) CEQA Guidelines state that “generally, a resource shall be considered ‘historically significant’ if the resource meets the criteria for listing in the California Register of Historical Resources including the following:

- A) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- B) Is associated with the lives of persons important in our past;
- C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values;
- D) Has yielded or may be likely to yield information important in prehistory or history” (CEQA Guidelines Section 15064.5).

Generally, resources (buildings, structures, equipment) that are less than 50 years old are excluded from listing in the National Register of Historic Places unless they can be shown to be exceptionally important. The buildings, structures, and equipment associated with the proposed project are not listed on registers of historic resources, and do not meet the eligibility criteria presented above (e.g., associated with historically important events or people, embodying distinctive characteristics of a type, period, or method of construction), and would not be likely to yield historically important information. No Refinery structures are being removed as part of the proposed project. The proposed project will result in minor ground-disturbing activities, but no significant adverse impacts to equipment and structures over 50 years of age, which may be culturally significant, are anticipated to occur. No existing structures at the Paramount Refinery are considered architecturally or historically significant, as defined under CEQA Guidelines

§15064.5, i.e., no structures are eligible for listing in the California Register of Historical Resources or included in a local register of historic resources. The entire Refinery site has been previously graded and developed. The Refinery structures and equipment are supported on existing concrete foundations. No adverse impacts to cultural resources are expected since no known cultural resources are located within the Refinery. The proposed project will result in reduced NOx emissions from the Refinery, so no significant adverse impacts are expected to existing buildings or structures.

2.5.5.3 Mitigation Measures

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

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.6. 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 type="checkbox"/>	<input checked="" type="checkbox"/>
c) Create any significant effects on local or regional energy supplies and on requirements for additional energy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create any significant effects on peak and base period demands for electricity and other forms of energy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Comply with existing energy standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.5.6.1 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.

2.5.6.2 Environmental Setting and Impacts

2.5.6 a) The proposed project is not expected to conflict with energy conservation plans or energy standards. The new SCR for Heater 601 will include the installation of one new, small electric air blower. The upgraded SCR for Heaters 303, 304, 305, and 306 is not expected to need any additional energy requirements. It is in the economic interest of Paramount to conserve energy and comply with existing energy standards in order to minimize operating costs. New equipment installed as part of the proposed modifications is expected to be as efficient or more efficient as the equipment that will be replaced. Further, energy used to operate the new air blower is not considered a wasteful use of energy that will interfere or conflict with existing energy conservation plans. The proposed project is not expected to conflict with an adopted energy conservation plan because there is no known energy conservation plan that would apply to this proposed project. The proposed project is not expected to substantially increase the Refinery's energy demand.

2.5.6 b), c), d), and e). The Paramount Refinery is currently served by an existing Cogeneration Unit and supplemented by Southern California Edison (SCE) for electricity supply.

Construction No significant increase in electricity is expected during the two to three month construction period because most of the equipment is powered by diesel fuel. The diesel fuel use will be minor during the short construction period and is not considered a wasteful use of energy. Therefore, no significant impacts on energy are expected during the construction period.

Operation of New SCR for Heater 601: The new SCR unit requires a minimal amount of energy to operate. The only equipment requiring additional energy will be a air blower which will require about 2.5 horsepower (hp) of electricity. This is a relatively small motor, and the additional electrical use over existing electrical use at the Refinery and is insignificant. The electrical increase associated with the new blower requirement can be met by the Refinery's existing 7.5 megawatt Cogeneration Unit. No increase in electricity is expected to be required from a public utility.

The proposed installation of a new SCR unit is not expected to increase the demand for natural gas or refinery fuel gas at the Paramount Refinery, so no significant impacts on natural gas are expected.

Operation of Upgraded SCR Unit for Heaters 303, 304, 305 and 306: For the upgraded SCR unit for Heaters 303, 304, 305 and 306, the existing ammonia skid and fan will be re-used in the modified SCR. Electricity consumption is not expected to increase for the operation of the upgraded SCR as it will replace the existing SCR.

The proposed modification of the SCR unit is not expected to increase the demand for natural gas or refinery fuel gas at the Paramount Refinery, so no significant impacts on natural gas are expected.

2.5.6.3 Mitigation Measures

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

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.7 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 type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.5.7.1 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.

2.5.7.2 Environmental Setting and Impacts

2.5.7 a). 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 4 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- faults (Jones and Hauksson, 1986). All of these faults are elements of the San Andreas Fault system. Past experience indicates that there has not been any substantial damage, structural or otherwise to the Refinery as a result of earthquakes. Table 5 identifies the location of historic earthquakes over magnitude 4.5 in southern California, between 1915 and the present, along various faults in the region.

TABLE 4

Major Active or Potentially Active Faults in 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.

TABLE 5

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.

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.

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.

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. 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 is likely to 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).

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..

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. 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. 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.

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-Fault Zone: The Torrance-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.

Impacts

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 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 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 *and Los Angeles County Amendments* 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 Paramount 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.

The proposed project site is not subject to landslide or mudflow since the site is flat. Therefore, no significant impacts due to landslides or mudflows are expected.

2.5.7 b) Topography and Soils

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

The proposed project involves adding new air pollution control equipment to existing facilities and upgrading an existing SCR unit so minor grading/trenching is expected to be necessary which should be limited to minor foundation work and minor trenching for piping. Since the proposed project will occur within already developed facilities, 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 dust 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.

2.5.7 c) and d) Liquefaction and Expansive Soils

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 liquefaction or one that has the potential for liquefaction (California Division of Mines and Geology, Map of Seismic Hazard Zones, Long Beach Quadrangle). However, 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.

2.5.7 e) Waste Discharge

The proposed project is not expected to generate any additional wastewater discharged by the Refinery. The Paramount Refinery discharges wastewater to the local sewer system under an Industrial Wastewater Discharge Permit. The Refinery, or 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.

2.5.7.3 Mitigation Measures

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

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.8. 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 type="checkbox"/>	<input checked="" 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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

for people residing or working in the project area?

- | | | | | |
|----|---|--------------------------|--------------------------|-------------------------------------|
| f) | For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | <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 urbanized areas or where residences are intermixed with wildlands? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| i) | Significantly increased fire hazard in areas with flammable materials? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

2.5.8.1 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.

2.5.8.2 Environmental Setting and Impacts

2.5.8 a) and b) Potential Hazards

The Paramount Refinery uses a number of hazardous materials at the site to manufacture petroleum products. The major types of public safety risks that could occur would consist of impacts from toxic substance releases, fires, and explosions. Toxic substances handled by the Paramount Refinery include hydrogen sulfide, ammonia, regulated flammables like propane and butane, and petroleum products like gasoline, fuel oils, and diesel. Shipping, handling, storing, and disposing of hazardous materials inherently poses a certain risk of a release to the environment.

Exposure to a toxic gas cloud, such as ammonia, is the potential hazard associated with the proposed project. Toxic gas clouds are releases of volatile chemicals (e.g., ammonia, chlorine, and hydrogen sulfide) that could form a cloud and migrate off-site, thus exposing individuals. “Worst-case” conditions tend to arise when very low wind speeds coincide with accidental release, which can allow the chemicals to accumulate as a dense cloud rather than disperse.

The proposed new SCR system and the modifications to the existing SCR units require ammonia to react with NO_x emissions in the exhaust gases to reduce the NO_x emissions. Both SCR units will use an existing anhydrous ammonia storage tank, to supply anhydrous ammonia. There will be no increase in ammonia storage at the Refinery or incremental increase in the potential exposure or impacts from an accidental release from the existing ammonia storage tank. The main hazard associated with ammonia is related to the existing storage tank because it holds a large volume of anhydrous ammonia (1,000 gallons) and because the tank is under pressure (typically about 140 pounds per square inch (psi)) so that the ammonia is stored in liquid form.

The proposed project will require the installation of additional piping to transfer ammonia from the existing tank to the new SCR unit. Ammonia leaving the storage tank is currently vaporized at the tank and sent by pipeline to the existing SCR unit in vapor form. As part of the proposed project, additional piping will be installed to transport vaporized ammonia from the existing storage tank to the new SCR unit.

Existing hazard release scenarios associated with anhydrous ammonia at the existing Refinery were calculated. Two release scenarios were evaluated for the existing Refinery, the rupture of the existing liquid line between the anhydrous ammonia storage tank and the vaporizer and the rupture of an existing ammonia line leading to the SCR. A series of release and dispersion calculations were completed to quantify the dispersion of ammonia gas from a storage tank release and a release from piping at the Paramount refinery. The dispersion calculations were performed until specific ammonia concentrations were reached in the downwind direction. The ammonia concentrations were modeled to the Emergency Response Planning Guideline (ERPG-2) Threshold. The ERPG-2 threshold (150 ppm) is 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.

The hazard zones resulting from releases were evaluated to determine the extent and location of the gas cloud containing ammonia. Details on the modeling assumptions are included in Appendix D. The results are summarized in Table 6.

The hazards associated with the proposed project were evaluated which include the rupture of the proposed ammonia vapor line leading to the proposed new SCR unit. The new line is equipped with a pressure control valve, followed with an excess flow valve (both located near the existing vapor line), which limits the maximum flow of ammonia through the system.

TABLE 6

Summary Of Hazard Analysis

Release Scenario	Wind Speed (m/s)	Stability Class	Ammonia Conc. ERPG-2 (ppm)	Distance to ERPG-2 (feet)
Existing anhydrous ammonia storage tank liquid line rupture	1.5	F	150	2945
	5.0	D	150	2265
Existing ammonia vapor line to existing SCR rupture	1.5	F	150	610
	5.0	D	150	135
Proposed ammonia vapor line to proposed SCR rupture	1.5	F	150	340
	5.0	D	150	60

See Appendix D for further details on the Hazard Analysis.

The following conclusions were drawn from this analysis:

1. Under “worst-case” atmospheric conditions (e.g., low winds and stable air), a release from the existing ammonia storage tank would travel a maximum of about 2,945 feet to the ammonia concentration of interest (ERPG2 level of 150 ppm).
2. Under “worst-case” atmospheric conditions, a release from the existing ammonia piping would travel a maximum of about 610 feet to the ammonia concentration of interest (ERPG2 level of 150 ppm).
3. Under “worst-case” atmospheric conditions, a release from the proposed new ammonia piping would travel a maximum of about 340 feet to the ammonia concentration of interest (ERPG2 level of 150 ppm).

As shown above, the installation of additional ammonia piping will not increase the hazards of an accidental ammonia release at the Refinery because the hazards of a release from the existing storage tank is much larger than any release from piping. Releases from the new piping are much less than the ammonia storage tank because there is much less volume of ammonia in the piping than the tank and the pressure in the pipe is much less (about 50 psig) as compared to the storage tank (typically about 140 psig). As a result, an accidental release from the new ammonia pipeline to the new SCR would have substantially lower consequences than an accidental release from the existing ammonia storage tank. Further, assuming valves suitable for low flow conditions are available, Paramount will install excess flow valves on the new anhydrous ammonia lines that stop the flow of ammonia in the event of high flow through the line (e.g., in the event of a pipe rupture), thereby minimizing the volume of a release. *In addition, Paramount will install a low flow alarm on the ammonia flow meter into the SCR, which will alert the operators in the event of a loss of line pressure or flow. Finally, Paramount inspects, reviews, and records the gauge readings at the anhydrous ammonia tank once a shift (twice per day),*

which helps to identify leaks. Based on the above, no new hazards are associated with the proposed project and the proposed project will not change (or increase) the hazards associated with the storage or use of ammonia at the Refinery.

The proposed project will result in an increase in the transport and handling of anhydrous ammonia. The hazards associated with the use of ammonia are reduced through design, operations, maintenance, regulatory, and administrative controls. Design standards are developed through industry groups, various independent institutes, and government agencies. 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 such as specifying delivery truck routes.

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

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

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.

Transportation Release Scenario

The new and upgraded SCRs would use anhydrous ammonia. Paramount will receive anhydrous ammonia from a local ammonia supplier located in the greater Los Angeles area. As is currently the case with existing ammonia deliveries, deliveries of anhydrous ammonia would be made to the facility by tanker truck via public roads. The maximum capacity of a tanker truck transporting anhydrous ammonia to the Paramount Refinery is 3,300 gallons. During 2005-2006, the Paramount Refinery received 16 anhydrous ammonia trucks during a 20-month period or about 10 trucks per year. Note that while an anhydrous ammonia truck can hold 3,300 gallons per truck, deliveries to the Refinery were less than the maximum (ranging from 177 to 547 gallons). Based on the onsite storage capacity and consumption of ammonia, delivery frequency from the supplier to the facility is expected to be about 14 truck trips per year. Therefore, the proposed project is expected to increase the number of ammonia truck trips by an additional eight trucks per year. Regulations for the transport of hazardous materials by public highway are

described in 49 Code of Federal Regulations 173 and 177. Anhydrous ammonia is currently delivered to the Refinery so the proposed project would not introduce any new hazards.

Although trucking of 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 to one in one million, 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 7. This information was summarized from the Los Angeles County Hazardous Waste Management Plan (Los Angeles County, 1988).

TABLE 7

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.

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 ammonia to the facility. During 2005-2006, the Paramount Refinery received 16 anhydrous ammonia trucks during a 20-month period or about 10 trucks per year. Assuming an average truck accident rate of 0.28 accidents per million miles

traveled (Los Angeles County, 1988) and a transport distance of 50 miles, the estimated existing accident rate associated with the the transport of anhydrous ammonia is 0.00014, or about one accident every 7,142 years.

The proposed project is expected to increase the amount of ammonia delivered to the Refinery so that an average of about 18 trucks per year is expected (as compared to the baseline of 10 trucks per year). Assuming an average truck accident rate of 0.28 accidents per million miles traveled (Los Angeles County, 1988), the estimated accident rate associated with the increase in the transport of anhydrous ammonia for the new SCR unit is 0.000252, or about one accident every 3,968 years. Therefore, the proposed project would increase the probability of an accident (from one accident every 7,142 years to one accident every 3,986 years). [The incremental increase in hazard impacts associated with the proposed project would be an additional eight trucks per year, for an estimated accident rate of 0.000112 or about one truck every 8,929 years.] The maximum quantity of anhydrous ammonia transported to and stored at the Refinery at any one time would not be increased; therefore, the magnitude and potential consequences of a release involving anhydrous ammonia would not change from the existing conditions. Therefore, no significant adverse hazard impacts are expected for the new SCR unit of the proposed project.

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.

Based on the improbability of an ammonia tanker truck accident with a major release, its potential severity if it did occur, the conclusion of this analysis is that potential impacts due to accidental release of ammonia during transportation are less than significant.

General Hazards for New and Upgraded SCR Units

The hazards associated with the transport of regulated (CCR Title 19, Division 2, Chapter 4.5 or the CalARP requirements) hazardous materials, including anhydrous ammonia, would include the potential exposure of numerous individuals in the event of an accident that would lead to a spill. The major route for transporting ammonia to the facility is from the 91 freeway to Downey Boulevard. 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.

A variety of safety laws and regulations have been in existence for many years to reduce the risk of accidental releases of chemicals at industrial facilities. The Occupational Safety and Health Administration (OSHA) passed the Process Safety Management of Highly Hazardous Chemicals rule in 1992 (29 CFR 910.119). This rule was designed to address the prevention of catastrophic accidents at facilities handling hazardous substances, in excess of specific threshold amounts, through implementation of Process Safety Management (PSM) systems for protection of

workers. A major PSM requirement is the performance of process hazard analyses to identify potential process deviations and improved safeguards to prevent accidents.

A federal EPA Risk Management Program (RMP) and a more stringent state RMP, the California Accidental Release Program (CalARP), were developed for the Paramount Refinery and most recently submitted to appropriate agencies in 2005. The RMP's contain hazard assessments of both worst-case and more credible accidental release scenarios, a five year accident history, an accident prevention program, and an emergency response program. The Los Angeles County Fire Department Hazardous Materials Division administers the RMP for the Refinery. Since the preparation of the RMP there have been no changes to the accident release scenarios and the proposed project will not change the potential accident release scenarios. There have been no accidents associated with anhydrous ammonia at the Refinery and the Refinery has implemented the accident prevention program and emergency response program. The proposed project will not require any modifications to the RMP because there will be no change in the inventory of anhydrous ammonia stored on-site. In addition, operators of the Refinery have prepared an emergency response manual, which describes the emergency response procedures that would be followed in the event of any of several release scenarios along with the responsibilities of key personnel.

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

- The California Health and Safety Code Fire Protection specifications.
- The design standards for petroleum refinery equipment established by American Petroleum Institute, American Society of Mechanical Engineers, the American Institute of Chemical Engineers, the American National Standards Institute, and the American Society of Testing and Materials.
- The applicable Cal-OSHA requirements.
- The Paramount Refinery maintains its own emergency response capabilities, including onsite equipment and trained emergency response personnel who are available to respond to emergencies anywhere within the Refinery.

2.5.8 c) The proposed project site is located within one-quarter mile of an existing or proposed school. Based on the analysis above, no increase in hazards associated with the use of anhydrous ammonia release would be expected to the local population surrounding the Refinery.

Other Hazard Issues

2.5.8 d) The proposed project is not located on a site which is included on the list of hazardous materials sites compiled pursuant to Government Code Section 65962.5; therefore, no significant hazards related to hazardous materials at the site on the environment or to the public are expected.

2.5.8 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 airport. The nearest airport, Long Beach Airport, is located

approximately five miles from the refinery. Therefore, no safety hazards are expected from the proposed project on any airports in the region.

2.5.8 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 because there will be no change in the materials or quantities stored on site, or the manner in which those materials are handled. Further, there is no requirement to modify the RMP because the inventory of anhydrous ammonia on-site will not change. 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. The proposed project is not expected to impact any emergency response plans.

2.5.8 h) and i) The proposed project will not increase the existing risk of fire hazards in areas with flammable brush, grass, or trees. The Refinery will continue to use and produce flammable materials. The proposed project will not increase the use of flammable materials at the site. No substantial or native vegetation exists within the Refinery. Only landscape vegetation is present near the Administration building. Therefore, no significant increase in fire hazards is expected at the Refinery associated with the proposed project.

2.5.8.3 Mitigation Measures

No mitigation is required since no significant adverse hazard impacts have been identified.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.9. 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"/>

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| 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"/> |
| 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 | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

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| 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"/> |

2.5.9.1 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.

2.5.9.2 Environmental Setting and Impacts

2.5.9 a), f), k), l) and o) Wastewater Generation.

The Paramount Refinery currently generates process wastewater, treated sour water, and storm water. Wastewater is treated in the wastewater treatment system, which includes American Petroleum Institute (API) separators to remove oil and dissolved air floatation units for additional removal of oil and particulates. The treated process wastewater and treated sour water are discharged to the Los Angeles County Sanitation Districts (LACSD) in accordance with the LACSD industrial wastewater permit discharge limits. The treated storm water is discharged to the Los Cerritos channel in accordance with a National Pollutant Discharge Elimination System (NPDES) permit discharge limits.

The SCR units do not use water as part of the NOx control process. Except for water used periodically to clean equipment, the proposed project will not result in an increase in wastewater generated or discharged from the Refinery. As a result, no significant adverse impacts associated with wastewater discharges are expected.

2.5.9 b) and n) Water Demand

Water is primarily 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. As already noted, the SCR units do not use water as part of the NOx control process. Therefore, no increase in water use is associated with the proposed project, so no significant adverse impacts on water demand are expected.

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 currently 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.

2.5.9 c), d), e) 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 proposed project is not expected to increase the stormwater runoff from the Paramount Refinery. The Refinery modifications will occur within the existing Refinery units and no increase in paved areas is expected. No new storm drainage facilities or expansion of existing

storm facilities are expected to be required. Since stormwater discharge or runoff is not expected to change in either volume, or water quality, no significant stormwater quality impacts are expected to result from the operation of the proposed project.

2.5.9 g), h), i) and j) Flood Hazards

Based on the topography and/or site elevations in relation to the ocean, the proposed project is not expected to result in an increased risk of flood, seiche, tsunami or mud flow hazards. The proposed project would not locate housing within a 100-year flood hazard area. The Refinery is not located within a 100-year flood hazard zone so no new equipment would be located within a 100-year flood hazard zone. Therefore, no significant impacts associated with flooding are expected.

2.5.9.3 Mitigation Measures

No significant adverse impacts to water quality and supply are expected as a result of the activities associated with the proposed project. Therefore, no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.10 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 type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

2.5.10.1 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.

2.5.10.2 Environmental Setting and Impacts

2.5.10 a), b), and c) The proposed modifications to the Paramount Refinery will be developed entirely within the existing Refinery property boundaries. Land use on the Refinery property is designated as M-2, which is heavy manufacturing zoning. The proposed project is consistent with the land use designation of heavy industry and manufacturing.

No new property will be acquired for the Refinery and there will be no impacts to established communities. Additionally, the proposed project is not expected to conflict with local habitat conservation plans, or natural community conservation plans, as the proposed project site is a previously developed industrial facility. The proposed project will not trigger changes in the current zoning designations at the project site. Based on these considerations, no significant adverse impacts to established residential or natural communities are expected.

The proposed project includes construction at an existing industrial facility. The activities and products produced at the facility for the proposed project are the same as existing activities and products produced. No new land would be required for the project, and no zoning and/or land use changes are required as part of the project.

Land use at the Refinery is consistent with the City of Paramount General Plan land use designations. The proposed project is consistent with the heavy manufacturing zoning designation. Therefore, no significant adverse impacts on land use are expected.

2.5.10.3 Mitigation Measures

No significant adverse impacts to land use are expected to occur as a result of construction or operation of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.11. 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"/>

2.5.11.1 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.

2.5.11.2 Environmental Setting and Impacts

2.5.11 a) As the proposed project will be limited to modifications within the confines of the existing Paramount Refinery boundaries, no loss of availability of known mineral resource that would be of value to the region or the residents of the state is expected. No known mineral resources of value are located at the site.

2.5.11 b) The proposed project is not expected to 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 because the project will occur entirely within the boundaries of an existing refinery. As already noted, no resources of value are located on the Refinery property.

2.5.11.3 Mitigation Measures

No significant adverse impacts to mineral resources are expected to occur as a result of the proposed project so no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.12. 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 type="checkbox"/>	<input checked="" type="checkbox"/>

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| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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 type="checkbox"/> | <input checked="" 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 airstrip, 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"/> |

2.5.12.1 Significance Criteria

Impacts on noise will be considered significant if:

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

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

2.5.12.2 Environmental Setting and Impacts

2.5.12 a), b) c) and d) The Refinery is located in the City of Paramount. The City is located east of the Los Angeles River and is approximately 16.5 miles southeast of downtown Los Angeles. The City of Paramount is bounded by the cities of South Gate, Downey, Bellflower, Long Beach, Compton, and Lynwood. The Refinery is bounded by Lakewood Boulevard, Somerset Boulevard, Downey Avenue, and Contreras Street.

Regional access to the Refinery is provided by Interstates 605 and 710 which run north-south approximately two and a quarter miles east and west of the Refinery, respectively. State Route 91 runs east-west and is located approximately two miles south of the Refinery. Interstate 105 is

located about three-quarters of a mile north of the Refinery. Primary truck access to the Refinery is provided by Andry Drive, which is accessible from Somerset and Lakewood Boulevards. The main entrance to the administrative offices at the Refinery is at Downey Avenue.

Construction activity for the proposed project will produce noise as a result of operation of construction equipment. The equipment necessary for construction will comply with Paramount Petroleum SP-100-1 Noise Limits for Equipment and Piping which generally limits continuous noise levels to 85 dBA. Typical sound levels for typical construction equipment are presented in Table 8.

TABLE 8

Construction Noise Sources

EQUIPMENT	TYPICAL RANGE (decibels)(1)	ANALYSIS VALUE (decibels)(2)
Truck	82-92	82
Air compressor	85-91	85
Flatbed Truck	84-87	85
Pickup	70-85	70
Tractor Trailer	75-92	85
Cranes	85-90	85
Pumps	68-72	70
Welding Machines	72-77	72

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.

Construction Noise: The construction equipment associated with the new SCR portion of the proposed project will be minimal. The construction equipment for the new SCR unit include an air compressor, backhoe, plate compactor, crane, dump truck and forklifts. The construction equipment associated with the upgraded SCR unit will include a crane and forklift.

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. The new SCR unit is located near the southern boundary of the Refinery, adjacent to existing railroad tracks. The existing SCR unit that will be modified is located near the western boundary of the Refinery, adjacent to existing heaters and near the railroad tracks. Using an estimated six dBA reduction for every doubling distance, the noise levels would drop off to about 62 dBA or less at about 400 feet from the sources for the proposed project. The closest residential area would be about 400 feet from construction activities. Most of the construction noise sources will be located near

ground level, so the noise levels are expected to attenuate further than analyzed herein. Noise attenuation due to existing structures and equipment has not been included in the analysis.

The construction activities that generate noise will be carried out during daytime hours, 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, lasting about two weeks, and will cease following construction activities. Noise levels at the closest residential area are not expected to increase during construction activities, i.e., background noise levels in residential areas generally are in the range of 55-65 dBA. The noise levels from the construction equipment are expected to be within the allowable noise levels established by the local noise ordinance for industrial areas, which is 70 dBA. As calculated above, construction noise within 400 feet of the construction site is expected to be 62 dBA. Noise impacts associated with the proposed project construction activities are expected to be less than the noise ordinance of 70 dBA and less than significant.

Workers exposed to noise sources in excess of 85 dBA are required 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 to wear hearing protection devices that conform to Occupational Safety and Health Administration/National Institute for Occupational Safety and Health (NIOSH) standards. Since the maximum noise levels during construction activities are expected to be 85 decibels or less, no significant impacts to workers during construction activities are expected.

Operational Noise: The new SCR unit being installed as part of the proposed project will not generate noise beyond what currently exists at the facility. Only one small air blower is included with the new SCR unit and no increase in noise is expected from this source. The proposed modified SCR unit will not result in any new noise sources as most of the existing equipment will be reused or replaced. No increase in noise is expected from these sources. The new equipment will be located within existing industrial areas where noise is generated by adjacent operational equipment. Further, the location of the new SCR unit or the modified existing SCR unit will be adjacent to the existing railroad tracks, where significant noise is already generated, so no increase in noise levels in the general area is expected. Therefore, significant noise impacts from the proposed project are not expected.

Paramount will comply with all federal, state, and local noise standards and ordinances during construction and operation.

2.5.12 e) and f) The proposed project site is not located within an airport land use plan or within the vicinity of a private airstrip. Further, the Paramount Refinery is not located within the normal flight pattern of an airport. Thus, the proposed project would not increase the noise levels to people residing or working in the area.

2.5.12.3 Mitigation Measures

No significant adverse noise impacts are expected to occur as a result of construction or operation of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.13. 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"/>

2.5.13.1 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.

2.5.13.2 Environmental Setting and Impacts

2.5.13 a), b) and c) The proposed project would require modifications to the existing Refinery and will not involve an increase, decrease or relocation of population. Labor (an estimated 15 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 are not expected to have significant adverse impacts on population or housing, induce substantial population growth, or exceed the growth projections contained in any adopted plans.

2.5.13.3 Mitigation Measures

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

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.14 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:			
a) Fire protection?	<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"/>

2.5.14.1 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.

2.5.14.2 Environmental Setting and Impacts

2.5.14 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 water 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 because there will be no new flammable materials stored on-site and no increase in quantities of existing flammable materials.

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.

2.5.14 b) The City of Paramount contracts with the Los Angeles County Sheriff's Department for police protection and law enforcement services. Entry and exit are currently monitored and no additional or altered police protection is expected. The operation of the proposed project will not require additional workers. The Paramount Refinery is an existing facility with a 24-hour security force for people and property currently in place. All modifications will occur within the confines of the existing Refinery. Therefore, no impacts to the local police department are expected related to the proposed project.

2.5.14 c), d) and e) The local workforce is expected to fill the short-term construction positions required for this project. No increase in the number of permanent workers is expected at the Refinery, therefore, there will be no increase in the local population and thus no impacts are expected to schools, parks, or other public facilities.

2.5.14.3 Mitigation Measures

Because no significant adverse impacts to public services are expected as a result of the proposed project, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.15 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"/>

2.5.15.1 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.

2.5.15.2 Environmental Setting and Impacts

2.5.15 a) and b) During the construction phase of the proposed project, there would be no significant changes in population densities resulting from the project since the required construction workers are expected to be drawn from the existing labor pool in southern California. Additionally, the operation of the new SCR unit will not require additional workers. Thus, there will be no increase in population nor increase in the use of existing neighborhood and regional parks or other recreational facilities.

The proposed project does not include recreational facilities or require the construction or expansion of existing recreational facilities. No significant adverse impacts to recreational facilities are expected.

2.5.15.3 Mitigation Measures

No significant adverse impacts to recreational resources are expected to occur as a result of construction or operation of the proposed project. Therefore, no mitigation is necessary or proposed.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.16 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"/>

2.5.16.1 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 or other appropriate disposal facilities.

2.5.16.2 Environmental Setting and Impacts

2.5.16 a) Non-Hazardous Waste

Construction activities could uncover hydrocarbon-contaminated soils, given the fact that refining, storage and distribution of petroleum products have been conducted at the site over a number of decades. Where appropriate, the soil will be recycled if it is considered or classified as a non-hazardous waste. Otherwise the material will need to be disposed of at a hazardous waste facility (see item 2.5.16. b) for further discussion of hazardous waste). The proposed project involves the addition of new air pollution control equipment to existing facilities, so minor grading/trenching is expected to be necessary which should be limited to minor foundation work, and minor trenching for piping.

Paramount has implemented institutional procedures that govern soil excavation, spill clean-up, trenching, and earthwork to ensure that soil excavation, including soil removal due to spills, is carried out in conformance with applicable regulations. When excavating soils, the Refinery uses excavation contractors that have a soil mitigation plan for impacted soils pursuant to SCAQMD Rule 1166 (the “Rule 1166 Plan”). The plans are approved by the SCAQMD. Copies of the plans are on file with the SCAQMD, and are kept on-site by the excavating contractor during the excavation. In general, the Rule 1166 plan requires advance notice to the SCAQMD prior to excavating, monitoring for VOCs during the excavation, and covers and/or vapor suppressants on the excavated soil if the VOCs are measured in excess of 50 ppm. Following the

excavation, the soil is analyzed by a State-certified laboratory to determine if it is hazardous or non-hazardous.

Additional solid wastes generated during construction activities includes scrap metal. Scrap metal from the Refinery is recycled by a local metal salvager.

During operation, the proposed project is not expected to generate significant quantities of solid waste, which are primarily generated from administrative or office activities. The proposed project would not result in an increase in permanent employees at the Refinery, so no significant increase in solid waste is expected that cannot be accommodated by local sanitary landfills.

2.5.16 b) Hazardous Waste

There are two hazardous waste (Class I) facilities in California, the Chemical Waste Management Inc. (CWMI) Kettleman Hills facility in King's County, and the Safety-Kleen facility in Buttonwillow (Kern County). Kettleman Hills has an estimated nine million cubic yard capacity (four million currently, with an additional five million expected upon completion of a berm expansion). The facility expects to continue receiving wastes for approximately nine years under its current permit. The facility is in the process of permitting a new landfill that would extend the life of the operation another 15 years. (Personal Communication, Terry Yarbough, Chemical Waste Management Inc., June 2004). Buttonwillow receives approximately 960 tons of hazardous waste per day and has a remaining capacity of approximately nine million cubic yards. The expected life of the Buttonwillow Landfill is approximately 40 years (Personal Communication, Marianna Buoni, Safety-Kleen (Buttonwillow), Inc., June 2004).

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

The proposed project will generate hazardous waste from spent catalyst in the SCR units. The catalyst has a life expectancy ranging from about five to ten years, depending on the catalyst reaction rate. Spent catalysts (a maximum of about 4,000 pounds every five to ten years for both the upgraded and new SCR units) are expected to be removed or recycled offsite for their heavy metal content. Therefore, no significant impacts to hazardous waste disposal facilities are expected due to the operation of the proposed project. The facility is expected to continue to comply with federal, state, and local statutes and regulations related to solid and hazardous wastes.

2.5.16.3 Mitigation Measures

No significant adverse impacts from waste generated or disposed of are expected and thus no mitigation measures are required.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.17 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"/>
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 access to nearby uses?	<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"/>

2.5.17.1 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 D 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.

2.5.17.2 Environmental Setting and Impacts

The Refinery is bounded by Lakewood Boulevard, Somerset Boulevard, Downey Avenue, and Contreras Street. Regional access to the Refinery is provided by Interstates 605 and 710 which run north-south approximately two and a quarter miles east and west of the Refinery, respectively. State Route 91 runs east-west and is located approximately two miles south of the Refinery. Interstate 105 is located about three-quarters of a mile north of the Refinery. Primary truck access to the Refinery is provided by Andry Drive, which is accessible from Somerset and Lakewood Boulevards. The main entrance to the administrative offices at the Refinery is at Downey Avenue.

2.5.17 a) and b) Traffic and Circulation

About 15 construction workers will be commuting to the Paramount Refinery, during peak construction activities. Construction workers are expected to arrive at the work site between 6:30 – 7:00 a.m., which would generally avoid peak hour traffic conditions and depart about 5:30 – 6:00 p.m. The construction activities are expected to avoid peak hour traffic during morning hours, between 7-9 a.m but could impact the evening peak hour (between 4-6 p.m.). Construction activities also are expected to be limited to about a two-to three-month period for the construction of each SCR system (construction periods do not overlap). Therefore, the increase in traffic in the area is temporary and will cease following the completion of construction activities. The baseline traffic estimates near the Refinery indicate that the local streets carry between 15,500 and 28,500 vehicles per day (City of Paramount, 1994). The projected increase in traffic during the construction phase (about 15 construction workers) of the

proposed project is well below a one percent increase in traffic on the local streets and at the local intersections. No change in level of service at any intersection is expected due to the small increase in traffic. Therefore, the proposed project's impact on traffic during the construction phase is expected to be less than significant.

Construction will require contractor parking areas, equipment laydown and materials stockpiling areas. Parking for project construction will be in areas within the Refinery currently used for contractor parking and sufficient parking is expected to be available so no significant adverse impacts on parking are expected.

The operation of the proposed project will not result in an increase in permanent workers. Truck traffic will increase by about eight trucks per year (maximum of one truck per day) to deliver ammonia to the Refinery. Based on the above analysis, the additional truck trips would not result in significant adverse traffic impacts. The proposed project impacts on traffic during the operational phase would be considered less than significant.

2.5.17 c) The proposed project includes modifications to existing facilities. The project will not involve the delivery of materials via air so no effects to air traffic are expected.

2.5.17 d) and e) The proposed project is not expected to increase traffic hazards or create incompatible uses at or adjacent to the site. The proposed project will result in a maximum increase in traffic of one truck trip per day during project operation. The truck will access the Refinery using existing streets and access points. No new streets or entrances/exits to the Refinery are required. Emergency access at the Refinery will not be adversely affected by the proposed project and Paramount Petroleum will continue to maintain the existing emergency access gates to the Refinery.

2.5.17 f) Parking for the construction workers will be provided within the confines of the existing site which can be accommodated by existing Refinery parking. No increase in permanent workers is expected. Therefore, the proposed project will not result in significant impacts on parking.

2.5.17 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).

2.5.17.3 Mitigation Measures

No significant impacts to transportation/traffic are expected and thus mitigation measures are not required.

	Potentially Significant Impact	Less Than Significant Impact	No Impact
2.5.18 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 type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2.5.18.1 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 a site that is part of an existing industrial facility, which has been previously disturbed, graded and developed, and this project will not extend into environmentally sensitive areas, but will remain within the confines of an existing, operating Refinery. For additional information, see Section 4.0 – Biological Resources (page 2-15) and Section 5.0 – Cultural Resources (page 2-17).

2.5.18 b) and c) The proposed project is not expected to result in cumulative adverse environmental impacts. The proposed project will result in a decrease in operational NOx emissions due to the installation of SCR units on existing heaters, providing a local and regional environmental benefit to air quality. Therefore, no significant adverse air quality impacts are expected, either individually or cumulatively. The proposed project is not expected to generate adverse impacts to any environmental topic areas evaluated herein, including impacts to humans.

CHAPTER 2 – ENVIRONMENTAL CHECKLIST

As a result, impacts from the proposed project are not considered to be cumulatively considerable (CEQA Guidelines § 15064 (h)) Therefore, the proposed project is not expected to result in significant adverse cumulative impacts pursuant to CEQA Guidelines § 15130(a)(2).

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ACRONYMS

ABBREVIATION	DESCRIPTION
API	American Petroleum Institute
AFCU	Ammonia Flow Control Unit
AIG	Ammonia Injection Grid
ANSI	American National Standards Institute
AQMP	Air Quality Management Plan
ASME	American Society of Mechanical Engineers
BARCT	Best Available Retrofit Control Technology
CalARP	California Accidental Release Prevention Program
CEQA	California Environmental Quality Act
CO	Carbon monoxide
CWMI	Chemical Waste Management Inc.
dBA	A-weighted noise level measurement in decibels
DWP	Department of Water and Power
ERPG	Emergency Response Planning Guideline
G	acceleration of gravity
hp	Horsepower
LACSD	Los Angeles County Sanitation Districts
LOS	Level of Service
mmBtu/hr	Million British Thermal Units per hour
NIOSH	National Institute of Occupational Safety and Health
NO _x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
Paramount	Paramount Petroleum Corporation
PM ₁₀	particulate matter less than 10 microns in diameter
ppm	parts per million
PSM	Process Safety Management Program
RMP	Risk Management Program
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison Company
SCR	Selective Catalytic Reduction
SO _x	sulfur oxide
TACs	toxic air contaminants
UPRR	Union Pacific railroad
U.S. EPA	United States Environmental Protection Agency
VOC	volatile organic compounds

GLOSSARY

TERM	DEFINITION
Ambient Noise	The background sound of an environment in relation to which all additional sounds are heard
Anhydrous	Free from water.
Aqueous	Formed from water, having a water base.
Aromatics	Hydrocarbons which contain one or more benzene rings.
Barrel	42 gallons.
Blending	One of the final operations in refining, in which two or more different components are mixed together to obtain the desired range of properties in the finished product.
Catalyst	A substance that promotes a chemical reaction to take place but which is not itself chemically changed.
Condensate	Steam that has been condensed back into water by either raising its pressure or lowering its temperature
Cogeneration	A cogeneration unit is a unit that produces electricity.
Cracking	The process of breaking down higher molecular weight hydrocarbons to components with smaller molecular weights by the application of heat; cracking in the presence of a suitable catalyst produces an improvement in product yield and quality over simple thermal cracking.
Crude Oil	Crude oil is "unprocessed" oil, which has been extracted from the subsurface. It is also known as petroleum and varies in color, from clear to tar-black, and in viscosity, from water to almost solid.
dBA	The decibel (dDB) is one tenth of a <i>bel</i> where one bel represents a difference in noise level between two intensities I_1 , I_0 where one is ten times greater than the other. (A) indicates the measurement is weighted to the human ear.
Distillation	The process of heating a liquid to its boiling point and condensing and collecting the vapor.

Feedstock	Material used as a stream in the refining process.												
Flares	Emergency equipment used to incinerate refinery gases during upset, startup, or shutdown conditions												
Flue Gas	Gases produced by burning fuels in a furnace, heater or boiler.												
Heat exchanger	Process equipment used to transfer heat from one medium to another.												
Heater	Process equipment used to raise the temperature of refinery streams processing.												
Hydrocarbon	Organic compound containing hydrogen and carbon, commonly occurring in petroleum, natural gas, and coal.												
L ₅₀	Sound level exceeded 50 percent of the time (average or mean level)												
Liquefied Petroleum Gas (LPG)	Liquefied light end gases often used for home heating and cooking; this gas is usually 95 percent propane, the remainder being split between ethane and butane.												
Naphtha	<p>A crude distillation unit cut in the range of C₇-420°; naphthas are subdivided – according to the actual crude distillation cuts - into light, intermediate, heavy, and very heavy virgin naphthas; a typical crude distillation operation would be:</p> <table border="0" style="margin-left: 40px;"> <tr> <td style="padding-right: 10px;">C₇-160°</td> <td style="padding-right: 10px;">-</td> <td>light naphtha</td> </tr> <tr> <td style="padding-right: 10px;">160-280°</td> <td style="padding-right: 10px;">-</td> <td>intermediate naphtha</td> </tr> <tr> <td style="padding-right: 10px;">280-330°</td> <td style="padding-right: 10px;">-</td> <td>heavy naphtha</td> </tr> <tr> <td style="padding-right: 10px;">330-420°</td> <td style="padding-right: 10px;">-</td> <td>very heavy naphtha</td> </tr> </table>	C ₇ -160°	-	light naphtha	160-280°	-	intermediate naphtha	280-330°	-	heavy naphtha	330-420°	-	very heavy naphtha
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Natural Gas	A mixture of hydrocarbon gases that occurs with petroleum deposits, principally methane together with varying quantities of ethane, propane, butane, and other gases.												
Octane	Measurement of the burning quality of the gasoline; reflects the suitability of gasoline to perform in internal combustion engines smoothly without letting the engine knock or ping.												

Olefins	Hydrocarbons that contain at least two carbons joined by double bonds; olefins do not naturally occur in crude oils but are formed during the processing.
Paleontological	Prehistoric life.
Peak Hour	This typically refers to the hour during the morning (typically 7 AM to 9 AM) or the evening (typically 4 PM to 6 PM) in which the greatest number of vehicles trips are generated by a given land use or are traveling on a given roadway.
Pentane	Colorless, flammable isomeric hydrocarbon, derived from petroleum and used as a solvent.
Reactor	Vessels in which desired reactions take place.
Refinery gas	Gas produced from refinery operations used primarily for fuel gas combustion in refinery heaters and boilers.
Reformate	One of the products from a reformer; a reformed naphtha; the naphtha is then upgraded in octane by means of catalytic or thermal reforming process.
Reformulated Gasoline	New gasoline required under the federal Clean Air Act and California Air Resources Board to reduce emissions.
Reid Vapor Pressure	The vapor pressure of a product determined in a volume of air four times greater than the liquid volume at 100°F; Reid vapor pressure (RVP) is an indication of the vapor-lock tendency of a motor gasoline, as well as explosion and evaporation hazards.
Seiches	A vibration of the surface of a lake or landlocked sea that varies in period from a few minutes to several hours and which many change in intensity.
Selective Catalyst Reduction	An air pollution control technology that uses a catalyst to remove nitrogen oxides from the flue gas.
Stripper or Splitter	Refinery equipment used to separate two components in a feed stream; examples include sour water strippers and naphtha splitters.

