SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Addendum to the Final Environmental Impact Report for the

Chevron Products Company
El Segundo Refinery
Product Reliability and Optimization Project

SCH. No. 2007081057

[Final EIR Certified May 9, 2008]

May 2010

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APPENDICES

1.0 INTRODUCTION

Chevron Products Company (Chevron) is proposing modifications to its El Segundo Refinery Product Reliability and Optimization (PRO) Project. Specifically, Chevron is proposing changes to the tankage proposed at the El Segundo Refinery (Refinery). Chevron is also proposing to add a scrubber to the tail gas unit (TGU) for additional control of sulfur oxides (SOx) to meet Best Available Control Technology (BACT) requirements established by the South Coast Air Quality Management District's (SCAQMD) during the permitting process. Because the currently proposed project entails modification of a previously approved project, additional analysis pursuant to the California Environmental Quality Act (CEQA) is warranted. As discussed in this Addendum, it was determined that the previously proposed PRO Project and related environmental impacts were comprehensively evaluated in a previously certified CEQA document. This Addendum evaluates environmental impacts resulting from modifications to the PRO Project.

The PRO Project was evaluated in the May 2008 Final Environmental Impact Report (EIR) (SCH No. 2007081057). The project evaluated in the 2008 Final EIR included modifications to the No. 2 Crude Unit, No. 2 Residuum Stripper Unit (RSU), Minalk/Merox Unit, Waste Gas Compressors, Fluidized Catalytic Cracking Unit (FCCU), Alkylation Unit, Vacuum Residuum Desulfurization Unit (VRDS), ISOMAX Unit, Cogeneration (Cogen) Facilities, and the Railcar Loading/Unloading Rack. New process units included sulfur processing facilities (i.e., Sour Water Stripper (SWS), Sulfur Recovery Unit (SRU), and Tail Gas Unit (TGU)), Vapor Recovery and Safety Flare System, Water Treatment Facilities (i.e., reverse osmosis units and nitrogen removal units), and additional storage capacity. The purpose of these modifications and additions was to increase the reliability, energy efficiency, and capacity of specific existing Refinery processing equipment; allow the processing of a wider range of crude oils; and voluntarily reduce potential atmospheric emissions from existing pressure relief devices (PRDs). The PRO Project did not result in an increase in crude throughput capacity.

Chevron is currently proposing changes to the storage capacity originally proposed in the PRO Project. Chevron has determined that the proposed new Tank 447 is not necessary for the storage of ISOMAX diesel and, at its current size and location, is not optimal for storage of products at the Refinery. Therefore, Chevron is proposing to construct a larger tank in the tank farm at the west side of the Refinery, and to renumber it Tank 304. In addition, Tank 303 was proposed to be located adjacent to the proposed Tank 302. Chevron is proposing to relocate Tank 303 to be adjacent to Tank 304. Both Tanks 303 and 304 will be used to store a variety of intermediate hydrocarbon streams and products and provide flexibility in commodity management. The currently proposed modifications will comply with the SCAQMD BACT, as applicable, for control of volatile organic compounds (VOC) emissions from storage tanks. As discussed below, the impacts associated with these modifications have been addressed in the previous CEQA document prepared for the PRO Project. The details of the currently proposed modifications are explained in Section 5.2 of this Addendum.

The May 2008 Final EIR included evaluation of an SRU and TGU. During the permitting process for the proposed SRU and TGU, it was determined that BACT for the TGU would require a scrubber as additional control. The scrubber will reduce SOx emissions from the TGU. Since the May 2008 Final EIR was certified, the final design of the sulfur processing facilities has been completed and the necessary emissions adjustments have been incorporated. As discussed below, the impacts associated with the previously proposed modifications have been addressed in the previous CEQA document prepared for the PRO Project. The details of the currently proposed modifications are explained in Section 5.2 of this Addendum.

The SCAQMD has evaluated the changes to the May 2008 project (as detailed in Section 5.2 of this Addendum) and determined that the currently proposed modifications do not create any new significant adverse environmental impacts or make substantially worse any existing significant adverse environmental impacts, and only minor additions or changes are necessary to make the May 2008 Final EIR adequate for the revised project. Therefore, when considering the effects of the currently proposed modifications, the SCAQMD has concluded that an Addendum is the appropriate document to be prepared in accordance with CEQA in order to evaluate potential environmental impacts associated with the currently proposed modifications.

2.0 BASIS FOR DECISION TO PREPARE AN ADDENDUM

The SCAQMD was the lead agency responsible for preparing the May 2008 Final EIR and is the public agency that has the primary responsibility for approving the currently proposed modifications. Therefore, the SCAQMD is the appropriate lead agency to evaluate the potential environmental effects of the currently proposed modifications that are the subject of this Addendum.

Based on the analysis of the currently proposed modifications in Sections 6.0 and 7.0, the SCAQMD concludes that the only environmental areas possibly affected by the currently proposed modifications are air quality, energy, hazards and hazardous materials, hydrology and water quality, noise, and traffic. The May 2008 Final EIR identified significant adverse air quality and transportation and traffic during construction impacts. Impacts to energy, hazard and hazardous materials, hydrology and water quality, noise, and transportation and traffic during operation were analyzed and concluded to be less than significant. As indicated in Section 6.0, the currently proposed modifications do not change these conclusions: significant adverse air quality impacts during construction and operations and transportation and traffic impacts during construction of the PRO Project would still occur under the currently proposed modifications to the project. However, as shown in Subsection 6.2.1 of this Addendum, the currently proposed modifications will not cause new significant adverse air quality impacts or increase the severity of significant adverse air quality impacts or result in new significant adverse transportation and traffic impacts beyond those previously identified in the May 2008 Final EIR.

Under the currently proposed modifications, air quality and traffic impacts during construction would be reduced because construction activities will occur over a greater time period, so fewer construction activities will occur simultaneously. The May 2008 Final EIR analyzed all storage tanks being constructed concurrently. Tanks 303 and 304 would no longer be constructed concurrently with Tanks 302 and 722 because Tank 302 has already been constructed and Tank

722 will be constructed after Tanks 303 and 304. As a result, the currently proposed construction schedule will result in fewer or less significant construction impacts.

Based on the analysis of potential environmental impacts from the currently proposed modifications (Section 6.0), it can be concluded that the currently proposed modifications do not create new significant adverse impacts or increase the severity of significant impacts previously identified in the May 2008 Final EIR. As a result, pursuant to CEQA Guidelines §15164(a), this document constitutes an Addendum to the May 2008 Final EIR for the Chevron Products Company El Segundo Refinery PRO Project. Section 6.0 of this Addendum further explains the basis for the determination to prepare an Addendum.

CEQA Guideline §15164(a) allows a lead agency to prepare an Addendum to a Final EIR if all of the following conditions are met.

- Substantial changes with respect to the circumstances under which the project is undertaken do not require major revisions to the previous Final EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

- No new information becomes available which shows new significant effects or significant effects substantially more severe than previously discussed.

- If there are mitigation measures which are different from those analyzed in the previous EIR that would substantially reduce one or more significant effects on the environment, the project proponent agrees to adopt them.

- Only minor technical changes or additions are necessary to make the Final EIR under consideration adequate under CEQA.

- The changes to the Final EIR made by the Addendum do not raise important new issues about the significant effects on the environment.

The currently proposed modifications will result in no new significant adverse effects or substantially increased severity of significant effects previously identified in the May 2008 Final EIR. Further, the currently proposed modifications consist of only necessary minor changes to the May 2008 Final EIR that do not raise important new issues about the previously analyzed significant environmental effects. Thus, the currently proposed modifications meet all of the conditions in the CEQA Guidelines §15164(a) for the preparation of an Addendum. Because the currently proposed modifications meet all of the conditions for preparing an Addendum, a subsequent EIR pursuant to CEQA Guidelines §15162 is not required. This conclusion is supported by substantial evidence as explained in Sections 6.0 and 7.0 of this Addendum.

3.0 BACKGROUND CEQA DOCUMENTS

The activities associated with the Chevron PRO Project were evaluated sequentially in the following CEQA documents. Summaries of the CEQA documents are provided below. The CEQA documents can be obtained by contacting the SCAQMD's Public Information Center at (909) 396-2039 or they can be downloaded from the SCAQMD's CEQA Webpage at the following Internet address:

http://www.aqmd.gov/ceqa/documents/2008/nonaqmd/chevron/PRO/chevronFND.html

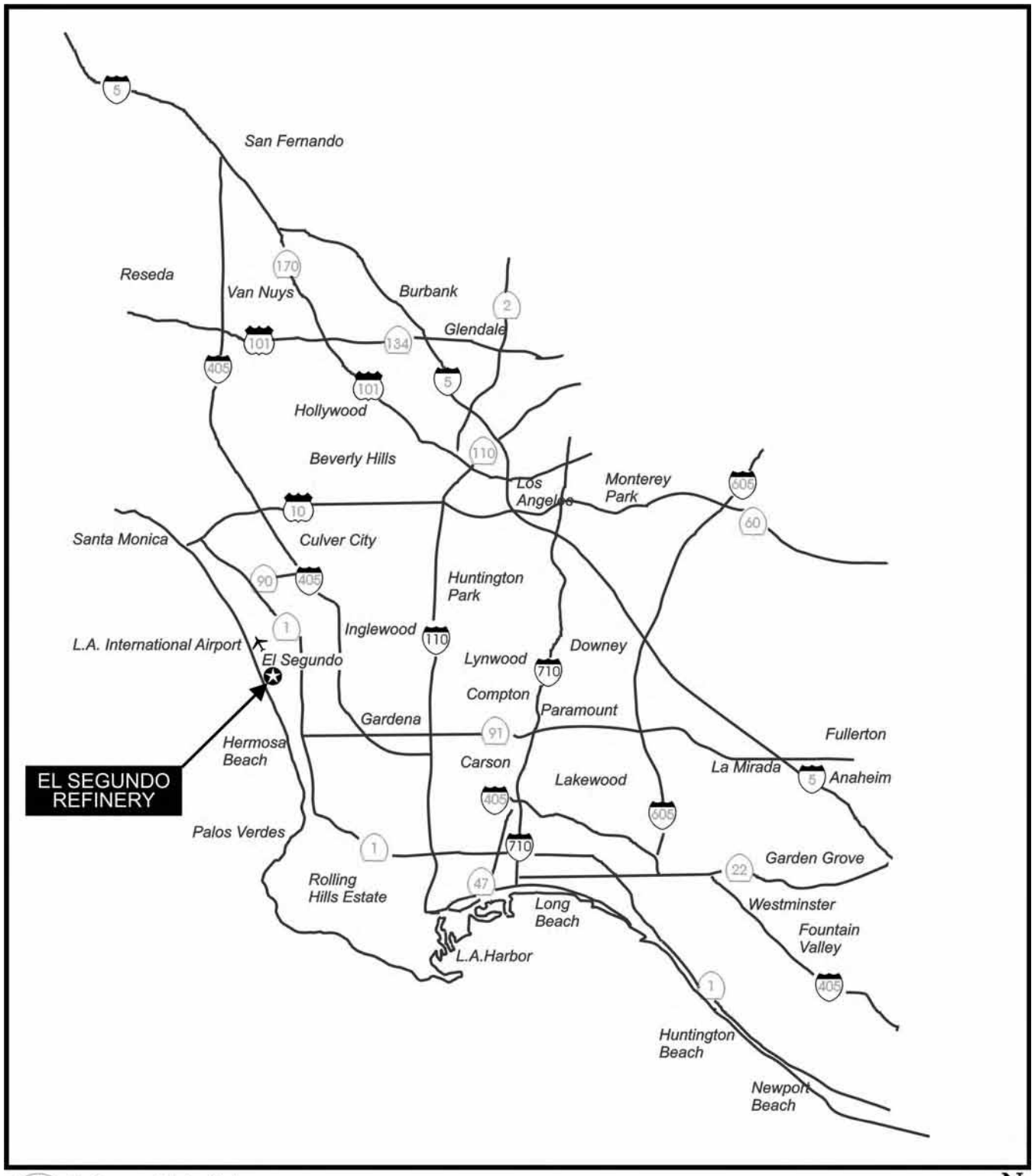
Notice of Preparation of an Environmental Impact Report (EIR) (SCAQMD, August 2007): A Notice of Preparation (NOP) and Initial Study for the Chevron Products Company El Segundo Refinery Product Reliability and Optimization Project were released for a 30-day public review and comment period on August 10, 2007. The Initial Study included a project description, project location, an environmental checklist, and a preliminary discussion of potential adverse environmental impacts. The NOP requested public agencies and other interested parties to comment on the scope and content of the environmental information to be evaluated in the Draft EIR.

Draft EIR (SCAQMD, 2008a): The Draft EIR was released for a 45-day public review and comment period on March 7, 2008. The Draft EIR included a comprehensive project description, a description of the existing environmental setting, a preliminary analysis of potential adverse environmental impacts for each environmental topic (including cumulative impacts) that could be adversely affected by the proposed project, and mitigation measures, project alternatives, and all other relevant topics required by CEQA. The Draft EIR also included a copy of the NOP and Initial Study, copies of the five comment letters received on the NOP and Initial Study, and responses to all comment letters received on the NOP and Initial Study. It was concluded in the Draft EIR that the Chevron Products Company El Segundo Refinery PRO Project may have significant adverse impacts, on air quality in spite of implementing mitigation measures and less than significant hazard impacts.

Final EIR (SCAQMD, 2008b): The Final EIR was prepared by revising the Draft EIR to incorporate applicable updated project information and to respond to comments received on the Draft EIR. The Final EIR contained four comment letters and responses to comments received on the Draft EIR. The changes included in the Final EIR did not constitute significant new information relating to the environmental analysis or mitigation measures. The Final EIR was certified on May 9, 2008. Chapter 1 – Introduction and Executive Summary is presented in Appendix A of this Addendum.

4.0 PROJECT LOCATION

The currently proposed modifications will occur within the confines of the Chevron El Segundo Refinery. The Refinery is located within the overall southern California region, as shown in Figure 1. The Refinery is located at 324 West El Segundo Boulevard, El Segundo, California, as shown in Figure 2.



Environmental Audit, Inc.

REGIONAL MAP
Chevron Products Company
El Segundo Refinery

Project No. 2505

Figure 1

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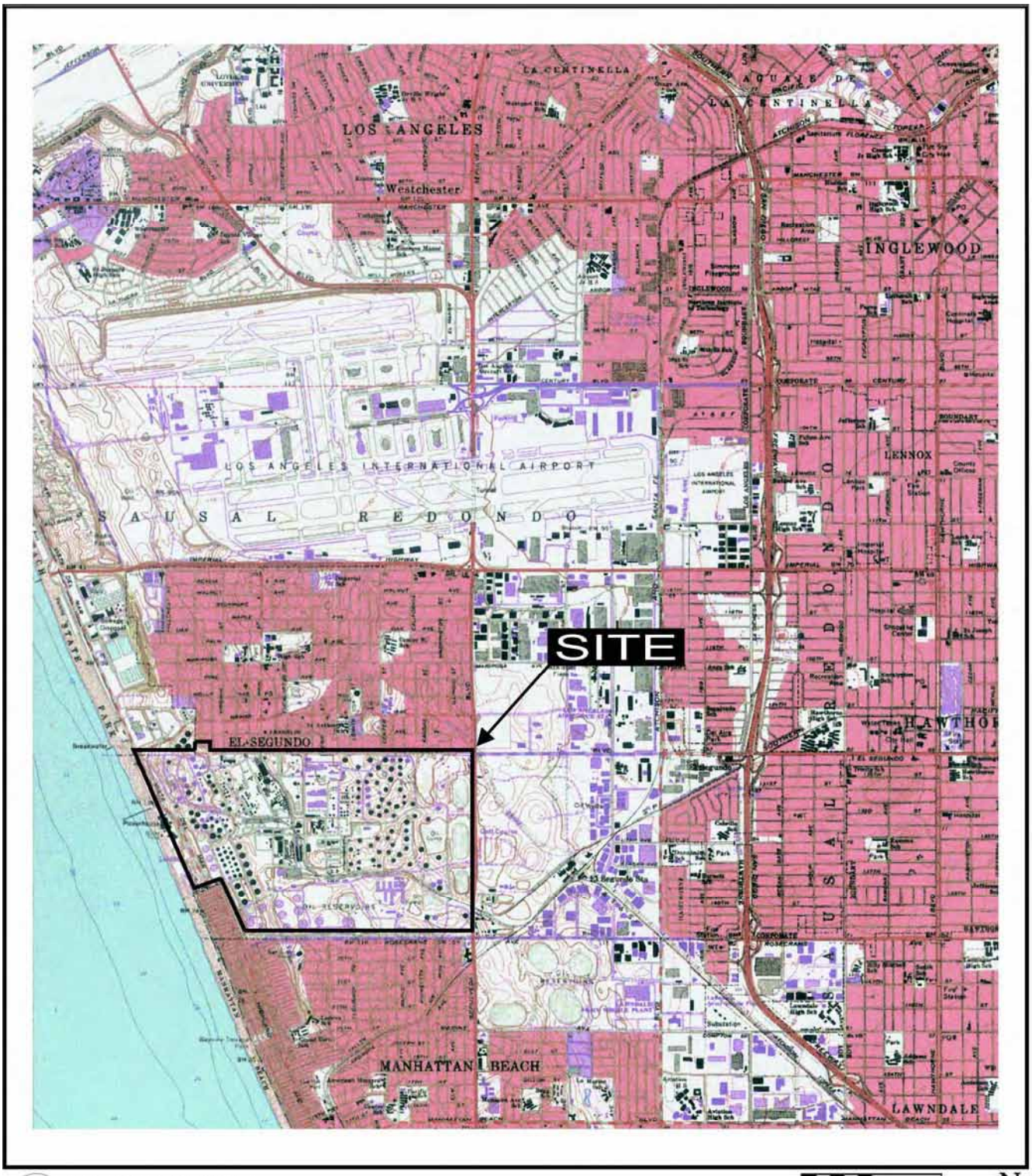

SITE LOCATION MAP
Chevron Products Company
El Segundo Refinery

Project No. 2505

Figure 2

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5.0 PROJECT DESCRIPTION

This section presents a description of the PRO Project as evaluated in the May 2008 Final EIR, as well as a description of the currently proposed modifications.

5.1 Proposed Project Identified in the May 2008 Final EIR

The proposed project evaluated in the May 2008 Final EIR included modifications to the No. 2 Crude Unit, No. 2 RSU, Minalk/Merox Unit, Waste Gas Compressors, FCCU, Alkylation Unit, VRDS Unit, ISOMAX Unit, Cogen Facilities, and the Railcar Loading/Unloading Rack. New process units included sulfur processing facilities (i.e., SWS, SRU, and TGU), Vapor Recovery and Safety Flare System, Water Treatment Facilities (i.e., reverse osmosis units and nitrogen removal units), and additional storage capacity. The purpose of these modifications and additions was to increase the reliability, energy efficiency, and capacity of specific existing Refinery processing equipment; allow the processing of a wider range of crude oils; and voluntarily reduce potential atmospheric emissions from existing PRDs.

5.2 Currently Proposed Modifications

The changes to the PRO Project include relocating and resizing Tank 303 and Tank 304 (formerly Tank 447), adding a scrubber to the TGU, incorporating final design changes to the TGU, and updating the construction schedule. Other changes include the associated piping and fugitive components (i.e., pumps, valves, flanges, etc.). The proposed configuration of the tanks is shown in Figure 3 with the previously proposed locations also shown. Table 1 shows the previously proposed and currently proposed tank data.

TABLE 1

COMPARISON OF CURRENTLY PROPOSED STORAGE TANK MODIFICATIONS TO THE MAY 2008 FINAL EIR

Parameter	May 2008 Final EIR		Current Proposed Modification	
	TK-303	TK-447	TK-303	TK-304
Construction	New	New	New	New
Diameter (ft)	150	125	150	160
Shell Height (ft)	48	50	64	64
Maximum Volume (bbls)	151,000	109,000	201,000	229,000
Working Volume (bbls)	125,000	80,000	165,000	192,000
Throughput, bbl/month	700,000	1,216,667	1,250,000	1,500,000
Throughput, mmbbl/year	8.4	14.6	15	18
Service	FCC Light Gasoline, and Others	ISOMAX Diesel and Others	Gasoline, Other Hydrocarbons	Gasoline, Other Hydrocarbons

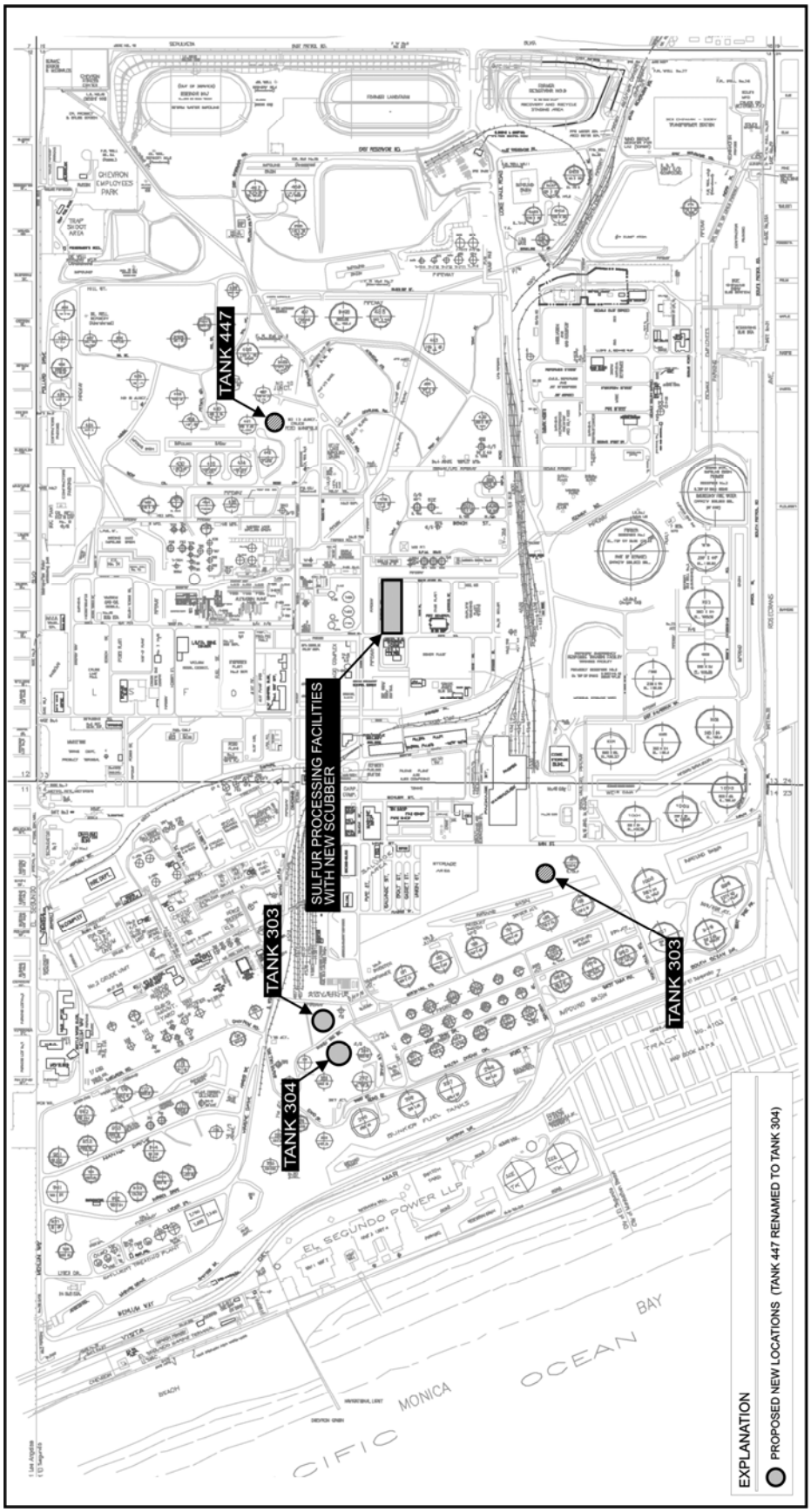

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Figure 3

CHEVRON PRODUCTS COMPANY
PROJECT COMPONENT LOCATIONS

Project No. 2505a
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During permit review, in addition to the scrubber, refinements in the sulfur processing facilities design were made as shown in Table 2. The scrubber being added to the TGU will reduce SOx emissions from the TGU. The May 2008 Final EIR reported SOx emissions of 139.3 pounds per day (lbs/day). The scrubber will reduce the SOx emissions to 58.0 lbs/day. Table 2 compares the sulfur processing facilities as analyzed in the EIR and the current modifications.

TABLE 2

COMPARISON OF CURRENTLY PROPOSED SULFUR PROCESSING FACILITY TO THE MAY 2008 FINAL EIR

Design Parameter	Units	May 2008 Final EIR	Currently Proposed Modifications
Stack Flow(1)	lbmols/hr, dry, 0% O_2	3022	3180 (3144) (2)
Burner Duty	mmBTU/hr	32.7	41.9
Fuel Heating Value	BTU/scf (HHV)	1050	1050
Fuel Flow	scf/hr	31,143	39,905

(1) Maximum pollutant emissions vary by operating conditions.

(2) Two operating scenarios were used to calculate emissions for the currently proposed modifications: (a) tail gas contains reduced combustibles and (b) catalyst nearing end of useful life (shown in parentheses). Currently proposed modifications includes the scrubber and refinements to the sulfur processing facilities design.

6.0 IMPACT ANALYSIS

The following sections present a description of the impact analysis contained in the May 2008 Final EIR, as well as the analysis of the impacts of the currently proposed modifications.

The baseline used in the May 2008 Final EIR was the facility as it existed at the time the NOP/IS was published (August 2007) per the requirements of CEQA Guidelines §15125. The May 2008 Final EIR considered all direct (emissions associated with proposed new units, e.g., sulfur recovery facilities, new storage tanks, etc.), as well as indirect impacts of the proposed project (e.g., emissions associated with locomotive engines). Equipment potentially impacted by the proposed project (both upstream and downstream) were evaluated to determine if the proposed project would result in an emission increase, even though the equipment was operating within permit limits and no permit modification would be required. However, no other equipment, beyond those evaluated in the proposed project, were identified that would result in an increase in emissions strictly due to the proposed project (see May 2008 Final EIR, page 4-10). The currently proposed modifications to the previously approved project are minor modifications that do not change the conclusions of the May 2008 Final EIR. In addition, there is no change to the circumstances under which the project was undertaken, therefore, there is no change to the baseline or environmental setting of the proposed project.

This section sequentially presents the initial project evaluated in the May 2008 Final EIR and the currently proposed modifications to show the chronology of the impact analysis, and to show the comparison of the currently proposed modifications with the May 2008 Final EIR project.

6.1 Summary of Impacts in the May 2008 Final EIR

The NOP/IS prepared for the May 2008 Final EIR evaluated all environmental topics in accordance with CEQA and determined that ten of the 17 environmental topic areas identified in the environmental checklist (CEQA Guidelines, Appendix G) would not be significantly adversely affected by the PRO Project. These topics were aesthetics; agricultural resources; biological resources; cultural resources; geology and soils; land use and planning; mineral resources; population and housing; public services; and, recreation. Five comment letters were received on the NOP/IS. However, none of the comments requested evaluation of the ten topics that the NOP/IS determined would not be significantly affected by the PRO Project. Thus, these less than significant environmental topics were not addressed further in the May 2008 Final EIR.

Seven of the 17 environmental topic areas in the environmental checklist required further evaluation in the EIR including air quality; energy; hazards and hazardous materials; hydrology and water quality; noise; solid and hazardous waste; and, transportation and traffic. The May 2008 Final EIR concluded that five of the seven environmental topics evaluated in the EIR would not be significantly adversely affected by the PRO Project or could be mitigated to a level of insignificance. Air quality impacts during construction and VOC emissions prior to offsets during operation were determined to be significant, as well as, traffic during construction. The analysis shows that these environmental areas would not be substantially affected by or create new significant impacts from the currently proposed modifications. Therefore, the conclusions for these environmental topic areas from the May 2008 Final EIR do not change as a result of implementing the currently proposed modifications.

As discussed in the following paragraphs, the May 2008 Final EIR identified potentially significant adverse impacts after the implementation of feasible mitigation measures for air quality during construction, and traffic impacts during construction.

The May 2008 Final EIR indicated that the Chevron PRO Project would result in the following significant unavoidable adverse impacts:

- Emissions of carbon monoxide (CO), VOC, nitrogen oxides (NOx), particulate matter less than 10 microns in diameter (PM10), and particulate matter less than 2.5 microns in diameter (PM2.5) were expected to exceed mass daily significance thresholds during construction; therefore, construction air quality impacts were considered to be significant.

- Traffic associated with construction activities could result in significant adverse transportation/traffic impacts even after mitigation measures included as part of the PRO Project. Mitigation measures included requirements for construction workers to use specific travel routes.

- Cumulative construction emissions of CO, VOC, NOx, PM10, and PM2.5 associated with the proposed PRO Project and other cumulative projects could result in significant adverse air quality impacts.

- Cumulative operational emissions of CO, VOC, NOx, SOx, PM10, and PM2.5 associated with the proposed PRO Project and other cumulative projects could result in significant adverse air quality impacts.

- Cumulative construction traffic associated with the proposed PRO Project and other cumulative projects could result in significant adverse cumulative traffic impacts.

6.2 Analysis of Impacts from the Currently Proposed Modifications

This Addendum includes an evaluation of all 17 of the environmental topics identified in the environmental checklist (CEQA Guidelines, Appendix G) and concluded that five environmental topics evaluated in the May 2008 Final EIR would potentially be adversely affected by the currently proposed modifications - air quality, energy, hazards and hazardous materials, hydrology/water quality, and transportation/traffic. The following subsections present the results of the evaluation of the air quality, energy, hazards and hazardous materials, hydrology/water quality, and transportation/traffic impacts associated with the currently proposed modifications. Section 7.0 presents the analysis of the remaining 12 environmental topic areas where the impacts of the currently proposed modifications were evaluated in the Addendum and found not to be potentially significant.

6.2.1 Air Quality

Both construction and operational air quality impacts were evaluated in the May 2008 Final EIR. Air quality impacts that equal or exceed the significance thresholds identified in Table 3 are considered to be potentially significant adverse air quality impacts.

Construction Emissions (Criteria Pollutants)

<u>May 2008 Final EIR</u>

The PRO Project schedule presented in the May 2008 Final EIR showed the PRO Project being completed by year-end 2009. Portions of the PRO Project have had scheduling delays due to the SCAQMD permit moratorium, other permitting delays (as in the case of the sulfur processing facilities) or reprioritization within the project. The PRO Project schedule as presented in the May 2008 Final EIR and the revised project schedule are presented in Figure 4. The original schedule is in gray with the revised schedule hatched. The current estimated revised project completion date is May 2012.

The peak day air quality impacts during construction that were evaluated in the May 2008 Final EIR are presented in Table 4. The construction emissions were found to be significant for CO, VOC, NOx, PM10, and PM2.5. Although mitigation measures were imposed, construction

TABLE 3

Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NO_x	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
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
Toxic Air Contaminants and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million Hazard Index $\geq$ 1.0 (project increment) Cancer Burden $\geq$ 0.5	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality for Criteria Pollutants[(a)]		
NO_2 1-hour average annual average	In attainment; significant if project causes or contributes to an exceedance of any standard: 0.18 ppm (state) 0.053 ppm (federal)	
PM10 24-hour annual geometric mean annual arithmetic mean	 10.4 $\mu g/m^3$ (recommended for construction)[(b)] 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$ 20 $\mu g/m^3$	
PM2.5 24-hour average	 10.4 $\mu g/m^3$ (construction) & 2.5 $\mu g/m^3$ (operation)	
Sulfate 24-hour average	 1 $\mu g/m^3$	
CO 1-hour average 8-hour average	In attainment; significant if project causes or contributes to an exceedance of any standard: 20 ppm (state) 9.0 ppm (state/federal)	
Greenhouse Gases		
CO_2 eq[(c)]	10,000 metric tons per year for industrial projects for which the SCAQMD is the lead agency	

(a) Ambient air quality thresholds for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated. The NO_2,1-hour average, CO 1-hour and 8-hour average, and PM10 and PM2.5 24-hour averages also apply as Localized Significance Thresholds (LST).

(b) Ambient air quality threshold based on SCAQMD Rule 403.

(c) Includes carbon dioxide (CO_2), methane (CH_4), Nitrous Oxide (N_2O), fluorinated gases (hydrofluorcarbon, perfluorocarbon, and sulfur hexafluoride)

Notes: ppm = parts per million; $\mu g/m^3$ = microgram per cubic meter; mg/m^3 = milligram per cubic meter; lbs/day = pounds per day; $\geq$ greater than or equal to

FIGURE 4

May 2008 Final EIR and Revised Schedule

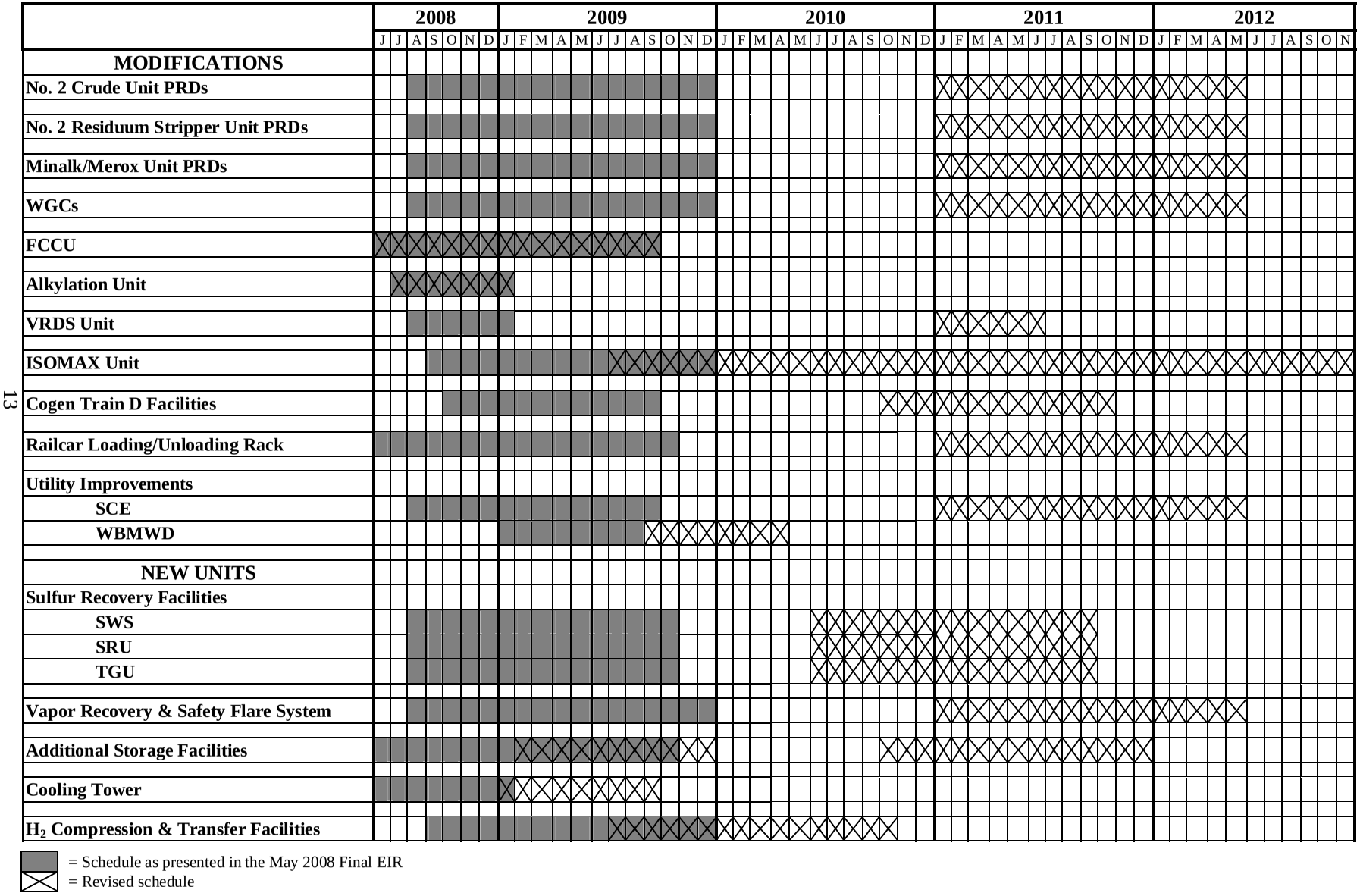

TABLE 4

May 2008 Final EIR PRO Project
Peak Construction Emissions[1]
(lbs/day)

ACTIVITY	CO	VOC	NOx	SOx	PM10	PM2.5[2]
Construction Equipment	372.32	117.85	671.58	0.66	30.79	17.86
Vehicle Emissions	336.67	34.60	82.69	0.38	2.34	1.36
Fugitive Dust From Construction[3]	--	--	--	--	128.25	74.39
Fugitive Road Dust[3]	--	--	--	--	15.63	9.07
Architectural Coatings[4]	--	--	--	--	--	--
Total Construction Emissions[5]	**708.99**	**152.45**	**754.27**	**1.04**	**177.01**	**102.36**
SCAQMD Threshold Level	550	75	100	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes

(1) Peak emissions for all pollutants were predicted to occur during January 2009, except for PM10 and PM2.5 which was expected to occur in August 2008. Peak construction emissions are based on concurrent activities from the PRO Project and SCE and WBMWD upgrades.
(2) PM2.5 is determined using SCAQMD, 2006. Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 CEQA Significance Thresholds, SCAQMD, October 2006, https://www.aqmd.gov/ceqa/handbook/PM2_5/pm2_5ratio.xls
(3) Assumes application of water three times per day.
(4) Paint specifications for this project call for non-VOC containing coatings.
(5) The emissions in the table may differ slightly from those in Appendix B of the May 2008 Final EIR due to rounding.

emissions were expected to remain significant for CO, VOC, NOx, PM10 and PM2.5 following mitigation. Construction emissions for SOx were concluded to be insignificant before mitigation so mitigation measures were not required.

Currently Proposed Modifications

Construction emissions have been revised in this Addendum to reflect the construction activities associated with the currently proposed modifications. Portions of the PRO Project have been completed or are underway. Therefore, construction emissions associated with the proposed modifications based on the revised PRO Project schedule have been evaluated in this Addendum. Construction activities associated with the currently proposed modifications would result in emissions of VOCs, CO, NOx, SOx, PM10, and PM2.5 (see Table 5). Detailed construction emissions for the currently proposed modifications based on the revised project schedule are provided in Appendix B.

TABLE 5

PRO Project Currently Proposed Modifications
Peak Construction Emissions[(1)]
(lbs/day)

ACTIVITY	CO	VOC	NOx	SOx	PM10	PM2.5
Construction Equipment	160.92	44.43	285.81	0.28	19.90	11.54
Vehicle Emissions	137.54	15.65	45.70	0.22	2.46	1.43
Fugitive Dust From Construction	--	--	--	--	52.65	30.53
Fugitive Road Dust	--	--	--	--	14.17	8.22
Architectural Coatings	--	--	--	--	--	--
Total Proposed Modifications Construction Emissions	**298.46**	**60.08**	**331.51**	**0.50**	**89.18**	**51.72**

(1) Peak emissions for NOx PM10 and PM2.5 are expected to occur in February 2011 and peak emissions for CO, VOCs, and SOx are expected to occur in March 2011.

As shown in Table 6, the total estimated construction emissions for the currently proposed modifications are less than the construction emission calculated in the May 2008 Final EIR. Table 6 also demonstrates construction emissions from the currently proposed modifications do not substantially worsen significant adverse impacts, because peak daily mitigated emissions of CO, VOC, NOx, SOx, PM10, and PM2.5 for the currently proposed modifications are less than the peak daily emissions in the May 2008 Final EIR. Therefore, the currently proposed modification emissions will not result in a significant increase in emissions or make a significant impact substantially worse.

TABLE 6

Comparison of May 2008 Final EIR to Currently Proposed Modifications
Peak Construction Emissions
(lbs/day)

ACTIVITY	CO	VOC	NOx	SOx	PM10	PM2.5
May 2008 Final EIR Total Construction Emissions	**708.99**	**152.45**	**754.27**	**1.04**	**177.01**	**102.36**
SCAQMD Threshold Level	550	75	100	150	150	55
Significant?	Yes	Yes	Yes	No	Yes	Yes
Total Proposed Modifications Construction Emissions	**298.46**	**60.08**	**331.51**	**0.50**	**89.18**	**51.72**
Peak Daily Emissions from Proposed Modifications above May 2008 Final EIR	**No**	**No**	**No**	**No**	**No**	**No**

Construction Emissions - Localized Impacts (Criteria Pollutants)

May 2008 Final EIR

The May 2008 Final EIR evaluated the peak day construction emissions following the SCAQMD Localized Significance Threshold (LST) Methodology (June 2007). The LST Methodology requires that the emissions of criteria pollutants be evaluated to determine if a proposed project will increase pollutant concentrations at the nearest sensitive receptor to greater than specified levels. The SCAQMD LST Methodology applies only to the following pollutants: CO, nitrogen dioxide (NO_2), PM10, and PM2.5. As shown in Table 7, the May 2008 Final EIR LST evaluation determined that the PRO Project did not exceed any LSTs.

TABLE 7

Localized Significance Threshold Evaluation for Construction Emissions from the May 2008 Final EIR

Criteria Pollutant	Averaging Period	Ambient Back-ground Conc. (ug/m^3)	Calculated Conc. (ug/m^3)	Total Conc. (ug/m^3)	Most Stringent Air Quality Standard (ug/m^3)	Localized Significance Threshold (ug/m^3)	Exceeds Threshold?
CO	1-hour	6896.4	179.1	7075.5	23000		No
	8-hour	5057.4	68.9	5126.3	10000		No
NO_2	1-hour	188.8	187.7	376.5	500		No
	Annual	29.3	4.7	34.0	100		No
PM10	24-hour		9.7			10.4	No
PM2.5	24-hour		<9.7(1)			10.4	No

(1) Since PM2.5 emissions are a fraction of PM 10 emissions and the significance thresholds are the same for PM10 and PM2.5, PM2.5 emissions were not modeled.

Currently Proposed Modifications

The PRO Project including the currently proposed modifications was evaluated using the same methodology as the analysis in the May 2008 Final EIR (see Appendix C). The currently proposed modifications elongate the construction schedule, which creates less overlapping construction activities and thus less construction-related emissions on the peak construction day. As shown in Table 8, the currently proposed modifications do not change the significance determination made in the May 2008 Final EIR and are less than significant.

TABLE 8

Localized Significance Threshold Evaluation for Construction Emissions for the PRO Project Including the Currently Proposed Modifications

Criteria Pollutant	Averaging Period	Ambient Back-ground Conc. (ug/m^3)	Calculated Conc. (ug/m^3)	Total Conc. (ug/m^3)	Most Stringent Air Quality Standard (ug/m^3)	Localized Significance Threshold (ug/m^3)	Exceeds Threshold?
CO	1-hour	4597.6	148.5	4746.1	23000		No
	8-hour	2873.5	53.8	2927.3	10000		No
NO_2	1-hour	188.8	143.1	331.9	339		No
	Annual	29.3	4.4	33.6	57		No
PM10	24-hour		9.3			10.4	No
PM2.5	24-hour		<9.3(1)			10.4	No

(1) Since PM2.5 emissions are a fraction of PM 10 emissions and the significance thresholds are the same for PM10 and PM2.5, PM2.5 emissions were not modeled.

Operational Impacts (Criteria Pollutants)

May 2008 Final EIR

In the May 2008 Final EIR, the PRO Project at the Refinery was expected to generate emissions associated with: the No. 2 Crude Unit, No. 2 Residuum Stripper Unit, Minalk/Merox Unit, Waste Gas Compressors, FCCU, Alkylation Unit, VRDS Unit, ISOMAX Unit, Cogen Train D, and railcar loading/unloading rack. The new sulfur processing facilities, Vapor Recovery and Safety Flare System, Additional Storage Facilities, and Cooling Tower also were expected to generate emissions. The total operational emissions associated with the May 2008 Final EIR are summarized in Table 9 (Table 4-5 of the May 2008 Final EIR). Table 10 (Table 4-6 of the May 2008 Final EIR) shows the significance determination with and without mitigation. The operation of the PRO Project was not expected to exceed the SCAQMD significance thresholds for emissions of CO, NOx, SOx, PM10, and PM2.5. The stationary source VOC emissions were considered significant. However, after complying with SCAQMD Rule 1303 - New Source Review requirements for offsets for the VOC emissions, VOC emissions were considered less than significant. Therefore, the air quality impacts associated with operational emissions from the PRO Project were considered less than significant.

Currently Proposed Modifications

The currently proposed modifications include operational emission changes to Tanks 303 and 304 (formerly 447) and the TGU. Table 11 shows the emissions from the currently proposed modifications. The tank emissions result in a net increase of 9.8 lbs/day of VOCs as compared to the two tanks emissions as presented in the May 2008 Final EIR . The TGU design changes result in increases of 0.2, 1.6, and 1.6 lbs/day of VOC, PM10, and PM2.5, respectively and reductions of 277.5, 115.2, and 81.3 lbs/day of CO, NOx, and SOx emissions, respectively.

TABLE 9

Stationary Source Operational Emissions Summary
May 2008 Final EIR
(lbs/day)

Sources	CO	VOC	NOx	SOx	PM10	PM2.5[1]
STATIONARY SOURCES:						
MODIFICATIONS						
No. 2 Crude Unit PRDs	--	10.3	--	--	--	--
No. 2 Residuum Stripper Unit PRDs	--	3.4	--	--	--	--
Minalk/Merox Unit PRDs	--	4.1	--	--	--	--
Waste Gas Compressors	--	0	--	--	--	--
FCCU	--	10.8	--	--	--	--
Alkylation Unit	--	15.8	--	--	--	--
VRDS Unit	--	22.6	--	--	--	--
ISOMAX Unit	--	26.7	-555.7[2]	--	--	
Cogen Train D	72.3	48.2	178.4	63.1	0[3]	0[3]
Railcar Loading/Unloading Rack	--	4.7	--	--	--	--
NEW UNITS						
Sulfur Processing Facilities						
SWS	--	3.0	--	--	--	--
SRU	--	--	--	--	--	--
TGU	304.6	5.1	133.5	139.3	5.7[6]	5.7
Vapor Recovery and Safety Flare System	2.3	3.2	8.4	0.1	0.5[6]	0.5
Additional Storage Facilities	--	45.6	--	--	--	--
Cooling Tower	--	--	--	--	5.8	5.8[4]
Total Stationary Source Emission Increases[5]	**379.2**	**203.5**	**-235.4**	**202.5**	**12.0**	**12.0**
OFF-SITE EMISSION SOURCES:						
New Workers Commuting	3.8	0.4	0.4	<0.01	0.02	0.02
Fugitive Road Dust	--	--	--	--	0.15	0.01
Locomotive Engines	6.3	2.4	46.1	3.92	1.52	1.47
Total Off-Site Emission Increases:	**10.1**	**2.8**	**46.5**	**3.93**	**1.69**	**1.50**
Total Operational Emission Increases: [5]	**389.3**	**206.3**	**-188.9**	**206.4**	**13.7**	**13.6**

(1) PM2.5 is determined by ratio to PM10 using https://www.aqmd.gov/ceqa/handbook/PM2_5/pm2_5ratio.xls, Profiles ID #117, 118, 120, and 393.

(2) Existing ISOMAX furnaces will be retrofitted with low-NOx burners, which will decrease NOx emissions, with no change in firing rate and, thus, no changes in CO, SOx, PM10, or PM2.5 emissions are expected.

(3) Cogeneration Facilities (A, B, C, and D) and Aux. Boiler will be operated under existing permit limits for PM10. Therefore, the addition of Cogen Train D will not increase in PM10 or PM2.5 emissions.

(4) Cooling tower emissions are assumed to be all PM2.5.

(5) Differences in totals as compared to Appendix C of the May 2008 Final EIR are due to rounding.

(6) Following certification of the EIR, during the permitting process, emissions offsets for the PM10 emissions were required, which reduced the PM10 emission impacts of the PRO Project.

TABLE 10

May 2008 Final EIR
Stationary Source Operational Emissions Summary
(lbs/day)

Sources	CO	VOC	NOx	SOx	PM10	PM2.5[1]
Significance Determination for Facility-Wide Pollutants						
Project Emissions[1]	--	--	-188.9	206.4	--	--
Projected 2010 Emissions	--	--	4,087.7	1890.4	--	--
Total Facility-Wide 2010 Emissions	--	--	3,898.8	2,096.8	--	--
5-Year Average + Significance Threshold[2]	--	--	**5,596**	**4,964**	--	--
Significant?	--	--	**NO**	**NO**	--	--
Significance Determination for All Project Non-Facility-Wide Pollutants						
Project Emissions	389.3	206.3	--	--	13.7	13.6
Significance Thresholds	**550**	**55**	--	--	**150**	**55**
Significant?	**NO**	**YES**	--	--	**NO**	**NO**
Emissions Following Mitigation	389.3	2.8[3]	--	--	13.7	13.6
Significant Following Mitigation?	**NO**	**NO**	--	--	**NO**	**NO**

(1) See Table 4-5 of the May 2008 Final EIR.
(2) See Table 4-3 of the May 2008 Final EIR.
(3) Emissions mitigated with emission offsets for stationary sources.

The operational emissions associated with the currently proposed modifications are shown in Table 11. The increased of 19.8 and 1.6 lbs/day of VOC and PM10 will be required to be offset with emission reduction credits. As such, the currently proposed modifications will have no net change in emissions for VOC, PM10, and PM2.5 and result in CO, NOx, and SOx emission reductions to the PRO Project as modified. Therefore, the currently proposed modifications are beneficial to air quality and are considered less than significant.

Impacts to Ambient Air Quality

The impacts to ambient air quality as presented in the May 2008 Final EIR were evaluated for only the new combustion sources (i.e., flare, Cogen Train D, TGU, and cooling tower) from the PRO Project (see May 2008 Final EIR, Appendix C, Ambient Air Quality Report, pages C-41 et. seq.). The currently proposed modifications change the emissions for the TGU due to the design changes. The revised ambient air quality modeling reflects the changes to the TGU emissions as presented in Table 11. The revised ambient air quality modeling report is presented in Appendix C. The calculated impacts on ambient concentrations of the modeled criteria pollutants from the May 2008 Final EIR are shown in Table 12. The calculated ambient air concentrations from the PRO Project have been revised to include the currently proposed modifications and are shown in Table 13. The results show the PRO Project with the currently proposed modifications are less than the May 2008 Final EIR project modeling results, which were concluded to be less than the applicable

TABLE 11

Incremental Changes of Currently Proposed Modifications from PRO Project Operational Emissions (lbs/day)

Sources	CO	VOC	NOx	SOx	PM10	PM2.5[1]
STATIONARY SOURCES:						
Change in Emissions from Currently Proposed Modifications Relative to Previously Approved Project						
Additional Storage Facilities	--		--	--	--	--
Tank 303		3.0				
Tank 304 (formerly Tank 447)		6.8				
Additional Storage Facilities Total		9.8				
Sulfur Processing Facilities						
TGU	-277.5	0.2	-115.2	-81.3	1.6	1.6
Total Change in Emissions[3]	-277.5	19.8	-115.2	-81.3	1.6	1.6
Total Mitigated Emissions	-277.5	0	-115.2	-81.3	0	0

(1) PM2.5 is determined by ratio to PM10 using https://www.aqmd.gov/ceqa/handbook/PM2_5/pm2_5ratio.xls, Profiles ID #117, 118, 120, and 393.
(2) Negative values indicate a reduction.
(3) Emissions mitigated with emission offsets for stationary sources.

TABLE 12

May 2008 Final EIR Results of Criteria Pollutants Air Quality Modeling

Criteria Pollutant	Averaging Time	Significance Threshold	Calculated Concentrations for Chevron PRO Project[1]	Significant?
Nitrogen Dioxide	1-hour	500 $\mu g/m^3$	271.6 $\mu g/m^3$ [2]	No
	Annual	100 $\mu g/m^3$	30.7 $\mu g/m^3$ [2]	No
Carbon Monoxide	1-hour	23,000 $\mu g/m^3$	4,736.4 $\mu g/m^3$ [2]	No
	8-hour	10,000 $\mu g/m^3$	3,503.9 $\mu g/m^3$ [2]	No
Particulate Matter (PM10)	24-hour	2.5 $\mu g/m^3$	0.65 $\mu g/m^3$ [3]	No
	Annual[5]	1 $\mu g/m^3$	0.17 $\mu g/m^3$ [3]	No
Particulate Matter (PM2.5)[4]	24-hour	2.5 $\mu g/m^3$	<0.65 $\mu g/m^3$ [3]	No
	Annual[5]	1 $\mu g/m^3$	<0.17 $\mu g/m^3$ [3]	No

(1) Calculated concentrations are the project impact combined with the background ambient concentrations. See Appendix C of the May 2008 Final EIR for detailed calculations.
(2) Most stringent ambient air quality standard.
(3) From 4-1 of the May 2008 Final EIR.
(4) PM2.5 emissions are a fraction of the PM10 emissions with the same thresholds. Therefore, since PM10 results are below the significance thresholds, PM2.5 will be also and are not significant.
(5) Geometric Mean.

TABLE 13

PRO Project Revised with Currently Proposed Modifications Results of Criteria Pollutants Air Quality Modeling

Criteria Pollutant	Averaging Time	Significance Threshold	Calculated Concentrations for Revised Project[1]	Significant?
Nitrogen Dioxide	1-hour	339 $\mu g/m^3$ [2]	188.8 $\mu g/m^3$	No
	Annual	57 $\mu g/m^3$[2]	27.5 $\mu g/m^3$	No
Carbon Monoxide	1-hour	23,000 $\mu g/m^3$[2]	4,610.1 $\mu g/m^3$	No
	8-hour	10,000 $\mu g/m^3$[2]	3,451.9 $\mu g/m^3$	No
Particulate Matter (PM10)	24-hour	2.5 $\mu g/m^3$ [3]	0.39 $\mu g/m^3$	No
	Annual[5]	1 $\mu g/m^3$ [3]	0.05 $\mu g/m^3$	No
Particulate Matter (PM2.5)[4]	24-hour	2.5 $\mu g/m^3$ [3]	<0.39 $\mu g/m^3$	No
	Annual[5]	1 $\mu g/m^3$ [3]	<0.05 $\mu g/m^3$	No

(1) Calculated concentrations are the project impact combined with the background ambient concentrations. See Appendix C for detailed calculations.
(2) Most stringent ambient air quality standard.
(3) From Table 3.
(4) PM2.5 emissions are a fraction of the PM10 emissions with the same thresholds. Therefore, since PM10 results are below the significance thresholds, PM2.5 will be also and are not significant.
(5) Geometric Mean.

significance thresholds (Table 12) and do not change the conclusions presented in the May 2008 Final EIR.

Toxic Air Contaminants

May 2008 Final EIR

A health risk assessment (HRA) was prepared for the PRO Project to determine if emissions of toxic air contaminants (TAC) generated by the PRO Project would exceed the SCAQMD thresholds of significance for cancer risk. The results of the HRA for the May 2008 Final EIR are summarized in this section. The results of the HRA are shown in Table 14 and indicate that the cancer risk and non-cancer risk did not exceed the applicable significance thresholds (Table 3). Therefore, the health risks associated with the PRO Project were considered less than significant.

Currently Proposed Modifications

The currently proposed modifications have been incorporated into the HRA to determine the impact of the proposed changes. The results of the HRA for the PRO Project including the currently proposed modifications results are shown in Table 14. The results of the HRA for the PRO Project with the currently proposed modifications incorporated are presented in Appendix D and are summarized in the following paragraphs.

TABLE 14

Comparison of Health Risk Impacts of the PRO Project with the Currently Proposed Modifications to the May 2008 Final EIR

EXPOSURE PATHWAY	PRO Project Analyzed May 2008 Final EIR	Currently Proposed Modifications	Revised PRO Project with Currently Proposed Modifications	Significance Threshold	Significant?
Excess Cancer Risk (per million) to Maximum Exposed Individual Worker	0.218	0.020	0.238	10	No
Excess Cancer Risk (per million) to Maximum Exposed Individual Resident	0.326	0.183	0.509	10	No
Excess Cancer Risk (per million) to Maximum Exposed Individual Sensitive Receptor	0.133	0.056	0.189	10	No
Maximum Acute Hazard Index	0.0307	0.006	0.0313	1	No
Maximum Chronic Hazard Index	0.0066	0.0004	0.0070	1	No

Maximum Exposed Individual Worker (MEIW): Based on the air quality modeling and related assumptions, the cancer risk to the MEIW associated with the PRO Project including the currently proposed modifications was calculated to be 2.38×10^{-7} or 0.24 in one million. This result shows that, although the cancer risk to the MEIW exceeds that of the proposed project, it does not exceed the cancer risk significance threshold of 10 per million (10×10^{-6}) identified in Table 3. The MEIW is based on a 40-year, 49-week per year, five-day per week, eight-hour per day exposure.

Maximum Exposed Individual Resident (MEIR): The predicted maximum cancer risk at the MEIR associated with the PRO Project including the currently proposed modifications was calculated to be 5.09×10^{-7} or 0.51 per one million. This result shows that, although the cancer risk to the MEIR exceeds that of the proposed project, it does not exceed the cancer risk significance threshold of 10 per million (10×10^{-6}) in Table 3. The MEIR is based on a 70-year exposure period.

Sensitive Receptors: The maximum cancer risk associated with the PRO Project including the currently proposed modifications to a sensitive receptor was estimated to be 1.89×10^{-7} or approximately 0.19 per one million. This risk estimate is conservative as it is based on a 70-year continuous exposure period. This result shows that, although the cancer risk to the sensitive receptor exceeds that of the proposed project, it does not exceed the cancer risk threshold of 10 per one million (10×10^{-6}) identified in Table 3.

Acute Hazard Index: The highest acute hazard index for the PRO Project including the currently proposed modifications is estimated to be 0.0313. The acute health effects are based on maximum hourly emissions of TAC that have acute target endpoints. Although the acute hazard index for the PRO Project including the currently proposed modifications is slightly greater than the of the proposed project, it does not exceed the acute hazard index significance threshold of 1.0 in Table 3.

Chronic Hazard Index: The highest chronic hazard index for the PRO Project including the currently proposed modifications is estimated to be 0.0070. This result shows that, although the chronic hazard index exceed that of the propose project, it does not exceed the chronic hazard index significance threshold of 1.0 identified in Table 3.

Table 14 summarizes the results of the HRA from the PRO Project including the currently proposed modifications and the HRA results from May 2008 Final EIR. The health risks associated with the currently proposed modifications are slightly greater than the health risks from the May 2008 Final EIR with the MEIW, MEIR, sensitive receptor, acute hazard index, and chronic hazard index. The currently proposed modification is less than significant. The PRO Project with CPM are less than significant and not substantially worse than the PRO Project as presented in May 2008 Final EIR.In all cases, however, the health risks are below the SCAQMD CEQA significance thresholds (see Table 14) and the health risks are expected to remain less than significant.

Cumulative Air Quality Impacts

Construction Impacts: In the May 2008 Final EIR, it was concluded that the cumulative air quality impacts associated with the construction phase of the PRO Project and other related projects would exceed the CEQA significance thresholds for CO, VOC, NOx, PM10, and PM2.5. Therefore, the cumulative air quality construction impacts were considered significant.

The peak daily construction emissions for the currently proposed modifications with the revised schedule are only significant for NOx emissions. The construction activities associated with the related projects evaluated in the May 2008 Final EIR are assumed to be concurrent with the revised PRO Project schedule. The El Segundo Power Plant cumulative project is the largest source of construction emissions (i.e., significant for CO, VOC, NOx, SOx, and PM10 as a stand alone project). In the May 2008 Final EIR, the El Segundo Power Plant project was not yet constructed and was on hold, but was included to provide a "worst-case" cumulative analysis. The El Segundo Power Plant project has not yet been constructed. Therefore, the "worst-case" analysis for the currently proposed modifications would still include the emissions from construction of the El Segundo Power Plant project occurring concurrently with the proposed modifications. Therefore, the cumulative air quality impacts are expected to remain significant for NOx.

Operational Impacts: In the May 2008 Final EIR, it was concluded that the cumulative air quality impacts associated with the operational phase of the PRO Project and other cumulative projects would exceed the CEQA significance thresholds for CO, VOC, NOx, SOx, PM10, and PM2.5.

The peak daily incremental change in operational emissions for the currently proposed modifications are less than significant for all pollutants as shown in table 11, which shows CO, NOx, and SOx reductions and VOC, PM10 and PM2.5 emissions offset to zero. Therefore, the currently proposed modifications will not make a cumulatively considerable contribution to impacts related to CO, VOC, NOx, SOx, PM10, or PM2.5 because the emissions from the proposed modifications will be less than the SCAQMD CEQA significance thresholds and does not change the significance determination made in the May 2008 Final EIR. Per CEQA Guideline §15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable. Therefore, air quality impacts associated with the operation of the currently proposed modifications are not cumulatively considerable.

Toxic Air Contaminants: The May 2008 Final EIR concluded that the cumulative impacts associated with the PRO Project were below the significance criteria for cancer risk of ten per one million and below the significance criteria for hazard indices of 1.0. Therefore, significant adverse cumulative impacts were not expected from the PRO Project.

The modified PRO Project adjusted the results of the HRA (see Table 14). The health risks for the currently proposed modifications are less than significant. In the May 2008 Final EIR, the only other major industrial project in the area that was likely to emit TACs was the El Segundo Power Plant Redevelopment Project. A health risk assessment for this project was completed (CEC, 2002). The cancer risk to the maximum exposed individual was calculated to be 0.94 per one million. The maximum acute and chronic health indices were estimated to be 0.01 and 0.02, respectively. The potential overlap of the El Segundo Power Plant and the modified PRO Project would be well below the significance criteria of ten per one million for carcinogenic risk and 1.0 for the acute and chronic hazard indices. The other cumulative projects are commercial and residential and are not expected to be major contributors to TAC emissions. Cumulative impacts of TAC on health are expected to be less than significant. Therefore, the currently proposed modifications will not make a cumulatively considerable contribution to TAC impacts because the emissions from the proposed modifications will be less than the SCAQMD CEQA significance thresholds. Per CEQA Guideline §15064(h)(4), the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable. Therefore, health risks associated with exposure to TAC emissions associated with the operation of the proposed modifications are not cumulatively considerable.

Greenhouse Gas Emissions

The May 2008 Final EIR included an impact evaluation of greenhouse gas (GHG) emissions. The operational phase of the PRO Project was expected to generate 193,910 metric tons per year of GHG emissions of which 42,600 metric tons per year were associated with the TGU. The GHG emissions were considered significant and mitigation was imposed. The cumulative impacts of GHG emissions associated with the PRO Project following mitigation were considered to be less than significant.

On December 5, 2008, the SCAQMD adopted an interim GHG Significance Threshold for projects where it is the lead agency. The GHG significance threshold uses a tiered approach for determining significance. The objective of the SCAQMD's interim GHG significance threshold proposal is to achieve a GHG emission capture rate of 90 percent of all new or modified stationary source projects. A GHG significance threshold based on a 90 percent emission capture rate is considered to be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent GHG emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. The following bullet points describe the basic structure of SCAQMD's tiered interim GHG significance threshold for stationary sources (SCAQMD, 2008c).

- **Tier 1 –** consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA. For example, SB 97 specifically exempts a limited number of projects until it expires in 2010. If the project qualifies for an exemption, no further action is required. If the project does not qualify for an exemption, then it would move to the next tier.

- **Tier 2 –** consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing consistency determination requirements in CEQA Guidelines §§15064(h)(3), 15125(d), or 15152(a). The GHG reduction plan must, at a minimum, comply with AB 32 GHG reduction goals; include an emissions inventory agreed upon by either CARB or the SCAQMD, have been analyzed under CEQA and have a certified Final CEQA document, and have monitoring and enforcement components. If the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If the project is not consistent with a local GHG reduction plan, there is no approved plan, or the GHG reduction plan does not include all of the components described above, the project would move to Tier 3.

- **Tier 3 –** establishes a screening significance threshold level to determine significance using a 90 percent GHG emission capture rate. The 90 percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the following methodology. Using the SCAQMD's Annual Emission Reporting (AER) Program, the reported annual natural gas consumption for 1,297 permitted facilities for 2006 through 2007 was compiled and the facilities were rank-ordered to estimate the 90th percentile of the cumulative natural gas usage for all permitted facilities. Approximately 10 percent of facilities evaluated comprise more than 90 percent of the total natural gas consumption, which corresponds to 10,000 metric tons of CO_2 equivalent emissions per year ($MTCO_2e/yr$) (the majority of combustion emissions are comprised of CO_2). A screening significance thresholds level has been discussed for residential and commercial projects, but were not adopted on December 5, 2008. Staff recommended deferring consideration of the residential and commercial GHG screening threshold proposal pending further evaluation.

If a project's GHG emissions exceed the GHG screening threshold, the project would move to Tier 5.

- **Tier 4 –** SCAQMD staff recommended deferring consideration of this tier pending further evaluation and direction from the SCAQMD's Governing Board. Currently, Tier 4 would establish a decision tree approach that would include compliance options for projects which have incorporated design features into the project and/or implement GHG mitigation measures; demonstrate a 30 percent reduction for normal business as usual practices; demonstrate early compliance with AB32 control measures; or comply with sector based performance standards.

- **Tier 5 –** would require projects, that implement offsite GHG mitigation that includes purchasing offsets to reduce GHG emission impacts, to purchase sufficient offsets for the life of the project (30 years) to reduce GHG emissions to less than the applicable GHG screening threshold level.

For detailed information on the interim GHG significance threshold proposal adopted by the Governing Board, please see the December 5, 2008 public hearing agenda item #31 at www.aqmd.gov/hb/2008/December/081231a.htm.

The interim GHG significance threshold that was adopted by the SCAQMD Governing Board only applies to stationary source/industrial projects where the SCAQMD is the lead agency under CEQA. The types of projects that the significance threshold applies to include: SCAQMD rules, rule amendments, and plans, e.g., Air Quality Management Plans. In addition, the SCAQMD may be the lead agency under CEQA for projects that require discretionary approval, i.e., projects that require air quality permits from the SCAQMD and that allow the SCAQMD to exercise discretion with regard to imposing permit conditions, like the currently proposed Chevron project modifications (SCAQMD, 2008b).

The May 2008 Final EIR preceded the adoption of the threshold. However, the significance determination made in the May 2008 Final EIR is consistent with the interim GHG Significance Threshold of 10,000 metric tons per year. The May 2008 Final EIR did not include construction GHG emissions amortized over 30 years as established in the interim GHG Significance Threshold. Based on the construction emissions data for the original schedule, the 30-year amortized construction GHG emissions for the PRO Project were estimated to be 330 metric tons per year. The PRO Project operational GHG emissions in the May 2008 Final EIR were estimated to be 193,910 metric tons per year. Therefore, the combined GHG emissions for the PRO Project would be 194,240 metric tons per year (193,910 + 330). The GHG emissions from the PRO Project as described in the May 2008 Final EIR would be considered significant when compared to the interim GHG Significance Threshold, which is consistent with the determination made prior to the establishment of the threshold. Mitigation measures were imposed (i.e., purchase of offsets) to reduce the GHG emission impacts to less than significant.

The currently proposed modifications include a design change to the TGU. The TGU is expected to generate an increase in GHG emissions of approximately 2,200 metric tons per year. The construction GHG emissions are expected to increase by 36 metric tons per year to 366 metric tons

per year using the revised project schedule. Therefore, the combined PRO Project with the currently proposed modifications and 30-year amortized construction emissions are expected to be 196,476 metric tons per year (193,910 + 2,200 + 366). As shown in Table 15, the proposed modifications GHG emissions of 2,236 metric tons per year (operational changes 2,200 + amortized construction of 36) would be less than the GHG significance threshold (10,000 metric tons per year) and represents an approximate increase of 1.2 percent from the PRO Project as analyzed in the May 2008 Final EIR. The mitigation measure imposed in the May 2008 Final EIR includes a 20 percent contingency to achieve additional GHG emission offsets. Therefore, the proposed modifications would be considered less than significant after mitigation.

Mitigation Measures

Mitigation measures were required for the construction emissions in the May 2008 Final EIR as they exceeded the SCAQMD CEQA significance thresholds for NOx. The PRO Project with the currently proposed modifications also exceed the SCAQMD CEQA significance thresholds for NOx during the construction period, but are substantially less than those analyzed in the May 2008 Final EIR (see Table 5). The mitigation measures included in the May 2008 Final EIR will also be implemented for the currently proposed modifications and are outlined below.

On-Road Mobile Sources:

A-1 Develop a Construction Emission Management Plan for the PRO Project. The Plan shall include measures to minimize emissions from vehicles including, but not limited to consolidating truck deliveries, prohibiting truck idling in excess of five minutes, description of truck routing, description of deliveries including hours of delivery, description of entry/exit points, locations of parking, and construction schedule.

Off-Road Mobile Sources:

A-2 Prohibit construction equipment from idling longer than five minutes at the Refinery.

A-3 Use electricity or alternate fuels for on-site mobile equipment instead of diesel equipment to the extent feasible. The PRO Project has incorporated this measure to the extent predictable, but will continue to implement where opportunities arise.

A-4 Maintain construction equipment tuned up and with two to four degree retard diesel engine timing.

A-5 Use electric welders instead of gas or diesel welders in portions of the Refinery where electricity is available. The PRO Project has incorporated this measure to the extent predictable, but will continue to implement where opportunities arise.

A-6 Use on-site electricity rather than temporary power generators in portions of the Refinery where electricity is available.

TABLE 15

Comparison of GHG Emissions of the PRO Project with the Currently Proposed Modifications to the May 2008 Final EIR (metric tons/year)

	May 2008 Final EIR	Currently Proposed Modifications	PRO Project with the Currently Proposed Modifications
Project Operational Emissions	193,910		193,910
Currently Proposed Modification to the TGU	--	2,200	2,200
Total Operational Emissions	193,910		196,110
Construction Emissions (30-year Ammoritized)(1)	330	36	366
Total GHG Emissions	194,240	2,236	196,476
Percent Increase		1.2	
Significance Threshold	NE(2)	10,000	10,000
Significant?	Yes	No	Yes
Emissions Following Mitigation	0	2,236	2,236
Significant Following Mitigation?	No	No	No

(1) See Appendix B for detailed calculations.
(2) None established. In May 2008, no significance threshold had been established.

A-7 Prior to construction, the project applicant will retrofit cranes of 200 hp and greater with diesel particulate filters that will reduce PM10 emissions. In addition, the project applicant will evaluate the feasibility of retrofitting the off-road construction equipment 50 to 200 hp that will be operating for significant periods. Retrofit technologies such as selective catalytic reduction, oxidation catalysts, air enhancement technologies, etc., will be evaluated. Such technologies will be required if they are commercially available and can feasibly be retrofitted onto construction equipment.

A-8 Suspend use of all construction activities that generate air pollutant emissions during first stage smog alerts.

PM10 Emissions from Grading, Open Storage Piles, and Unpaved Roads:

A-9 Develop a fugitive dust emission control plan. Measures to be included in the plan include, but are not limited to the following: (1) water active construction site three times per day, except during periods of rainfall. Watering construction sites two times per day complies with SCAQMD Rule 403 and provides about a 50 percent emission reduction. Watering construction sites three times per day will

reduce PM10 and PM2.5 emissions by an additional 18 percent (total control of 68 percent). These control efficiencies were reflected in the PRO Project emission calculations so no further emission reduction credit has been taken into account herein; (2) enclose, cover, water twice daily, or apply approved soil binders according to manufacturer's specifications to exposed piles (i.e., gravel, dirt and sand) with a five percent or greater silt content. Implementation of this mitigation measure would reduce PM10 and PM2.5 emissions 30 to 74 percent (SCAQMD, 1993); and (3) suspend all excavating and grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour. The emission reductions associated with this mitigation measure cannot be quantified (SCAQMD, 1993).

Other Mitigation Measures:

During the course of construction, process units with combustion sources will be shutdown to accomplish the project modifications. Therefore, varying emission reductions will occur. Emission reductions will vary depending on the number of units that are shutdown concurrently. Therefore, while the reductions are quantifiable, the emission reductions do not directly offset peak construction emissions and are not being accumulated as mitigation emissions reductions. Table 16 shows the ranges of emission reductions from not operating refinery equipment that are expected to occur during the construction period. Unit shutdowns will vary during the construction period, with a wide range of emission reductions.

TABLE 16

EMISSION REDUCTIONS FROM UNIT SHUTDOWNS DURING CONSTRUCTION (lbs/day)

Pollutant	Range of Emissions Reduction
CO	18 – 2,302
NOx	32 – 1,658
SOx	2 – 848
VOC	4 – 1,858
PM10	4 - 258

Other construction mitigation measures were considered but were rejected because they would not further mitigate the potential significant impacts. These mitigation measures include: (1) provide temporary traffic control during all phases of construction activities (traffic safety hazards have not been identified); (2) implement a shuttle service to and from retail services during lunch hours (most workers eat lunch on-site and lunch trucks will visit the construction site); (3) use methanol, natural gas, propane or butane powered construction equipment (equipment is not CARB-certified or commercially available); and (4) pave unpaved roads (most Refinery roads are already paved).

The mitigation measures for GHG emissions that were required in the May 2008 Final EIR are detailed below.

GHG 1 To further offset GHG emissions from the PRO Project with the new Cogen Train D at the Refinery, Chevron shall offset the GHG emissions resulting from the proposed PRO Project (shown in Table 15) through the purchase of CO_2 emission reduction credits. Chevron will make a contribution to the SCAQMD of $1,500,000 to produce verifiable and quantifiable permanent GHG emission reductions, for example, which could include energy efficiency projects such as cogeneration facilities, solar collectors, wind turbines, biogas generators, geothermal energy generation, hydroelectric energy generation, biosolids energy production, transportation efficiency or other GHG emission reduction projects and, thus, offset the net increase in the PRO Project GHG emissions (shown in Table 15). Considering that the current market value for GHG emission credits is about $8.00 per metric ton of GHG emissions, this amount is expected to more than cover the funding necessary to reduce Chevron's GHG emissions from the PRO Project to zero.

The SCAQMD shall evaluate the GHG emission reduction projects and the credit market and, by June 30, 2010 (i.e., when the PRO Project was anticipated to become fully operational), will make a determination as to whether sufficient funds have been paid by Chevron to fully offset the GHG emissions for the PRO Project (see Table 15). Chevron may be required to fund any shortfall in the cost for emission credits to fully offset the GHG emissions generated by the PRO Project over the $1,500,000 initial payment, up to a maximum of 20 percent over the original payment or $1.8 million, which represents approximately a 100 percent premium over current market value. In addition, GHG mitigation projects completed by Chevron by December 31, 2010, not otherwise required by local, state, or federal regulations, can be used to offset GHG emission reduction shortfalls, if necessary, and the financial contribution to fund such offsets would be adjusted accordingly.

These mitigation fees, which are enforced as a mitigation measure in the air quality permit conditions, were paid to the SCAQMD no later than December 31, 2008. These fees shall be used to fund projects preferentially in the district, as certified by the SCAQMD, to produce verifiable and quantifiable GHG reductions.

Through implementation of these mitigation measures, the cumulative impacts of GHG emissions associated with the May 2008 Final EIR were considered to be less than significant. The incremental change in GHG emissions of the currently proposed modifications are not considered significant. In addition, the overall GHG emissions of the May 2008 Final EIR after mitigation combined with the currently proposed modifications are expected to remain less than significant because the incremental GHG emissions increase is less than the significance threshold of 10,000 metric tons per year.(see Table 15).

6.2.2 Energy

The NOP/IS for the PRO Project determined that the increased natural gas demand associated with the PRO Project would not be significant. No comment letters were received disputing this conclusion. However, the NOP/IS determined that the PRO Project impacts on electricity use was potentially significant and the energy resource impacts with respect to electricity were evaluated in the May 2008 Final EIR.

The impacts on energy resources would be considered significant if the following occurs:

- The project requires new off-site energy supply facilities and distribution infrastructure or capacity enhancing alterations to existing facilities.

May 2008 Final EIR

The May 2008 Final EIR estimated the energy demand for the PRO Project new equipment including the new FCCU main air blower and new pumps, new pumps in the ISOMAX Unit, new compressors in the VRDS and hydrogen compressions facilities, and the new equipment associated with the sulfur processing facilities would be 29.9 megawatts (MW). The PRO Project also included expansion of the cogeneration facilities at the refinery by the addition of a 49.9 MW cogeneration unit (Cogen Train D). The energy impacts from the PRO Project were considered less than significant.

Currently Proposed Modifications

The currently proposed modifications including the relocation and resizing of Tanks 303 and 304 and the addition of the scrubber to the sulfur processing facilities are expected to require approximately 0.052 MW of electricity. The incremental increase in electricity is less than 0.2 percent of the 29.9 MW PRO Project electrical demand. The incremental increase of 0.052 MW is within the daily operating electrical fluctuations that occur at the Refinery. Additionally, the inclusion of the 49.9 MW Cogen D will be capable of supplying the incremental increase of the currently proposed modifications. No new off-site energy supply facilities and distribution infrastructure are required to supply the incremental increase in electricity. The combined May 2008 Final EIR electrical demand with the currently proposed modifications is considered less than significant. Therefore, the currently proposed modification emissions will not result in a significant increase in electrical demand or make a significant impact substantially worse.

6.2.3 Hazards and Hazardous Materials

The NOP/IS for the PRO Project determined that the project at the Refinery has the potential to generate significant adverse hazards and hazardous materials impacts. The hazards and hazardous material impacts from the PRO Project are evaluated in this section.

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 policies and procedures concerning the design, construction, security, leak detection, spill containment or fire protection.
- Greater exposure to hazardous chemicals in concentrations equal to or greater than the Emergency Response Planning Guideline (ERPG) 2 levels.
- Greater exposure to radiant heat exposures in excess of 1,600 British Thermal Units (Btu)/(hr-ft^2) (the level that creates second degree burns on unprotected skin).
- Greater overpressure exposure that exceeds one pound per square inch (gauge) (psig) (the level that would result in partial demolition of houses).
- Flash fire hazard zones that exceed the lower flammable limit (LFL) (the level that would result in a flash fire in the event a flammable vapor cloud was ignited).

These are the same hazards significance criteria used in the May 2008 Final EIR.

May 2008 Final EIR

The May 2008 Final EIR included an evaluation of potential hazards and risk of upset scenarios, and the potential impacts on the community and environment if an upset were to occur. No significant hazard impacts were identified during construction. During operation, several upset scenarios were evaluated based on "worst-case" conditions, and feasible mitigation measures were included. The May 2008 Final EIR concluded that the storage tanks (Tanks 302, 303, and 447) have the ability to create a thermal hazard that could extend 340 feet from the source. The sulfur processing facilities were determined to have the ability to create a hydrogen sulfide concentration in excess of 30 parts per million for a maximum distance of 4,390 feet from the facilities. The hazard impacts are analyzed by assessing the distances at which the hazardous chemical concentrations, thermal radiant heat exposures, overpressure exposures, or flash fire hazard zones would extend and if they would create greater impacts than are already present. The maximum hazard distance of the tanks and sulfur processing facilities were equal to or less than the already existing similar hazards at the Refinery. Therefore, the May 2008 Final EIR concluded that no new or modified units had the ability to create a hazard that could extend further off-site and the potential hazards impacts were considered less than significant.
The May 2008 Final EIR concluded that the PRO Project would comply with all applicable design codes and regulations, conform to the National Fire Protection Association standards, and conform to policies and procedures concerning leak detection, containment, and fire protection. Therefore, no significant adverse compliance impacts were expected.

The May 2008 Final EIR also concluded that because of the containment system at the Refinery, spills are not expected to migrate from the facility and potential adverse water quality hazard impacts were considered to be less than significant.

The May 2008 Final EIR concluded that transport of hazardous materials to the Refinery would be reduced by two trucks per day and no hazardous materials not already transported to the Refinery would be needed. Therefore, no increase in transportation hazards was expected from the PRO Project.

Overall, no significant hazard or hazardous materials impacts were expected from the PRO Project.

Currently Proposed Modifications

The currently proposed modifications include the relocation and resizing of Tanks 303 and 304 (formerly Tank 447) and the addition of a scrubber to the TGU. Tanks 303 and 304, while larger in diameter are also taller than Tanks 303 and 447 as analyzed in the May 2008 Final EIR. Tanks 303 and 304 would have maximum hazard distances of 325 and 340 feet, respectively. The maximum hazard distances for Tanks 303 and 304 would remain on-site and not produce a significant hazard to the public. The currently proposed modifications for Tanks 303 and 304 do not change the maximum hazard distance of 340 feet analyzed in the May 2008 Final EIR because the containment size has the same area as analyzed previously.

The addition of the scrubber to the sulfur processing facilities does not introduce new hazards not already present at the Refinery. The scrubber uses caustic soda which does not generate vapor clouds. The incinerator gas stream processed in the scrubber is not expected to have any appreciable concentration of hydrogen sulfide. Therefore, no change in the maximum hazard impact from the sulfur processing facilities (i.e., a release of hydrogen sulfide) evaluated in the May 2008 Final EIR is expected and the significance determination remains the same of less than significant.

Therefore, no new potential adverse significant hazards from the currently proposed modifications are expected and the significance determination remains the same as that presented in the May 2008 Final EIR of less than significant.

The currently proposed modifications will comply with all applicable design codes and regulations, conform to the National Fire Protection Association standards, and conform to policies and procedures concerning leak detection, containment, and fire protection. Therefore, no significant adverse compliance impacts are expected.

The currently proposed modifications do not alter the containment system already in place at the Refinery and spills are not expected to migrate from the facility. Per the Spill Prevention Control and Countermeasure requirements, containment facilities will be installed as part of Tanks 303 and 304. Therefore, potential adverse water quality hazard impacts are considered to be less than significant.

The currently proposed modifications require three additional trucks per year of caustic soda to be transported to the Refinery and no hazardous materials not already transported to the Refinery would be needed. The maximum increase from the currently proposed modifications is one truck per day, which is not a significant change to truck traffic to the Refinery. The May 2008 Final EIR

calculated a two truck per day reduction. Therefore, no increase in transportation hazards was expected from the PRO Project or is expected from the currently proposed modifications.

The currently proposed modifications are not expected to create any new hazard impacts or substantially change any conclusions made in the May 2008 Final EIR. Therefore, no significant hazard or hazardous materials impacts is expected from the currently proposed modifications. The currently proposed modifications will not change the May 2008 Final EIR significance determination, which will remain less than significant.

6.2.4 Hydrology and Water Quality

The NOP/IS for the PRO Project determined that the hydrology and water quality impacts of the PRO Project at the Refinery were potentially significant for wastewater treatment facilities and water supply facilities. The potential adverse impacts of the currently proposed modifications on wastewater treatment facilities and water supply facilities will be evaluated in this section.

The proposed project impacts on hydrology and water quality would be considered significant if the following occurs:

Water Demand:

- The project would exceed the capacity of the existing potable water supply to meet the increased demands of the project; or
- The project increases demand for potable water by more than five million gallons per day.

Water Quality:

- The project will cause degradation or depletion of ground water substantially affecting current or future uses;
- The project will cause the degradation of surface water substantially affecting current or future uses;
- The project would result in a violation of NPDES permit requirements; or
- The project would exceed the capacities of existing or proposed wastewater treatment facilities and the sanitary sewer system.

May 2008 Final EIR

The May 2008 Final EIR concluded that the PRO Project was expected to increase water use by about 748,800 gallons per day (gpd). The impact to water supply was considered not significant because the Refinery would use reclaimed water.

The May 2008 Final EIR also concluded that the PRO Project was expected to generate approximately 223,200 gpd of wastewater and the onsite treatment facilities were permitted to accept the increased wastewater discharge. The potential impact to wastewater was considered less than significant.

Currently Proposed Modifications

The currently proposed modifications will incrementally increase reclaimed wastewater usage by approximately 18,000 gpd associated with the installation of the scrubber on the TGU. The use of reclaimed wastewater would not have an impact on water supply, because there is no increase in demand for potable water. Reclaimed wastewater for the modification is available from the West Basin Municipal Water District. Therefore, no significant impact to water resources is expected from the currently proposed modifications. The currently proposed modifications will not change the May 2008 Final EIR significance determination, which will remain less than significant.

The currently proposed modifications are not expected to increase wastewater discharge. The spent caustic solution from the scrubber will be used in the other sulfur processing plants already in use at the Refinery. The existing sulfur processing plants use a different technology and can accept the spent caustic from the proposed sulfur processing facility as makeup solution to the SOx scrubber. Therefore, no significant impact associated with wastewater discharge is expected from the currently proposed modifications. The currently proposed modifications will not change the May 2008 Final EIR significance determination, which will remain less than significant.

6.2.5 Transportation and Traffic

The NOP/IS for the PRO Project determined that the project at the Refinery had the potential to generate significant adverse transportation and traffic impacts. The traffic impacts associated with the construction and operational phases of the PRO Project were potentially significant and the impacts of the currently proposed modifications on the transportation system are evaluated in this section.

The proposed project will occur at the Chevron Refinery. The project impacts on transportation and traffic would be considered significant if the following occurs:

- Peak period levels on major arterials within the vicinity of the proposed project sites are disrupted to a point where intersections with a LOS of C or worse are reduced to the next lower LOS, as a result of the projects for more than one month.

- An intersection's volume to capacity ratio increases by 0.02 (two percent) or more when the LOS is already D, E or F for more than one month.

- 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.
- Substantial alterations to current circulation or movement patterns of people and goods are induced.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.

May 2008 Final EIR

The traffic analysis in the May 2008 Final EIR determined that during the construction phase of the PRO Project one intersection (Aviation Boulevard and El Segundo Boulevard) during the Winter and Summer Scenarios could potentially be significantly impacted. Peak construction activities would require about 1,000 construction workers on a peak day. In addition, traffic impacts were determined to be potentially significant for the southbound lanes of the I-405 between Rosecrans Avenue and El Segundo Boulevard and the northbound lanes of the I-405 between El Segundo Boulevard and I-105 interchange. Therefore, the construction activities associated with the PRO Project were determined to result in significant adverse traffic impacts during the construction phase.

The PRO Project was expected to require an additional 12 workers during the operational phase and reduce truck traffic to the Refinery by about two trucks per day. The operational impacts on traffic were expected to be less than significant.

Currently Proposed Modifications

Under the currently proposed modifications, the construction phase of the PRO Project will be extended for up to about two and one-half years. So rather than completing construction activities within a two year period, construction activities will occur over about a four year period (see Figure 4). Under the currently proposed modifications, the number of peak construction workers is expected to be reduced from about 1,000 to about 450 workers on a peak day. Therefore, traffic associated with peak construction periods and the related traffic impacts will be reduced by about 50 percent from the levels evaluated in the May 2008 Final EIR. Therefore, the currently proposed modifications will reduce construction traffic impacts and not` make a significant impact substantially worse, as is required for recirculation of the CEQA document.

The currently proposed modifications are not expected to require any additional permanent workers, so no increase in worker traffic is expected as part of the project operational activities. The currently proposed modifications are expected to increase truck traffic by three trucks per year associated with the transport of caustic soda. The maximum increased associated with the currently proposed modifications is one truck per day, which is not a significant change to truck traffic from the Refinery. Further, the PRO Project evaluated in the May 2008 Final EIR concluded that there would be a reduction of about two trucks per day. Under the currently proposed modifications, there would be a reduction of one truck per day (instead of two trucks per day) and no significant adverse impacts on traffic would be expected.

7.0 TOPIC AREAS FOUND NOT TO BE POTENTIALLY SIGNIFICANT

This section discusses the remaining environmental topic areas found not to be potentially significant in the May 2008 Final EIR and the two environmental topics that are not impacted by the currently proposed modifications. The effect of the currently proposed modifications on the conclusions of each environmental topic is discussed in the following sections.

7.1 Aesthetics

May 2008 Final EIR: As detailed in Appendix A (the NOP/IS) of the May 2008 Final EIR, the PRO Project was within existing industrial facilities (i.e., the Refinery, and the West Basin Municipal Water District (WBMWD) located east and north of the Refinery). The PRO Project structures were expected to be visually similar to or not discernable from existing structures and would not change any scenic vistas. No scenic resources are present within the Refinery. Therefore, the PRO Project would not have substantial adverse effects on scenic vistas or scenic resources.

No significant light or glare was anticipated from the PRO Project. Therefore, the PRO Project was not expected to have significant aesthetics impacts.

Currently Proposed Modifications: The currently proposed modifications include relocation of two tanks to an existing tank farm within the Refinery where tanks already exist and the addition of a scrubber to the proposed sulfur processing facilities. The currently proposed modifications include tanks that are 64 feet tall and a scrubber that will have a stack 100 feet tall. The tanks will be located in the existing tank farm on the west side of the Refinery adjacent to existing tanks that are of similar height. The scrubber is centrally located in the Refinery where surrounding structures are up to 240 feet tall. Given the location and similar nature of the currently proposed modifications, the modifications are not expected to be discernable from the existing Refinery structures and will not impact any scenic vistas. Therefore, the currently proposed modifications are not considered to have a substantial adverse effect on scenic vistas or scenic resources.

Since the proposed modifications will not alter the conclusions from the NOP/IS, the proposed modifications will not cause significant adverse impacts to aesthetics.

7.2 Agricultural Resources

May 2008 Final EIR: As detailed in Appendix A of the May 2008 Final EIR, there are no agricultural resources, i.e., food crops grown for commercial purposes, located in or near the vicinity of the Refinery. The PRO Project is located within the boundaries of the existing Refinery. Therefore, no farmland would be converted to non-agricultural use and the PRO Project would not conflict with agricultural land uses, or Williamson Act contracts. Therefore, no significant impacts on agricultural resources were expected from the PRO Project.

Currently Proposed Modifications: The currently proposed modifications will not involve construction outside of the existing boundaries of the Refinery and no agricultural resources are located within the Refinery. 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 currently proposed modifications will have no significant adverse impacts on agricultural resources.

Since the proposed modifications will not alter the conclusions from the NOP/IS, the proposed modifications will not cause significant adverse impacts to agricultural resources.

7.3 Biological Resources

May 2008 Final EIR: As detailed in Appendix A of the May 2008 Final EIR, the PRO Project is located within the existing boundaries of the Refinery, which is zoned and has been used for heavy industrial purposes since 1911, and has already been graded and developed. There are three special-status species that have been reported in the immediate vicinity of the Refinery: two animal species (the El Segundo Blue Butterfly and the Pacific pocket mouse) and one plant species (the beach spectaclepod).

The El Segundo Blue Butterfly (*Euphilotes battoides allyni*) is a small (wing span of less than one inch), brightly colored butterfly that historically has been found in the El Segundo sand dunes of Los Angeles County. Because of extensive habitat loss, degradation, and fragmentation due to urban development, the butterfly's habitat has been reduced to two areas: sand dunes near the Los Angeles International Airport (LAX), which contain the largest population of the butterfly; and two acres at the butterfly sanctuary that was created within the property of the Chevron El Segundo Refinery in the northwest corner of the property. The El Segundo Blue Butterfly was listed as an endangered species by the federal government in 1976. The butterfly was discovered on an undeveloped portion of the Refinery property in 1975, and, shortly thereafter, the area where the butterfly was found in the northwest portion of the Refinery property was voluntarily fenced by Chevron to protect the butterfly's habitat and the coastal buckwheat plant (*Eriogonum parvifolium*), upon which the butterfly feeds during all stages of its life cycle.

Because the buckwheat plant at the Refinery's butterfly sanctuary has been threatened by various invasive species and annual grasses (e.g., tumbleweeds, rye grass, and ice plant), efforts have been made on an ongoing basis since the early 1980s to inhibit weed growth and stimulate buckwheat growth. Approximately 5,000 buckwheat plants have been transplanted at the Refinery since 1983 (Chevron, 2008a). In the mid 1980s, there were only about 400 of these butterflies at the Chevron butterfly sanctuary; at present there are approximately 10,000 butterflies (Chevron, 2009b). The butterfly population on LAX property also has increased, from a population of approximately 500 in 1985 to between 40,000 and 50,000 in 2001 (City of Los Angeles, 2001).

The Pacific pocket mouse (*Perognathus longimembris pacificus*) is a small brownish rodent that lives in fine-grained sandy areas (coastal strand, coastal dunes, coastal sage scrub, and river alluvium) in the immediate vicinity of the Pacific Ocean in southwestern California. Historically, the mouse's range extended from Los Angeles County south to the Mexican border, including portions of the Chevron Refinery property. Only a few known populations remain, and they are in Orange County (Dana Point) and San Diego County (Camp Pendleton). The Pacific pocket mouse was last reported in the area of the Chevron Refinery in 1938, and, thus, is not expected to exist at

the Refinery at present because habitat that could be used by the Pacific pocket mouse is no longer present at the Refinery. (CBD, 2008)

The beach spectaclepod (*Dithyrea maritime*) is a small low-growing perennial herb. The species is native to California and occurs in foredunes, active sand, and dune scrub from San Luis Obispo south to Baja California. The beach spectaclepod is considered extremely rare by the California Native Plant Society; it is listed as threatened by the State of California and as a Species of Concern by the federal government. The only reported occurrence for this plant at the Refinery site was in 1884, and the species is not expected to exist at the Refinery at present because the Refinery site has been continuously cleared of all vegetation since 1911 for safety reasons (SCAQMD, 2001).

The PRO Project activities are located within an existing Refinery, whose active areas have been highly disturbed and contain no significant biological resources. No impacts were expected to special status species. The Pacific pocket mouse and beach spectaclepod have not been sighted at the Refinery in decades (since 1938 for the mouse and since the late 19th century for the spectaclepod).

The population of the federally endangered El Segundo Blue Butterfly has increased substantially over the past 20 years, due to the existence of and habitat improvements at the Refinery butterfly sanctuary. These increases in the El Segundo Blue Butterfly population have occurred while Refinery operations have continued nearby. The distance between the project construction site and the Blue Butterfly Sanctuary was a minimum of approximately 1,900 feet, with other existing Refinery equipment located in closer proximity. The PRO Project would not be expected to have significant adverse impacts on the El Segundo Blue Butterfly, since it does not occur in the habitat area.

The NOP/IS concluded that the PRO Project was not expected to adversely affect special-status animal and plant species or other biological resources (riparian habitats, wetlands, or migratory corridors); or conflict with ordnances or conservation plans.

Currently Proposed Modifications: The currently proposed modifications will be located within the existing boundaries of the Refinery. The areas of the Refinery where the modifications are to occur are developed. Vegetation onsite has been eliminated for fire prevention purposes.

Based on the industrial nature of the existing sites within the Refinery, the currently proposed modifications are not expected to have a significant adverse effect, either directly or through habitat modifications, on any species identified as a special status species. The currently proposed modifications will not have an adverse effect, either directly or indirectly or through habitat modifications, on any sensitive biological species, riparian habitat, or other sensitive natural habitat, as no such habitat exists within the operational area of the Refinery. The currently proposed modifications do not result in the addition or the elimination of water ponds that could be used by animals or migratory fowl. Further, the currently proposed modifications will not adversely affect federally protected wetlands as defined in §404 of the Clean Water Act.

As discussed in Section 6.2.4 herein, no significant change to wastewater or stormwater discharge is expected from the proposed modifications. There are no significant plant or animal resources, locally designated species, natural communities, wetland habitats, or animal migration corridors that would be adversely affected by the currently proposed modifications.

Since the currently proposed modifications will not alter the conclusions from the May 2008 Final EIR, the proposed project will not cause significant adverse impacts to biological resources.

7.4 Cultural Resources

May 2008 Final EIR: As detailed in Appendix A of the May 2008 Final EIR, there is only one historical site, the details of which are confidential to protect the resource, within a 0.5-mile radius of the Refinery and it is outside the boundary of the Refinery. It was concluded that the PRO Project would not cause an adverse change in the significance of a resource listed in the California Register of Historical Resources or in a local register of historical resources. Additionally, the PRO Project did not affect potentially eligible resources for listing in the California Register of Historical Resources.

Prior archaeological investigations had been performed within a 0.5-mile radius of the Refinery, which found no prehistoric sites or Native American sacred lands. No paleontological resources or unique geological features are known to exist at the facility. The Refinery has been in operation over 90 years and has had extensive ground disturbance associated with construction and operation of facilities and equipment. While the likelihood of encountering previously unknown archaeological or paleontological resources has been reduced, it was determined that the possibility existed. Project construction incorporated standard protective measures during earth-disturbing activities to minimize risk of adverse impacts including:

- If cultural resources are exposed, a professional archaeologist and a Gabrielino/Tongva representative will be retained to monitor the subsurface work;

- The archaeological monitor will have the authority to temporarily halt or redirect earth disturbance work in the vicinity of the exposed cultural resources, so the find can be evaluated and mitigated as appropriate; and

- As required by State law, if human remains are unearthed, no further disturbance will occur until the County Coroner has made the necessary findings concerning the origin and disposition of these remains. The Native American Heritage Commission will be notified if the remains are determined to be of Native American descent.

Therefore, the NOP/IS concluded that the PRO Project was not expected to adversely affect historic or prehistoric cultural resources or paleontological resources.

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

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

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

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

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

Generally, resources (buildings, structures, equipment) that are less than 50 years old are excluded from listing in the National Register of Historic Places unless they can be shown to be exceptionally important. The currently proposed modifications do not involve the removal of any existing structures and are located entirely within the confines of the Refinery, which has been in operation since 1911. Therefore, no significant impacts to historic cultural resources are expected as a result of implementing the currently proposed modifications.

The areas within the Refinery where the currently proposed modifications will be constructed have been previously graded and developed.

There are no known prehistoric or historic structures or objects within the Refinery. No known human remains or burial sites have been identified at the Refinery during previous construction activities. No significant adverse impacts to cultural resources are expected. If cultural resources were to be encountered unexpectedly during ground disturbance associated with construction of the currently proposed modifications, the standard protective measures included in the May 2008 Final EIR will be employed (i.e., contacting professional archaeologist, temporarily halting disturbance work in vicinity, etc.). Further, the Refinery does not contain known paleontological resources and thus the proposed project is not expected to impact any sites of paleontological value. No significant adverse impacts to cultural resources are expected.

Since the currently proposed modifications will not alter the conclusions from the May 2008 Final EIR, the PRO Project will not cause significant adverse impacts to cultural resources.

7.5 Geology and Soils

May 2008 Final EIR As detailed in Appendix A of the May 2008 Final EIR, the PRO Project would be constructed in a an area of known seismic activity. Although within a seismically active area, according to the Alquist-Priolo Earthquake Fault Zoning Maps and Fault Map of California (1994), the Refinery is not located on a fault trace that would define the site as a special seismic study zone under the Alquist-Priolo Act (CGS, 2007). Thus, the risk of earthquake-induced ground rupture was considered less than significant.

No significant adverse impacts from seismic hazards were expected since the PRO Project would be required to comply with the Uniform Building codes. No significant adverse impacts due to

landsides or mudflows were expected since the Refinery is flat and not subject to landslide or mudflow.

The Refinery site has not been identified as an area where liquefaction is considered a significant potential risk (CDMG, 1999). The site was not considered to be an area with the potential for permanent ground displacement due to earthquake-induced landslides or due to heavy precipitation events (CDMG, 1999).

Due to limited grading and excavation, the PRO Project was not expected to cause unstable earth conditions, loss of top soil, changes in topography, or changes in geologic substructures. The PRO Project was not expected to generate significant adverse impacts on soils from alternative wastewater disposal systems since no septic tanks were included in the proposed project.

The NOP/IS concluded that no significant impacts on geology and soils were expected from the PRO Project.

Currently Proposed Modifications: The currently proposed modifications would not result in any changes to geology and soils impacts that were evaluated in the May 2008 Final EIR. The currently proposed modifications are still located within the existing boundaries of the Refinery. The number of tanks proposed to be constructed at the Refinery is the same as the project evaluated in the May 2008 Final EIR. The addition of the scrubber to the TGU does not change the amount of grading as it will be located adjacent to the proposed TGU. Therefore, since the proposed modifications will not alter the conclusions from the May 2008 Final EIR, the currently proposed modifications will not cause significant adverse impacts to geology and soils.

Since the currently proposed modifications will not alter the conclusions from the May 2008 Final EIR, no significant adverse impacts to geology and soils are expected.

7.6 Land Use and Planning

May 2008 Final EIR: As detailed in Appendix A of the May 2008 Final EIR, the PRO Project included improvements and modifications within an existing industrial facility that is zoned for heavy manufacturing. No established communities are located on the Refinery property, and consequently, the PRO Project would not physically divide an established community.

The PRO Project is located in an industrial property zoned for such activity. The overall activities and products produced at the Refinery remain the same. The PRO Project did not conflict with the City of El Segundo General Plan land use designation for the Refinery nor did it conflict with the Downtown Specific Plan for the area north of the Refinery site. The PRO Project would not require zoning or land use changes.

Therefore, the PRO Project was not expected to have significant adverse land use impacts.

Currently Proposed Modifications: The currently proposed modifications will occur within the boundary of the Refinery and would not divide an established community. The currently proposed modifications are consistent with the activities currently ongoing at the Refinery and would not

require a zoning or land use change. As such, the currently proposed modifications are not expected to have significant adverse impacts on land use.

Since the currently proposed modifications will not alter the conclusions from the May 2008 Final EIR, no significant adverse impacts to land use are expected.

7.7 Mineral Resources

May 2008 Final EIR: As detailed in Appendix A of the May 2008 Final EIR, the PRO Project was constructed on land within an existing industrial site. There are no known mineral resources on the Refinery site. The extraction of the crude oil processed takes place off-site and any potential loss of mineral resources from extraction would continue regardless of the PRO Project. Similarly, there are no known mineral resources on the project site and the project would not 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. Therefore, the PRO Project was not expected to cause significant adverse impacts to mineral resources.

Currently Proposed Modifications: Implementation of the currently proposed modifications will occur entirely within the boundaries of the Refinery. There are no known mineral resources currently on the project site. Therefore, the currently proposed modifications will not be located on a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Furthermore, because there are no known mineral resources at or near the Refinery, the currently proposed modifications will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. No significant adverse impacts from the currently proposed modifications on mineral resources are expected.

Since the currently proposed modifications will not alter the conclusions from the May 2008 Final EIR, the currently proposed modifications will not cause significant adverse impacts to mineral resources.

7.8 Noise

May 2008 Final EIR: The May 2008 Final EIR evaluated PRO Project construction and operational impacts from noise.

Construction Impacts: The noise levels from construction equipment at the Refinery were expected to be within the allowable noise levels established by the City of El Segundo noise ordinance, i.e., the PRO Project was not expected to increase the noise levels in commercial/industrial areas by eight dBA or the noise levels in residential areas by five dBA. The noise levels during the construction phase were generally expected to be similar to the current noise levels and no significant (audible) increase in noise levels were expected. No significant impacts related to project construction were expected.

Workers exposed to noise sources in excess of 90 dBA for an eight-hour period were required to wear hearing protection devices. Since the maximum noise levels during construction activities

were expected to be 85 decibels or less, no significant impact to workers during construction activities was expected.

Operational Impacts: Additional noise sources were added to the existing Refinery as part of the PRO Project. A three-dimensional noise model of the PRO Project was performed to evaluate the potential noise impacts. Based on the noise model, noise generated by the PRO Project equipment would increase the overall noise levels at the Refinery by a maximum of about 1.3 dBA (when compared to baseline conditions), which is below the SCAQMD operational significance noise threshold of three decibels. Therefore, no significant noise impacts related to the operation of the PRO Project were expected. However, as part of ongoing community relations, Chevron applied noise attenuation (e.g., noise barriers and mufflers) for some newly installed equipment to minimize potential increase in noise as part to the PRO Project.

Currently Proposed Modifications: Construction Impacts: The currently proposed modifications will have less construction equipment operating concurrently, since the construction schedule is extended from 24 months to 48 months. As such, the construction activity noise level is expected to be equal to or less than that evaluated in the May 2008 Final EIR.

Operational Impacts: The operation of the storage tanks and the sulfur processing facilities were included in the evaluation in the May 2008 Final EIR. The relocation of the storage tanks is not expected to change the May 2008 Final EIR because storage tanks are not sources of noise to the surrounding community. The addition of the scrubber to the TGU is not expected to change the noise profile of the TGU evaluated in the May 2008 Final EIR because the circulation pump for the scrubber is much smaller than the pumps associated with new sulfur processing facilities, which were previously evaluated. Therefore, the operational noise level is expected to remain the same as evaluated in the May 2008 Final EIR.

Since the currently proposed modifications will not alter the conclusions from the May 2008 Final EIR, the currently proposed modifications will not cause significant adverse impacts to noise.

7.9 Population and Housing

May 2008 Final EIR: As detailed in Appendix A of the May 2008 Final EIR, the PRO Project was expected to be constructed over a period of approximately 24 months at an existing Refinery located in a highly urbanized and populous area of southern California. The peak construction workforce was expected to be about 1,000 temporary workers from the existing local labor pool. Once constructed, 12 additional staff members were expected for long-term operation of the PRO Project. No housing was expected to be required or displaced and no housing growth was expected to occur as a result of the PRO Project. Therefore, no significant adverse population or housing impacts were expected to result from the PRO Project.

Currently Proposed Modifications: The currently proposed modifications include revising the PRO Project schedule from 24 to 48 months. As a result, the peak construction activities at the Refinery are expected to be less as fewer of the project components will overlap. A maximum of about 450 construction workers are expected to be required under the revised construction schedule versus about 1,000 worker evaluated in the May 2008 Final EIR. The construction activities will

not involve the relocation of individuals, impact housing or commercial facilities, or change the distribution of the population because the currently proposed modifications will occur completely within the boundaries of the existing Refinery. The construction work force, which is temporary, is expected to come from the existing labor pool in the southern California area. Additionally, once the currently proposed modifications are complete, operational activities are not expected to require new permanent employees at the Refinery above the levels estimated in the May 2008 Final EIR (staff of 12 workers at the Refinery). No displacement of existing housing or people will occur because the currently proposed modifications will occur within the confines of the existing Refinery. Therefore, implementation of the currently proposed modifications is not expected to have a significant adverse impact on population, population distribution, or housing.

Since the currently proposed modifications will not alter the conclusions from the May 2008 Final EIR, the currently proposed modifications will not cause significant adverse impacts to population and housing.

7.10 Public Services

May 2008 Final EIR: As detailed in Appendix A of the May 2008 Final EIR, the PRO Project would not substantially change the load on the Refinery's fire fighting and emergency response resources and would not be expected to create the need for additional fire protection services or resources by Chevron or the City of El Segundo. The PRO Project involved the installation of new vessels and storage facilities at the Refinery and new fire hazards would be added to the Refinery. However, the Refinery will continue to operate the existing on-site fire department with continued close coordination with local fire departments and emergency services. No significant adverse impacts on fire protection were expected.

The Refinery is an existing facility with 24-hour security force for people and property currently in place. The Refinery is fenced and access provided by security-controlled gates. Because the PRO Project would not significantly change Refinery staffing or substantially expand the existing facilities within the Refinery, there was expected to be no increased need for new or expanded police protection.

The local workforce was determined to be more than adequate to fill the short-term construction positions required for the PRO Project. Therefore, there would be no increase in the local population and, thus, no impacts were expected to schools, parks, or other public facilities.

No significant adverse impacts to public services were expected to occur as a result of the PRO Project.

Currently Proposed Modifications: To respond to emergency situations, the currently proposed modifications will not alter the existing on-site emergency response capabilities. The currently proposed modifications will not increase the requirements for additional or altered fire protection. The currently proposed modifications will relocate two storage tanks to an area within the Refinery that is currently used for tank storage. As such, the fire protection will be consistent with that already in place to respond to tank incidents. The scrubber will be located in an area of the

Refinery where fire fighting response capabilities already exist. Therefore, no additional fire response capabilities are expected as a result of the currently proposed modifications.

The currently proposed modifications will occur within the boundaries of the Refinery, which is already equipped with 24-hour security, fencing, and controlled access. Thus, no additional or altered police protection will be required for the currently proposed modifications.

The operation of the currently proposed modifications is not expected to increase the number of long-term staff at the Refinery. Therefore, no impacts are expected to schools, parks, or other public facilities, such as government services, as a result of implementing the proposed modifications.

No significant adverse impacts from the currently proposed modifications on public services are expected. Since the currently proposed modifications will not alter the conclusions from the May 2008 Final EIR, no significant adverse impacts to public services are expected.

7.11 Solid and Hazardous Waste

May 2008 Final EIR: The May 2008 Final EIR evaluated construction impacts from solid waste, construction impacts from hazardous waste, and operational impacts of the PRO Project. Significance was based on the available capacity of the respective waste disposal facilities.

Construction Impacts from Solid Waste: The May 2008 Final EIR concluded that there would be an increase in the generation of non-hazardous wastes as a result of the demolition of existing structures, grading to provide foundations for new structures, and installing new structures. Based on the amounts of non-hazardous waste generated during construction for previous Refinery modification projects, Chevron estimated that, during the construction of the PRO Project at the Refinery, approximately 1,075 tons of municipal (non-hazardous) solid waste would be generated over a 26-month period. This waste would include approximately 300 tons of non-asbestos insulation, 660 tons of broken concrete, and 115 tons of clean trash and debris. The landfills in Los Angeles County had the capacity to accept the waste produced during the construction phase of the proposed project on a one-time basis.

Construction activities could uncover hydrocarbon-contaminated soils, given the heavily industrialized nature of the Refinery facilities and the fact that refining activities have been conducted at the site for a number of years. If contaminated soils were encountered during the excavation phase of the project, the soils would be removed for proper decontamination and disposal in accordance with SCAQMD's Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil, and in accordance with a source-specific Clean Up and Abatement Order from the RWQCB for the Refinery. Contaminated soil could be considered either non-hazardous or hazardous waste, depending on the nature and levels of contaminants in the soil. A total of approximately 43,350 cubic yards of soil, with a weight of approximately 52,000 tons, was estimated to be excavated over a total of eighteen months as a result of construction activities for the PRO Project. Chevron estimated that a total of approximately 5,900 tons of contaminated soil may be excavated, based on preliminary soil borings. If the entire amount of contaminated soil were considered to be a non-hazardous waste, an additional 5,900 tons of non-hazardous waste

would be generated during construction for the PRO Project. As a result, the total amount of solid waste generated would be approximately 6,975 tons, which include the contaminated soil and the municipal solid waste.

Construction Impacts from Hazardous Waste: The May 2008 Final EIR concluded that construction of the PRO Project was anticipated to generate approximately 1,200 tons of hazardous waste, including approximately 730 tons of contaminated trash and debris, 400 tons of sand blasting residue, 60 tons of contaminated metal, and approximately three tons each of paints/solvents and asbestos. Chevron estimated that a maximum of approximately one ton per day of hazardous waste would be generated during the peak construction period.

Additionally, as discussed previously, Chevron estimated that a total of approximately 5,900 tons of contaminated soil may be excavated during construction of the PRO Project. If all of the contaminated soil were classified as a hazardous waste, an additional 5,900 tons of hazardous waste would be generated, and the total amount generated would be approximately 7,100 tons of hazardous waste (0.06 percent of permitted capacity). There was adequate capacity at the two Class I landfills in California approved to accept hazardous waste from the PRO Project. Together, the two hazardous waste landfills in California had 10.8 million cubic yards of permitted available capacity, which will accommodate the waste generated by the PRO Project during the construction phase. In addition, other hazardous waste facilities are located out-of-state. Therefore, the generation of 1,200 to 7,100 tons of potentially hazardous waste was not considered a significant impact.

Operational Impacts: The May 2008 Final EIR concluded that as with the current operations at the Refinery, wastes generated by the operation of the PRO Project would also be managed and/or disposed of in compliance with applicable federal, state, and local statutes and regulations. The proposed new and modified equipment associated with the PRO Project would perform the similar functions as the existing equipment. The PRO Project was expected to require increased amounts of catalyst and generate increased amounts of catalyst waste (e.g., associated with the proposed modifications to the ISOMAX Unit, Cogen Train D, and SRU/TGU). As with the current procedures at the Refinery, the additional amounts of recovered catalyst would be transported for recycling offsite, so no increase in waste disposal of catalyst is expected. Therefore, the PRO Project was not expected to result in significant impacts on solid/hazardous waste during project operations.

Currently Proposed Modifications: The construction of the currently proposed modifications is not expected to generate additional solid or hazardous waste as no demolition of existing equipment would be required, so debris will be minimal. The soil excavation necessary for foundation work is essentially the same as that discussed in the May 2008 Final EIR, since the tanks are being relocated and were included in the PRO Project originally. The scrubber will require a very small concrete pad (12-foot by 12-foot or approximately 2 tons of soil). No hazardous waste is expected to be generated from the construction of the currently proposed modifications Therefore, the currently proposed modifications are not expected to change the conclusions made in the May 2008 Final EIR and would remain less than significant.

The operation of the currently proposed modifications will generate additional waste from the maintenance of the tankage and operation of the scrubber at the TGU. The maintenance waste from the tankage is equivalent to that previously included in the analysis of the PRO Project in the May 2008 Final EIR. The spent caustic from the scrubber is expected to be reused at the existing SRUs at the Refinery. The existing SRUs are a different technology than the PRO Project proposed SRU and, as such, will be capable of using the spent caustic from the scrubber as a replacement for virgin caustic. Therefore, no off-site shipment of waste is expected from the currently proposed modifications.

Therefore, no significant impact associated with solid/hazardous waste is expected from the currently proposed modifications. The currently proposed modifications will not change the May 2008 Final EIR significance determination, which will remain less than significant.

7.12 Recreation

May 2008 Final EIR: As detailed in Appendix A of the May 2008 Final EIR and summarized in Section 7.8 – Population and Housing of this document, the PRO Project was expected to draw from the existing construction labor pool and existing housing for the operational staff. Therefore, implementation of the PRO Project was not expected to increase the demand for neighborhood or regional parks or other recreational facilities and it would not adversely affect existing recreational facilities.

Additionally, the PRO Project did not include new recreational facilities or require expansion of existing recreational facilities and, thus, would not have an adverse physical effect on the environment.

Currently Proposed Modifications: As discussed in Population and Housing (Section 7.8), the existing labor pool in southern California is sufficient to fulfill the labor requirements for the construction of the currently proposed modifications. The operation of the currently proposed modifications will not require additional workers above the levels estimated in the May 2008 Final EIR (administrative staff of 12 workers at the Refinery). Therefore, there would be no significant changes in population densities resulting from the currently proposed modifications, and thus, no increase in the use of existing neighborhood and regional parks or other recreational facilities.

The currently proposed modifications do not include recreational facilities or require the construction or expansion of existing recreational facilities. No significant adverse impacts to recreational facilities are expected. Since the currently proposed modifications will not alter the conclusions from the May 2008 Final EIR, the proposed project will not cause significant adverse impacts to recreation.

8.0 CONCLUSIONS

As shown in Sections 6.0 and 7.0, the analysis of the current proposed modifications indicated that no new significant adverse impacts would be created for any environmental areas analyzed in the May 2008 Final EIR or make substantially worse any existing significant adverse impacts. Based on the environmental analysis prepared for the current proposed modifications, the SCAQMD has

quantitatively and qualitatively demonstrated that the proposed modifications qualify for an Addendum to the previously certified May 2008 Final EIR.

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APPENDIX A

MAY 2008 FINAL EIR - CHAPTER 1 - INTRODUCTION AND EXECUTIVE SUMMARY

CHAPTER 1

INTRODUCTION AND EXECUTIVE SUMMARY

Introduction
Purpose/Legal Requirements
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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

1.1 INTRODUCTION

Chevron Products Company is proposing the Product Reliability and Optimization (PRO) Project at its existing El Segundo Refinery (Refinery). The proposed project includes modifications to the No. 2 Crude Unit, No. 2 Residuum Stripper Unit (RSU), Minalk/Merox Unit, Waste Gas Compressors, Fluidized Catalytic Cracking Unit (FCCU), Alkylation Unit, Vacuum Residuum Desulfurization Unit (VRDS), ISOMAX Unit, Cogeneration (Cogen) Facilities, and the Railcar Loading/Unloading Rack. New process units include sulfur processing facilities (i.e., Sour Water Stripper (SWS), Sulfur Recovery Unit (SRU), and Tail Gas Unit (TGU)), Vapor Recovery and Safety Flare System, Water Treatment Facilities (i.e., reverse osmosis units and nitrogen removal units), and additional storage capacity. The purpose of these modifications and additions is to increase the reliability, energy efficiency, and capacity of specific existing Refinery processing equipment; allow the processing of a wider range of crude oils; and voluntarily reduce potential atmospheric emissions from existing pressure relief devices (PRDs). The proposed project will not increase or decrease the overall refinery crude throughput capabilities.

1.2 PURPOSE/LEGAL REQUIREMENTS

In accordance with §15121(a) of the California Environmental Quality Act (CEQA) Guidelines (California Administrative Code, Title 14, Division 6, Chapter 3), the purpose of an Environmental Impact Report (EIR) is to serve as an informational document that: "will inform public agency decision-makers and the public generally of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project." The proposed project requires discretionary approval from the South Coast Air Quality Management District (SCAQMD) and, therefore, it is subject to the requirements of CEQA (Public Resources Code, §21000 et seq.).

CEQA Public Resources Code §21000 et seq., requires that the environmental impacts of proposed projects be evaluated and that feasible methods to reduce, avoid or eliminate significant adverse impacts of these projects be identified and implemented. The lead agency is the public agency that has the principal responsibility for carrying out or approving a project that may have a significant effect upon the environment (Public Resources Code §21067). The proposed project requires discretionary approval from the SCAQMD for air quality permits for modifications to existing stationary source equipment and installation of new stationary source equipment. Therefore, the SCAQMD has the primary responsibility for supervising or approving the entire project as a whole and is the most appropriate public agency to act as lead agency (CEQA Guidelines §15051(b)).

To fulfill the purpose and intent of CEQA, as the lead agency for this project the SCAQMD prepared and released for a 30-day public review and comment period, a Notice of Preparation and Initial Study (NOP/IS) to identify potentially significant environmental impacts, and providing a preliminary analysis associated with the Chevron Products Company's PRO Project (see Appendix A).

1.3 SCOPE AND CONTENT

The NOP/IS was circulated for a 30-day comment period beginning on August 10, 2007 through September 11, 2007. The NOP/IS was circulated in El Segundo and to neighboring jurisdictions, responsible agencies, other public agencies, and interested individuals in order to solicit input on the scope of the environmental analysis to be included in the EIR. Five comment letters were received on the NOP/IS during the public comment period. Responses to those comments are provided in Appendix A. The NOP/IS formed the basis for and focus of the technical analyses in this ~~Draft~~ *Final* EIR. The following environmental issues were identified in the NOP/IS as potentially significant and are further addressed in this document:

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

The NOP/IS concluded that the proposed project would not create significant adverse environmental impacts to the following areas: aesthetics, agricultural resources, biological resources, cultural resources, geology and soils, land use and planning, mineral resources, population and housing, public services, and recreation. No comments were received disputing this conclusion.

A discussion of potential cumulative impacts is also provided. The alternatives in Chapter 6 of this ~~Draft~~ *Final* EIR were prepared in accordance with §15126.6 of the CEQA Guidelines. Chapter 6 describes a range of reasonable alternatives that could feasibly attain the basic objectives of the proposed project as a means of eliminating or reducing some of the significant adverse environmental effects associated with the proposed project.

1.4 RESPONSIBLE AND OTHER AGENCIES

CEQA Guidelines §15381 defines a "responsible agency" as: "a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For purposes of CEQA, responsible agencies

include all public agencies other than the lead agency that have discretionary approval authority over the project."

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

- State Water Resources Control Board (SWRCB),
- Los Angeles Regional Water Quality Control Board (RWQCB), and
- City of El Segundo.

For convenience, all the above agencies will be referred to generally as Responsible Agencies in this EIR. For the record, none of the above agencies submitted a comment letter on the NOP/IS.

No trustee agencies as defined by CEQA Guidelines §15386 have been identified with respect to the proposed project. However, notice of the proposed project has been sent to the Office of Planning and Research pursuant to Public Resources Code §21080.4 for distribution in the event trustee or other responsible agencies are identified for the proposed project.

1.5 INTENDED USES OF THE EIR

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

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

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

1.6 AREAS OF CONTROVERSY

In accordance with CEQA Guidelines §15123(b)(2), the areas of controversy known to the lead agency, including issues raised by agencies and the public, shall be identified in

the CEQA document. After public notification and review of the NOP/IS, the SCAQMD received five comment letters. Issues raised in the comment letters are related specifically to potential impacts from the proposed project and were addressed in the EIR and responses to those comment letters are provided in Appendix A. "Controversy" is defined as a difference in opinion or a dispute. No such issues have been raised regarding the Chevron proposed project. Consequently, there are no areas of controversy known to the lead agency.

1.7 EXECUTIVE SUMMARY – CHAPTER 2: PROJECT DESCRIPTION

1.7.1 INTRODUCTION

Chevron Products Company is proposing a project at the Refinery to increase the reliability, energy efficiency, flexibility and capacity of specific Refinery equipment. The PRO Project includes modifications to existing specific process units, new process units, and also new infrastructure that supports and links these units to other processes, units or facilities throughout the Refinery. The proposed project will involve physical changes and additions to multiple process units and operations as well as operational and functional improvements primarily within the confines of the Refinery.

1.7.2 PROJECT OBJECTIVES

The objectives of the proposed project at the Refinery are to:

1. Improve the energy efficiency, performance, and reliability of process units;

2. Allow the Refinery to efficiently and reliably process a wider range of crude oils, including higher sulfur-containing crude oils;

3. Produce lower sulfur fuel products and increase production of commercial grade elemental sulfur;

4. Improve the management of blending components of California Air Resources Board (CARB) fuels; and,

5. Reduce the potential for atmospheric releases and related emissions from PRDs in the No. 2 Crude Unit, No. 2 Residuum Unit, and the Minalk/Merox Unit.

The proposed project will not increase or decrease the overall Refinery crude throughput capabilities.

1.7.3 PROJECT LOCATION

The proposed project will occur primarily within the confines of the Refinery, except for improvements at the West Basin Municipal Water District (WBMWD), which is located just east and also just north of the Refinery. Additional utility improvements will be required to Southern California Edison (SCE) facilities. The Refinery, which was constructed over 90 years ago, is located at 324 West El Segundo Boulevard in the City of El Segundo, within the southern California region.

1.7.4 LAND USE AND ZONING

The Refinery is bounded by El Segundo Boulevard to the north, Sepulveda Boulevard to the east, Rosecrans Avenue to the south, and Vista Del Mar to the west. The Chevron Refinery is located in an area of mixed land uses, with industrial, recreation, residential, and commercially zoned areas nearby. Land use to the north of the Chevron Refinery is primarily residential, with a mix of commercial and light industrial zoning mixed in. The predominant adjacent land uses west of the Refinery are nearly all heavy industrial, or open space, which includes: Dockweiler State Beach, Manhattan Beach, and the El Segundo Generating Station, although a small parcel of land at the southwest corner of the Chevron property is made up of commercial and multiple-family residential.

Directly south of the Refinery, there is a single-family residential area bordering the entire length of the Refinery separated by Rosecrans Avenue. The corridor immediately east of the Refinery is comprised of a golf course at the corner of Sepulveda Boulevard and El Segundo Boulevard, with light commercial and heavy industrial zoning for the rest of the tract. The Refinery is located in the City of El Segundo within Los Angeles County in an urbanized area that includes a substantial amount of industrial development, due to the proximity of Los Angeles International Airport (LAX).

1.7.5 EXISTING REFINERY CONFIGURATION AND OPERATION

Crude oil, used to produce gasoline and other refinery products, is delivered by ship to the marine terminal and pumped to the Refinery by existing pipelines or received via pipeline directly to the Refinery. The crude oil is then processed in the crude units where it is heated and distilled into multiple feedstock components that are later processed elsewhere in the Refinery. The heavy residual oil leaving the crude units is further distilled in the vacuum units to yield additional, lighter hydrocarbon products and vacuum residuum. The vacuum residuum is processed in the Coker Unit and the lighter hydrocarbon components from the crude units and vacuum units are fed to other Refinery units for further processing. Some of the major downstream processes are cracking in the FCCU and ISOMAX Unit, processing to recover sulfur in the hydrotreating units including the VRDS Unit, synthesizing in the Alkylation Unit, and reforming in the CCR Unit.

Auxiliary systems are also needed to support Refinery operations including hydrogen plants (to produce hydrogen needed for certain refinery reactions), boilers to produce

steam, cogeneration plants to produce electricity and steam, and wastewater treatment systems.

1.7.6. PROPOSED PROCESS UNIT MODIFICATIONS

1.7.6.1. No. 2 Crude Unit

The No. 2 Crude Unit provides the initial separation of crude oil by distillation. The various distillates are then further refined in other processing units in the Refinery. The proposed modifications to the No. 2 Crude Unit include rerouting atmospheric PRDs to the proposed new Vapor Recovery and Safety Flare System. In addition, two knock-out drums will be added to the unit to collect, for recovery purposes, any liquids released from the PRDs in the No. 2 Crude Unit, the No. 2 RSU, and the Minalk/Merox Unit. The purpose of this modification is to voluntarily reduce potential emissions from PRDs that currently vent to atmosphere in the event of a process upset.

1.7.6.2 No. 2 Residuum Stripper Unit

The No. 2 RSU processes the heavy hydrocarbons from the bottom of the No. 2 Crude Unit using vacuum distillation to produce various weight gas oils. The proposed modifications to the No. 2 RSU are limited to rerouting PRDs to the proposed new Vapor Recovery and Safety Flare System via the two new knock-out drums in the No. 2 Crude Unit. The purpose of this modification is to voluntarily reduce potential emissions from PRDs that currently vent to atmosphere in the event of a process upset.

1.7.6.3 Minalk/Merox Unit

The Minalk/Merox Unit converts sulfur compounds (mercaptans) to disulfides using a catalyst. The proposed modifications to the Minalk/Merox Unit are limited to rerouting PRDs to the proposed new Vapor Recovery and Safety Flare System via a new knock-out drum in the No. 2 Crude Unit. The purpose of this modification is to voluntarily reduce potential emissions from PRDs that currently vent to atmosphere in the event of a process upset.

1.7.6.4 Waste Gas Compressors

The Waste Gas Compressors (WGCs) at the No. 2 Crude Unit are currently connected to the Low Sulfur Fuel Oil (LSFO) vapor recovery system and safety flare. As part of connecting PRDs to the New Safety Flare, the WGCs will be rerouted to the New Vapor Recovery and Safety Flare System. The purpose of this modification is to align all PRDs from the No. 2 Crude Unit, No. 2 RSU, Minalk/Merox Unit, and the WGCs to a common vapor recovery and safety flare system.

1.7.6.5 Fluidized Catalytic Cracking Unit

The purposes of the modifications to the FCCU are to increase reliability, consolidate existing equipment, more efficiently separate intermediate streams, increase production of CARB gasoline components, and to improve energy efficiency. The modifications and equipment additions include: installing a new motorized main air blower replacing the existing steam turbine driven main air blower (the existing equipment will be idled and removed from the existing permit); installing a new depropanizer column replacing three smaller existing distillation columns; installing a new deethanizer column; installing new pumps; and, installing new heat exchangers.

1.7.6.6 Alkylation Unit

The Alkylation Unit combines light olefins (propylene, butylene and pentenes) with isobutane to produce an alkylate product for use as a gasoline blending component. The proposed modifications to the Alkylation Unit include supplemental cooling that will be supplied by a new cooling tower and additional heat exchangers. The depropanizer, located in the older section of the Alkylation area, will be removed. This column is one of the three depropanizer columns being removed as part of FCCU upgrades. The purpose of the modifications is to improve reliability through more efficient cooling (i.e., heat removal) and improve product separation in the Unit.

1.7.6.7 Vacuum Residuum Desulfurization Unit

The VRDS Unit desulfurizes and denitrifies gas oil feedstock for the FCCU. The purpose of the modification to the VRDS Unit is to allow taking one of the parallel reactor trains out of service to replace the catalyst while the other train remains in service. The unit modifications and additions include: installing valve manifolds to separate the reactor trains; installing a new, parallel high pressure separator; re-piping of the existing Recycle Hydrogen Heat Exchangers and Recycle Hydrogen Air Coolers to split them between the two trains; and, installing new facilities to allow sulfiding of fresh catalyst in one reactor train with the other train in operation. This includes installation of two new separator vessels, a new sulfiding recycle hydrogen compressor, and a new recycle hydrogen air cooler. In addition, the existing VRDS Product Coolers will be re-piped so they can be used in the catalyst sulfiding loop.

1.7.6.8 ISOMAX Unit

The ISOMAX Unit converts light and intermediate gas oils into jet fuel, motor gasoline, and Liquefied Petroleum Gas (LPG). The unit will be modified to increase the feed capacity by approximately 10,000 barrels per day (BPD), and to produce two additional products, Ultra Low Sulfur Diesel (ULSD) fuel and desulfurized FCCU feed. The purpose of the modifications is to accommodate gas oil production and optimize output from the Unit. Modifications will be made to the Century Type ISOMAX Catalyst for deNitrification (CKN) and distillation sections. A Pressure Swing Absorption (PSA) Unit will be installed to recover hydrogen for reuse in existing Refinery hydrocracking

and hydrotreating processes. Heaters in the ISOMAX Unit will be retrofitted with low nitrogen oxides (NOx) burners to reduce NOx emissions. Firing rates for the heaters will operate within existing permit limits.

1.7.6.9 Cogeneration Facilities

The Refinery currently operates a multi-train cogeneration plant to supply most of the electricity and steam used by processing equipment. To supplement electrical needs, electricity is purchased from offsite sources (e.g., SCE). The existing cogeneration facility will be expanded by an additional 49.9 megawatts (MW). The new 49.9 MW Cogen Train D includes a natural gas and refinery gas-fired turbine electric generator, a new steam-driven turbine electrical generator, feed gas compressors, knockout and surge pots, waste heat boilers (including duct burners) to generate steam, a carbon monoxide (CO) oxidation catalyst unit, and a Selective Catalytic Reduction (SCR) unit to control emissions. Expansion of this facility will decrease the Refinery's need for offsite sources of electricity.

1.7.6.10 Railcar Loading/Unloading Rack

The Refinery currently ships and receives LPG by trucks and rail cars. As part of the PRO Project, the LPG Loading/Unloading Rack will be expanded by the addition of four new loading/unloading positions for added flexibility that will increase the ability to optimize CARB-gasoline blending.

1.7.6.11 Utility Improvements

SCE and the WBMWD will improve systems to service the proposed project. SCE improvements expected to be made include adding new 66 kilovolt (kV) circuit breakers in their existing Chevmain Power Substation, new transformers at their existing ISOMAX Power Substation, about 500 feet of overhead or underground cables between the Chevmain Power Substation and the ISOMAX Power Substation, and a new transformer at their Chevgen Power Substation. WBMWD currently provides boiler feed and cooling tower water from secondary-treated effluent from the Hyperion Wastewater Treatment Plant that has been further processed by filtration, chlorination, demineralization by reverse osmosis, and/or denitrification. Improvements as part of the PRO Project at WBMWD, include increasing reverse osmosis and denitrification water production facilities.

1.7.7 PROPOSED NEW PROCESS UNITS

1.7.7.1 Sulfur Recovery Facilities

Sour Water Stripper

A new SWS with a capacity of 300 gallons per minute (gpm) will be constructed to supplement the existing plants. This stripper will allow for increased processing of sour

water and production of commercial grade sulfur. The overhead stream from the stripper, containing hydrogen sulfide (H_2S), ammonia and water vapor, will be fed to a new SRU.

Sulfur Recovery Unit

A new SRU with a capacity of 175 long tons per day will be installed to process increased amounts of H_2S to commercial grade, molten sulfur for sale. Ammonia in the feed stream to the SRU will be converted to atmospheric nitrogen and water and exhausted through the TGU to the atmosphere.

Tail Gas Unit

The exhaust from the SRU will be vented to a new TGU for further processing before discharging to the atmosphere. The TGU will include a new incinerator.

1.7.7.2 Vapor Recovery and Safety Flare System

A new closed relief system, including vapor recovery compressors and an elevated safety flare, will be installed that is designed to be capable to handle emergency releases from the equipment that is connected to it. The PRDs on the No. 2 Crude Unit, the No. 2 RSU, and the Minalk/Merox Unit that currently may vent to atmosphere under upset conditions will be routed to this new Vapor Recovery and Safety Flare System. The existing WGCs currently routed to the LSFO vapor recovery system will be re-routed to this new Vapor Recovery and Safety Flare System. In addition, PRDs from the new SWS, SRU and TGU will be routed to this new Vapor Recovery and Safety Flare System. The recovered gases will be treated prior to being added to the existing refinery fuel gas system.

1.7.7.3 Additional Storage Capacity

The proposed project will require additional segregation and storage of intermediate hydrocarbon streams and products. A new LPG sphere (Tank 722), two new FCCU light gasoline tanks (Tanks 302 and 303), and a new ISOMAX diesel tank (Tank 447) with the flexibility to store other products will be added. In addition, new pumps will be added to transfer materials to and from the new tanks.

1.7.7.4 Cooling Tower

A new cooling tower with a water circulation rate of approximately 12,000 gpm will be constructed to support cooling needs at the existing Alkylation Unit, new SRU, new SWS, and new TGU.

1.7.7.5 Hydrogen Compression and Transfer Facilities

Hydrogen is currently produced onsite at the Refinery. Additional hydrogen compression and transfer facilities will be installed to supply Refinery units with hydrogen at the required pressures.

1.7.8 CONSTRUCTION OF THE PROPOSED PROJECT

Construction activities for the Chevron Products Company PRO Project are expected to begin in the second quarter of 2008 and be completed in 2010. The construction activities for most of the components are expected to overlap from the second quarter of 2008 until the fourth quarter of 2009. Construction work shifts are expected to last about ten hours per day during most portions of the construction schedule. However, during certain Refinery unit shutdown periods (e.g., March and October 2009), two construction shifts are expected to take advantage of the disruption in operation.

1.7.9 OPERATION OF THE PROPOSED PROJECT

The permanent work force at the Refinery is expected to increase by approximately 12 additional workers as a result of the proposed project. The proposed project is expected to incrementally reduce truck traffic by about two trucks per day associated with the transport of additional materials to and from the Refinery including among other things, catalyst deliveries and offsite shipments of commercial sulfur and ammonia products. In addition, a maximum of about 12 additional railcars per day could travel to and from the Refinery as a result of the proposed project.

1.8 EXECUTIVE SUMMARY – CHAPTER 3: EXISTING ENVIRONMENTAL SETTING

This chapter presents the existing environmental setting for the proposed project and compares it to the potential impacts of the proposed project that have been previously evaluated. This EIR is focused only on the environmental topics identified in the NOP/IS (see Appendix A) that could be significantly adversely affected by the proposed project. The environmental topics identified in Chapter 3 include both a regional and local setting.

1.8.1 AIR QUALITY

The Chevron Products Company Refinery is located within the SCAQMD's jurisdiction. Over the last decade and a half, air quality has substantially improved within the district. Nevertheless, several air quality standards continue to be frequently exceeded by a wide margin. For example, of the National Ambient Air Quality Standards (NAAQS) established for six criteria pollutants, the district is in attainment for four (sulfur oxide, (SOx), NOx, CO and lead). VOC, a precursor to ozone and particulate matter (PM) are in non-attainment with the standards.

Chapter 3 discusses the effects of meteorological conditions, temperature and rainfall, and wind flow patterns on the existing air quality conditions in the South Coast Air Basin (Basin). Existing air quality will be examined regarding criteria pollutants, regional air quality, local air quality, the Refinery's criteria pollutant emissions, toxic air contaminants (TACs), as well as the regulatory setting.

1.8.2 ENERGY

The major sources of energy in California come from intrastate, interstate and foreign sources. Power plants in California provided approximately 78 percent of the in-state electricity demand in 2006. Hydroelectric power from the Pacific Northwest provides another 7 percent, and power plants in the Southwestern U.S. provide another 15 percent. California is currently ranked fourth in the nation among oil producing states, behind Louisiana, Texas, and Alaska, respectively. Crude oil production in California averaged 731,150 BPD in 2004, a decline of 4.7 percent from 2003. Statewide oil production has declined to levels not seen since 1943. In 2005, the total receipts to refineries of roughly 674 million barrels came from in-state oil production (39.4 percent), combined with oil from Alaska (20.1 percent), and foreign sources (40.4 percent) (CEC, 2006b).

Chapter 3 discusses the existing setting regarding demand, supply and distribution of energy resources on a state and local basis, with electricity and liquid petroleum fuels providing the main topics.

1.8.3 HAZARDS AND HAZARDOUS MATERIALS

The Refinery handles hazardous materials with the potential to cause harm to people, property, or the environment. An accidental release of hazardous materials at a facility can occur due to natural events, such as earthquakes, and non-natural events, such as mechanical failure or human error. Potential existing hazards from the Refinery are those associated with accidental releases of toxic/flammable gas, toxic/flammable liquefied gas, and flammable liquids. Typical hazards at a refinery include toxic gas clouds, fires, vapor cloud explosions, thermal radiation, and overpressure. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released.

1.8.4 HYDROLOGY/WATER QUALITY

Water issues in the Los Angeles Basin are complex and affect supply, demand, and quality of water for domestic, commercial, industrial, and agricultural use. Since 1900, extensive water development has been carried out in the Los Angeles Basin. The Refinery currently consumes approximately 10 million gallons of water per day.

The Chevron Refinery is located adjacent to the Santa Monica Bay on the Pacific Ocean. The Bay is recognized by the United States Environmental Protection Agency (U.S. EPA) and the State as a natural resource of national significance. Effluent Limitations

and Performance Goals are established in Chevron's National Pollutant Discharge Elimination System (NPDES) Permit (No. CA0000337) for the protection of marine aquatic life and human health. Under its NPDES Permit, the Chevron Refinery is authorized to discharge up to 8.8 million gallons per day (gpd) of treated wastewater during dry weather and up to 23 million gpd during wet weather to the Santa Monica Bay, near Dockweiler State Beach in El Segundo.

Refinery wastewater is currently collected and treated in two separate drain and treatment systems: a segregated system and an unsegregated system. The unsegregated system is normally used for non-process wastewater, including cooling tower blowdown, steam condensate, a portion of the water pumped from groundwater recovery wells, and other wastewater streams containing free oil recovered with primary (physical) treatment only. The unsegregated system is also used to collect and treat stormwater.

The segregated system is normally used to treat process wastewater containing emulsified oil, organic chemicals, and a portion of the water pumped from groundwater recovery wells. This system consists of gravity separators, a dissolved air flotation (DAF) unit, and activated sludge units for secondary (biological) treatment. The biosolids from the biological treatment are disposed to the sanitary sewer for treatment by the Hyperion Treatment Plant under an Industrial Waste Discharge Permit.

Two auxiliary effluent diversion tanks are available for handling wastewater from either of the two systems and excess storm-water runoff. During severe rainstorms, excess runoff is collected and pumped into the diversion tanks, which have a holding capacity of about 13.8 million gallons. From the tanks, water can be routed to either system for treatment prior to discharge.

The wastewater is discharged through an outfall that is located approximately 3,500 feet offshore. Currently, the Refinery discharges approximately seven million gpd of treated wastewater during dry weather, and 21.5 million gpd during wet weather, both within the authorized discharge permitted. The Refinery is authorized to discharge up to 8.8 million gpd of treated wastewater during dry weather and up to 23 million gpd during wet weather.

1.8.5 NOISE

Land use in the vicinity of the Refinery is generally designated commercial and residential to the north; industrial, open, and public land to the east; residential to the south; and industrial to the west. The ambient noise environment in the project vicinity is composed of the contributions from equipment and operations within these commercial and industrial areas, and from the traffic on roadways along or near each of its property boundaries.

The nearest sensitive noise receptors south of the Refinery are residences located in the City of Manhattan Beach, approximately 200 to 400 feet south of the Refinery along Rosecrans Avenue. The nearest sensitive noise receptors north of the Refinery are

commercial receptors along El Segundo Boulevard and residences along Lomita Avenue and Grand Avenue approximately one-eighth mile north of the Refinery.

Based on a recent noise survey performed on October 5 through October 9, 2007 to determine the existing ambient noise levels in the vicinity of the Refinery, the Community Noise Equivalent Level (CNEL) ranges between 63 A-weighted noise level measurement is decibels (dBA) and 69 dBA.

1.8.6 SOLID/HAZARDOUS WASTE

As of January 2006, the total remaining permitted Class III landfill capacity in Los Angeles County is about 104 million tons for non-hazardous solid waste. The Los Angeles County Department of Public Works (LACDPW) anticipates that landfill capacity in the county could be exceeded in approximately 10.8 years. The Los Angeles County Sanitation Districts (LACSD) is currently exploring out-of-county disposal options in addition to continuing negotiations to extend current operating permits, as well as implementing waste management plans of source reduction and recycling.

The total remaining permitted inert waste capacity in Los Angeles County is estimated at approximately 46 million tons. There are currently two waste-to-energy facilities (i.e., incinerators) in Los Angeles County with a combined permitted daily capacity of 1,800 tons (six-day week). It is expected that these two facilities will operate at their current permitted daily capacity until the equipment life of the waste-to-energy facilities (incinerators) is exhausted (LACDPW, 2007).

Two hazardous waste landfill facilities are located in California, Chemical Waste Management Inc. (CWMI) Kettleman Hills facility in King's County, and the Clean Harbors (formerly Safety-Kleen) facility in Buttonwillow (Kern County). Kettleman Hills receives an average of 2,700 tons per day (tpd) and has an estimated two million cubic yard capacity. Buttonwillow receives approximately 960 tons of hazardous waste per day and has an approximate remaining capacity of approximately 8.8 million cubic yards. The expectant life of the Buttonwillow Landfill is approximately 40 years. Hazardous waste also can be transported to permitted facilities outside of California.

1.8.7 TRANSPORTATION AND TRAFFIC

The operating characteristics of an intersection are defined in terms of the Level of Service (LOS), which describes the quality of traffic flow based on variations in traffic volume and other variables such as the number of signal phases. Intersections rated at LOS A to C operate well. Level D typically is the level for which a metropolitan area street system is designed. Level E represents volumes at or near the capacity of the highway, which will result in possible stoppages of momentary duration and fairly unstable traffic flow. Level F occurs when a facility is overloaded and is characterized by stop-and-go (forced flow) traffic with stoppages of long duration.

Peak hour LOS analyses were developed for intersections in the vicinity of the Refinery. The LOS analysis indicates typical urban traffic conditions in the area surrounding the Refinery, with all intersections, except one, currently operating at Levels A to D during morning peak hours (7 am – 9 am). One intersection currently operates at LOS E during morning peak hours, Sepulveda/El Segundo Boulevard. The evening peak hour conditions (4 pm – 6 pm) show overloaded conditions (LOS F) at two intersections, operating near capacity (LOS E) at one intersection, operating at LOS C at one intersection, operating at LOS D at one intersection, and the remainder of the intersections currently operating at LOS A to B.

1.9 EXECUTIVE SUMMARY – CHAPTER 4: ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Chapter 4 assesses the potential environmental impacts of the construction and operation of the Chevron Products Company El Segundo Refinery PRO Project. Chapter 4 evaluates those impacts that are considered potentially significant under the requirements of CEQA, as determined by the NOP/IS (see Appendix A). Specifically, an impact is considered significant under CEQA if it leads to a "substantial, or potentially substantial, adverse change in the environment." Table 1-1 (located at the end of this chapter) summarizes the impacts of the proposed project.

1.9.1 AIR QUALITY

1.9.1.1 Environmental Impacts

Project-specific adverse air quality impacts associated with increased emissions of air contaminants (both criteria air pollutants and TACs) during the construction and operation phases of the proposed project are discussed in Chapter 4, as well as impacts to sensitive receptors.

Construction activities vary for the different portions of the proposed project, but construction activities overlap for a number of portions of the project. Therefore, emission calculations evaluated in Chapter 4 were based on the schedule presented in Chapter 2. Peak construction emissions for all pollutants except particulate matter less than 10 microns in diameter (PM10) and particulate matter less than 2.5 microns in diameter (PM2.5) are expected to occur in January 2009, with peak PM10 and PM2.5 emissions expected to occur in August 2008. The construction emissions are expected to be significant for CO, volatile organic compounds (VOCs), NOx, PM10, and PM2.5 following mitigation. Construction emissions are expected to be less than significant for SOx.

The peak construction emissions were modeled to determine the potential impacts on ambient air quality. Based on the Industrial Source Complex – Short Term (ISCST3) model, the ground level concentrations of the criteria pollutants of concern will be below

the significant change in air quality concentration. Therefore, no significant change in the local concentrations of criteria pollutants is expected.

Traffic impacts were analyzed to determine if significant traffic impacts could generate a significant increase in CO emissions. The intersection of Aviation Boulevard and El Segundo Boulevard has a potential to have significant traffic impacts during the construction phase. A CO Hotspots Analysis was completed to assess the impacts of the traffic on CO ambient air quality. Based on the analysis, it was determined that no significant change in the ambient CO air quality is expected as a result of the proposed project. Therefore, the proposed project is not expected to cause CO hotspots and no significant adverse impact on ambient air quality.

The proposed project operational emissions are also evaluated in Chapter 4. The primary sources of emissions are from new units including sulfur processing facilities, a Vapor Recovery and Safety Flare System, and from modifications to existing Refinery units. The operational impacts of the proposed project are expected to have significant VOC impacts. The proposed project is not expected to have significant impacts to CO, NOx, SOx, PM10, or PM2.5 during operation. VOC emissions will be offset for stationary sources, which will mitigate the VOC emissions to less than significant.

Based on the air quality modeling and related assumptions, the cancer risks to the Maximum Exposed Individual Worker (MEIW), the Maximum Exposed Individual Resident (MEIR) and the nearest sensitive receptor associated with the proposed project at the Refinery were calculated to be 0.22×10^{-6}, 0.33×10^{-6}, and 0.16×10^{-6} respectively, or less than one in a million. This result does not exceed the cancer risk significance threshold of 10 per million.

The highest acute hazard index for the proposed project is estimated to be 0.0307 for the central nervous system, while the highest chronic hazard index for the proposed project is estimated to be 0.0066 for the reproductive system. The acute and chronic hazard indices for the proposed project do not exceed the relevant significance threshold of 1.0, therefore, no significant adverse acute or chronic health impacts are expected.

1.9.1.2 Mitigation Measures

Mitigation measures will be imposed on the project to reduce emissions associated with construction activities from heavy construction equipment and worker travel. The appropriate mitigation measures are discussed in Chapter 4.

No mitigation measures are required for the operation phase of the project because all emissions were determined to be less than significant, except for VOC emissions that require offsets for stationary sources. Once offset, the VOC emissions will be less that significant. Operational VOC emissions from mobile source emissions (2.8 lbs/day) do not require offsets, and are less than significant so no further mitigation is required.

1.9.1.3 Level of Significance after Mitigation

Construction emissions for the proposed project for CO, VOCs, NOx, PM10, and PM2.5 are expected to remain significant following mitigation. The construction emissions associated with SOx are expected to remain less than significant following mitigation. Construction emissions are expected to be short-term and they will be eliminated following completion of the construction phase.

Localized significant impacts from construction activities were analyzed and determined that no significant change in local ambient air quality for nitrogen dioxide (NO_2), CO, or PM10 is expected for the proposed project. Therefore, the proposed project is not expected to cause a significant adverse impact on ambient air quality.

Traffic impacts were analyzed for potential impact to CO ambient air quality and determined that no significant change in the ambient CO air quality is expected as a result of the proposed project. Therefore, the proposed project is not expected to cause CO hotspots and no significant adverse impact on ambient air quality. Therefore, no mitigation would be required.

The operational impacts of the proposed project are expected to have significant VOC impacts. The proposed project is not expected to have significant impacts to CO, NOx, SOx, PM10, or PM2.5 during operation. VOC emissions will be offset, which will mitigate VOC emissions to less than significant.

The proposed project was analyzed for health impacts and determined to be less than significant. Therefore, the project is not expected to cause a potentially significant adverse impact on air quality.

1.9.2 ENERGY

1.9.2.1 Environmental Impacts

The proposed project includes new equipment that will require additional electricity. The proposed project also includes new cogen equipment that will produce additional electricity. The estimated increase in electricity demand from new equipment is about 29.9 MW. The proposed expansion to the existing multi-train Cogen Facility would increase the Refinery's electrical production by an additional 49.9 MW. The expansion of the Cogen Facility will allow the Refinery to produce all of the electricity required to operate the Refinery in the long-term, thus, reducing electricity purchases from SCE. Therefore, the project impacts on the electricity supply are considered to be beneficial.

1.9.2.2 Mitigation Measures

No significant impacts associated with energy resources are expected from the proposed project during construction or operational phases, so no mitigation measures are required.

1.9.2.3 Level of Significance after Mitigation

The proposed project is expected to generate sufficient electricity so that no significant energy impacts are expected.

1.9.3 HAZARDS AND HAZARDOUS MATERIALS

1.9.3.1 Environmental Impacts

The potential hazards (fires, explosion overpressure, thermal radiation, or release of H_2S) from the new or modified units associated with the proposed project and the results of the modeling for these hazards are discussed in Chapter 4. The hazards analysis can be found in Appendix D. For each potential release, the distance to the significance threshold level was determined before and after the proposed project modifications (where applicable). None of the existing or modified units have the ability to create a hazard that could extend further off-site. Therefore, the potential hazard impacts associated with the proposed project are considered to be less than significant because significance thresholds would not be exceeded. Operation of the proposed project will not involve the use of flammable substances or hazardous materials that are not currently used at the Refinery nor will it involve the use of flammable substances in locations where they are not currently used.

1.9.3.2 Mitigation Measures

No significant hazard or hazardous materials impacts are expected from the proposed project, so no mitigation measures are required.

1.9.3.3 Level of Significance Following Mitigation

The proposed project impacts on hazards and hazardous materials are expected to be less than significant.

1.9.4 HYDROLOGY/WATER QUALITY

1.9.4.1 Environmental Impacts

Regarding water supply, the proposed project is expected to require about 400 gpm (about 576,000 gpd) of water for cooling purposes and about 120 gpm (about 172,800 gpd) of boiler feed water. Therefore, the proposed project will increase the water demand at the Refinery by about 520 gpm or about 748,800 gpd. The increase in water demand is expected to be met by existing sources of water supplied by WBMWD.

The proposed PRO Project includes modifications to the WBMWD utilities to allow the increased production of recycled water that will be used for cooling tower purposes and boiler feed water. All of the increased water use associated with the proposed project (about 748,800 gpd) will be reclaimed water supplied by the WBMWD. Therefore, the

proposed project will not result in an increase in the use of potable water, but will only result in an increase in the use of recycled water.

With respect to wastewater, the Refinery currently discharges approximately seven million gpd of treated wastewater to the Santa Monica Bay. It is expected that the proposed project will increase the wastewater discharge by about 223,200 gpd. The wastewater treatment system at the Refinery has sufficient capacity to treat the incremental increase in wastewater produced from the proposed project. Therefore, the proposed project is not expected to change the quality of wastewater produced by the Refinery.

Under its NPDES Permit, the Chevron Refinery is authorized to discharge up to 8.8 million gpd of treated wastewater during dry weather, and up to 23 million gpd during wet weather to the Santa Monica Bay, near Dockweiler State Beach in El Segundo. Following project completion, the total volume of wastewater generated would be about 7,223,200 gpd, which is within the capacity of the existing permit.

1.9.4.2 Mitigation Measures

No significant impacts associated with water demand and wastewater discharge are expected from the proposed project, so no mitigation measures are required.

1.9.4.3 Level of Significance after Mitigation

The proposed project impacts on hydrology and water quality are expected to be less than significant.

1.9.5 NOISE

1.9.5.1 Environmental Impacts

The highest noise impacts from construction activities will be during installation of new and modified process units. Noise sources for the proposed project include heavy construction equipment which will be a source of noise over the approximately two and a half year construction period. The estimated noise level during installation of new and modified process units at the Refinery is expected to average about 85 decibels (dBA) at 50 feet from the center of construction activity for each unit.

The noise levels from the construction equipment at the Refinery are expected to be within the allowable levels established by the City of El Segundo noise ordinance, and increases during construction activities are not expected to exceed 1.2 dBA. The noise levels during the construction phase are generally expected to be similar to current noise levels and no significant (audible) increase in noise levels is expected.

The proposed project will also add equipment to the existing Refinery resulting in additional noise sources from operational activities. Additional noise sources associated

with the proposed project generally include process equipment components such as valves, flanges, ejectors, heat exchangers, vents, pumps, and compressors. Noise impacts associated with the proposed project were evaluated using noise modeling (see Appendix E). Noise generated by project equipment would increase the overall noise levels at the Refinery by a maximum of about 1.3 dBA (when compared to baseline conditions), which is below the significant impact level of an increase of three decibels. The noise levels in the area following completion of the proposed project are expected to be about the same as the current levels.

1.9.5.2 Mitigation Measures

No significant impacts associated with noise are expected from the proposed project during construction or operational phases, so no mitigation measures are required.

1.9.5.3 Level of Significance Following Mitigation

The proposed project is expected to be less than significant, so no significant impacts on noise are expected.

1.9.6 SOLID/HAZARDOUS WASTE

1.9.6.1 Environmental Impacts

Due to construction activities associated with the proposed project, an increase is expected in the generation of non-hazardous wastes resulting from demolition of existing structures, grading to provide foundations for new structures, and the installation new structures. Approximately 1,075 tons of municipal (non-hazardous) solid waste would be generated from the proposed project. The landfills in Los Angeles County have the capacity to accept the waste produced during the construction phase of the proposed project on a one-time basis.

Construction of the proposed project is also anticipated to generate approximately 1,200 tons of hazardous waste. Additionally, Chevron estimates that a total of approximately 5,900 tons of contaminated soil may be excavated during construction of the proposed project. There is adequate capacity at the two Class I landfills in California approved to accept hazardous waste.

The operation of the proposed project is expected to require increased amounts of catalyst and generate increased amounts of catalyst waste. As with the current procedures at the Refinery, the additional amounts of recovered catalyst will be transported for recycling offsite, so no increase in waste disposal of catalyst is expected.

1.9.6.2 Mitigation Measures

No significant impacts associated with solid and hazardous waste are expected from the proposed project during construction or operational phases, so no mitigation measures are required.

1.9.6.3 Level of Significance after Mitigation

The impacts of the proposed project on solid/hazardous waste facilities are expected to be less than significant.

1.9.7 TRAFFIC AND TRANSPORTATION

1.9.7.1 Environmental Impacts

Construction of the proposed project will generate additional traffic from construction personnel commuting to and from the site, as well as the transportation of construction materials and equipment to the Refinery. Because the daytime construction shift starts at 6:30 a.m., worker traffic attributable to project construction will not affect the morning peak hour (7:00 am to 9:00 am). The evening peak period is 4:00 p.m. to 6:00 p.m.; therefore, construction related traffic will be leaving and arriving during the evening peak hour and potentially impacting traffic during the evening peak hour.

The construction phase of the proposed project could result in potentially significant traffic impacts at one intersection (Aviation Boulevard and El Segundo Boulevard). In addition, traffic impacts are also potentially significant for the southbound lanes of the San Diego Freeway (I-405) between Rosecrans Avenue and El Segundo Boulevard and the northbound lanes of I-405 between El Segundo Boulevard and Alen M. Anderson Freeway (I-105) interchange. Sufficient parking for the peak estimate of 900 workers is not available at the Chevron Refinery. Therefore off-site parking areas will be used and workers will be transported to and from the Refinery.

Operational impacts from the proposed project are expected to require 12 additional permanent workers at the Refinery, generating 24 additional trips per day. The proposed project will result in increases in truck trips to provide supplies and materials, as well as to deliver products and wastes. The proposed project is also expected to reduce the production and sales of anhydrous ammonia from the Refinery, thus reducing overall truck trips from the Refinery by about two per day.

1.9.7.2 Mitigation Measures

Because of the temporary nature of the construction traffic, feasible mitigation measures are limited. Chevron is using off-site parking structures and transporting workers to the Refinery during peak construction activities to minimize traffic impacts at intersections adjacent to the Refinery. In addition, the construction work shift is scheduled to begin at 6:30 am so that traffic impacts during the morning peak hour will be avoided. Chevron

will encourage ridesharing to reduce single occupancy vehicle trips and encourage ridesharing and transit use. Preferential parking for rideshare vehicles will be provided for construction workers. The traffic analysis assumes that no ridesharing will occur and provides a worst-case estimate of project impacts. However, ridesharing during construction activities is common and will help decrease traffic impacts. The amount of ridesharing that will occur cannot be predicted so traffic impacts are assumed to remain significant.

1.9.7.3 Level of Significance after Mitigation

Mitigation measures have been included as part of the proposed project that are expected to reduce traffic impacts during the construction phase. However, construction traffic impacts are expected to remain significant. The construction traffic impacts will cease following completion of the construction phase. The operational impacts of the project on transportation/traffic are less than significant.

1.10 EXECUTIVE SUMMARY – CHAPTER 5: SUMMARY OF CUMULATIVE IMPACTS

CEQA Guideline §15130(a) requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in §15065(a)(3). There are a number of projects proposed for development in the vicinity of the Refinery, which may contribute cumulative impacts to those generated by the proposed PRO Project. The discussion in Chapter 5 lists projects which are reasonably expected to proceed in the foreseeable future, i.e., project information has been submitted to a public agency.

1.10.1 AIR QUALITY

1.10.1.1 Environmental Impacts

Construction Impacts: Construction activities for some of the projects described in Chapter 5 have the potential to overlap with the proposed Chevron project and result in short-term significant impacts on air quality. On a cumulative basis, construction emissions would exceed SCAQMD CEQA thresholds for CO, VOC, NOx, PM10, and PM2.5. Therefore, the air quality impacts associated with construction activities are considered significant. Mitigation measures to reduce air emissions associated with cumulative construction activities are necessary primarily to control emissions from heavy construction equipment and worker travel.

Operational Impacts: During operation, some of the projects are expected to reduce overall air pollutant emissions. However, there are localized increases for certain air pollutants. Direct stationary emission sources are generally subject to regulation. The operation of the Chevron project will not exceed the SCAQMD thresholds, after

mitigation, so no significant, project-specific air quality impacts are expected from the proposed project.

However, cumulative air quality impacts are expected to exceed the SCAQMD mass emission thresholds for CO, VOC, NOx, SOx, and PM10. Therefore, the cumulative air quality impacts for CO, VOC, NOx, SOx, and PM10 are expected to be significant.

Toxic Air Contaminants: The proposed project impacts on health effects associated with exposure to TACs is expected to be below the CEQA significance thresholds and, therefore, less than significant. Therefore, the proposed project impacts are not expected to contribute to cumulative impacts and are not considered to be cumulatively considerable. The impacts from TACs are localized impacts. The only other major industrial project in the area is the El Segundo Power Plant Redevelopment Project. The potential overlap of the El Segundo Power Plant and the Chevron PRO Project would be well below the significance criteria of 10 per million for carcinogenic risk and 1.0 for the acute and chronic hazard indices. Cumulative impacts of TACs on health are expected to be less than significant.

Green House Gases: Global climate change refers to changes in average climatic conditions on earth as a whole, including temperature, wind patterns, precipitation and storms. Global warming, a related concept, is the observed increase in average temperature of the earth's surface and atmosphere. One identified cause of global warming is an increase of greenhouse gases (GHGs) in the atmosphere. Some studies indicate that the potential effects of global climate change may include rising surface temperatures, loss in snow pack, sea level rise, more extreme heat days per year, and more drought years. Events and activities, such as the industrial revolution and the increased consumption of fossil fuels (e.g., gasoline, diesel, coal, etc.), have heavily contributed to the increase in atmospheric levels of GHGs. As reported by the California Energy Commission (CEC), California contributes 1.4 percent of the global and 6.2 percent of the national GHGs emissions.

In response to growing scientific and political concern regarding global climate change, California has recently adopted a series of laws to reduce both the level of GHGs in the atmosphere and to reduce emissions of GHGs from commercial and private activities within the State.

Chevron has reported its GHG emissions to the California Climate Action Registry for the years 2004-2006, which were approximately 13.1 million metric tons per year for all sources in California. The total statewide net GHG emissions in 2004 were approximately 480 million metric tons per year for carbon dioxide (CO_2) equivalent (CO_2e) emissions. Global emissions of GHGs in 1990 were estimated by the Intergovernmental Powers on Climate Change to be 32,100 million metric tons for CO_2e emissions. The two-year average GHG emissions from the Chevron El Segundo Refinery for 2005-2006 were calculated to be 3.588 million metric tons. The major source of emissions is combustion of fuel in heaters and boilers.

The new and modified equipment built as part of the Chevron PRO Project has been evaluated for all GHG emission sources, including both energy supplied via purchased conventional power generation and with energy supplied by the installation of more energy efficient cogeneration power (combined power and steam generation). The PRO Project as proposed is estimated to result in an increase of 0.194 million metric tons/year of GHGs with GHG emission increases generated from Cogen Train D, the tail gas treating unit, and the pilots on the new flare.

Chevron evaluated the electrical needs of the PRO Project and determined that the proposed project would require about 29.9 MW of electricity plus additional steam to operate the proposed new and modified units. The business-as-usual approach would be to purchase the additional electricity from the local provider (SCE). If the Refinery were to continue to rely on SCE for electricity, a new 330 mmBtu/hr boiler would be required to generate additional steam needed for the PRO Project and other Refinery activities. The GHG emissions that would be generated under the business-as-usual approach are estimated to be about 0.281 million metric tons per year.

Instead of business-as-usual, Chevron is proposing to install a new 49.9 MW cogeneration unit to supply the additional electricity and steam, and to reduce the amount of electricity purchased from the local provider. The steam required by the proposed project and other refinery activities can be generated by the Cogen Train D so that no new boiler is required. Although the operation of the new Cogen Train D will result in an increase in GHG emissions at the Refinery, the new Cogen Train D will eliminate the purchase of electricity from less energy efficient sources It is estimated that the PRO Project with the Cogen Train D would generate about 0.089 million metric tons/yr (0.281 – 0.192) less GHG emissions than the PRO Project with a new boiler plus SCE supplied power, i.e, business-as-usual.

The major contributor of greenhouse gases in the PRO Project, the new Cogen Train D, is, in itself, one of the preeminent technologies for minimizing GHG emissions. Cogeneration is far more efficient (in both energy and GHG emissions), than separate generation of electricity and steam. Installing Cogen Train D as part of the PRO Project is consistent with the California Air Pollution Control Officer's Association's (CAPCOA's) Green List of Projects and, thus, the goals of AB32.

The California Public Utility Commission (CPUC) and CEC have established emissions performance standards for the generation of electricity. In order to evaluate compliance with the standard, the thermal output of Cogen Train D was calculated and compared to the emissions performance standard. The efficiency of the Cogen Train D is estimated to be 591 lbs of CO_2e per MW-hr which is well below the emissions performance standard of 1,100 pounds of CO_2 per MW-hr. Therefore, the proposed Cogen Train D will be more energy efficient than required by CPUC and CEC standards, generating lower CO_2 emissions per MW-hr than required by CPUC and CEC standards.

For comparison purposes and consistency with the goals of AB32, the GHG emissions from the Chevron El Segundo Refinery have also been evaluated for the 1990 operating

conditions using historical operating data. The 1990 GHG emissions for the Refinery are estimated to be about 3.9 million metric tons of GHGs per year as compared to the 2010 GHG emission estimates of 3.588 million metric tons. In the years since 1990, the Refinery has implemented a number of projects to improve energy efficiency (thereby reducing GHG emissions) and, in one case, to directly reduce CO_2 emissions from the Steam Naphtha Reformer. GHG emissions from the Refinery will be less than the Refinery 1990 baseline - outpacing AB32's goal of reducing to 1990 emission levels by 2020. Through the use of a highly energy efficient cogeneration system, the PRO Project exhibits a highly favorable level of carbon intensity compared to traditional technologies.

In spite of all the past projects undertaken by Chevron and a proactive approach to reducing GHG emissions from the proposed project through the installation of a cogeneration unit, rather than taking a business-as-usual approach (i.e., installing a new boiler and increasing demand for electricity from SCE), the cumulative increase in GHG emissions from the proposed project of 0.194 million metric tons per year is concluded to be significant. Given the position of the legislature on AB32, which states that global warming poses serious threats to the environment, and the requirements of CEQA for the lead agency to determine whether a project will have a significant impact, the overall effect of 0.194 million metric tons per year of GHG emissions is considered cumulatively considerable. Thus, the cumulative greenhouse gas impacts from the proposed project are considered significant. This determination is based on the lack of clear scientific or other criteria for determining the level of significance of the project's contribution to global warming and adverse changes in climate conditions.

To offset GHG emissions from the PRO Project with the new Cogen Train D at the Refinery, Chevron shall offset the GHG emissions resulting from the proposed PRO Project through the purchase of CO_2 emission reduction credits. Chevron will make a contribution to the SoCal Climate Solutions Exchange of $1,500,000 to produce verifiable and quantifiable permanent GHG emission reductions under District SoCal Climate Solutions Exchange and thus offset the net increase in the PRO Project GHG emissions (see Section 5.2.4.4 for further details on the GHG mitigation measures). Through implementation of these mitigation measures, the cumulative impacts of GHG emissions associated with the proposed PRO Project would be less than significant.

1.10.1.2 Mitigation Measures

For the construction period, the mitigation measures developed as part of the proposed Chevron project will be imposed on other related projects, if the SCAQMD is the lead agency and project-specific impacts are concluded to be significant. The mitigation measures to minimize emissions associated with operation of stationary sources of the related projects include the use of BACT for all new emission sources and modifications to existing sources. BACT would be required for stationary sources regardless of whether the SCAQMD is the lead agency or is a responsible agency. The use of BACT would control localized emissions. A BACT review will be completed during the SCAQMD permit approval process for all new/modified sources.

1.10.1.3 Level of Significance Following Mitigation

The cumulative adverse air quality impacts due to construction activities are expected to exceed the SCAQMD significance thresholds for all criteria pollutants except SOx and are considered to be cumulatively considerable, even after mitigation. The cumulative air quality impacts due to operational activities are expected to exceed the SCAQMD significance thresholds for all pollutants and are considered to be cumulatively considerable. The project-specific TAC health impacts would not be significant, and are not considered to be cumulatively considerable. GHG emission impacts are expected to be less than significant after mitigation, through the use of GHG emission offsets.

1.10.2 ENERGY

The project's contribution to energy impacts is not cumulative considerable and, thus, not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130).

1.10.2.1 Environmental Impacts from Construction and Operations

The Chevron PRO Project and other projects will consume additional electricity. The new office and commercial buildings are expected to consume additional electricity, while other projects at the Chevron Refinery (e.g., new Chevron administration building, No. 2 Cutpoint Project, LPG Rack Segregation, new jet tank and remodeling of the purchasing building) are not expected to require additional electricity. The PRO Project and the El Segundo Power Plant project will produce additional electricity, 49.9 MW and 280 MW, respectively. As a result, the cumulative projects are not expected to result in significant increases in electrical demand and will produce electricity. No significant cumulative energy impacts are expected.

1.10.2.2 Mitigation Measures

New development will be required to comply with Uniform Building Code requirements which establish energy conservation standards for new construction. These standards are related to insulation requirements, glazing, lighting, shading, window requirements, and water and space heating systems. Implementation of the energy conservation requirements is expected to minimize cumulative energy impacts.

1.10.2.3 Level of Significance After Mitigation

The impacts of the various projects on energy are not expected to be cumulatively considerable, as some of the projects will generate additional electricity, which will compensate for demand.

1.10.3 HAZARDS/HAZARDOUS MATERIALS

The project's contribution to hazards and hazardous materials impacts is not cumulative considerable and thus not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130).

1.10.3.1 Environmental Impacts from Construction and Operations

Although other industrial facilities exist in the general vicinity of the Refinery, the cumulative impacts, from and between the onsite operation of the other industrial projects, are not expected to be significant because it is extremely unlikely that upset conditions would occur at more than one facility at a time. Further, hazard impacts at industrial facilities are not expected to overlap because of the distance between facilities. It also is extremely unlikely that an upset condition at one facility would create an upset at another nearby industrial facility because of the distance between facilities. The new project-related explosion or fire hazard impacts associated with the proposed project are expected to stay within the confines of the existing Refinery or travel no further than existing hazards. Therefore, explosion or fire hazards are not expected to reach or overlap with hazard impacts from other industrial projects, so hazard impacts are not expected to be cumulatively considerable.

1.10.3.2 Mitigation Measures

The proposed project impacts on hazards are considered to be less than significant. A number of existing rules and regulations apply to the Refinery and other industrial facilities that handle, transport or store hazardous materials. Compliance with these rules and regulations is expected to minimize industry-related hazards. Compliance with these rules and regulations should also minimize the hazards at other industrial facilities. Site-specific mitigation measures for hazards may be required for other projects.

1.10.3.3 Level of Significance After Mitigation

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

1.10.4 HYDROLOGY/WATER QUALITY

The PRO Project's contribution to hydrology/water quality impacts is not cumulative considerable and thus not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130).

1.10.4.1 Environmental Impacts from Construction and Operations

Water Supply/Demand: The Chevron PRO Project includes modifications to allow the increase production and use of recycled water that will be used for cooling tower purposes and boiler feed water. All of the increased water use associated with the proposed project (about 748,800 one million gallons per day) will be reclaimed water.

In addition to the proposed Chevron project, the El Segundo Power Plant is expected to require about 207,000 gpd of additional water. Water demand impacts from the power plant are expected to be mitigated by the use of recycled water for some purposes. The other related projects are limited to office buildings, commercial buildings, and some residential buildings, which are not expected to be major users of water. The cumulative increase in water use is expected to be less than the SCAQMD's significance threshold of five million gpd. Therefore, the proposed project and the cumulative projects are not expected to produce significant adverse cumulative impacts to water demand.

Wastewater: The proposed project is anticipated to increase wastewater discharge from the Chevron Refinery by about 223,200 gpd. Wastewater generated by Chevron is treated on-site prior to discharge. No significant impacts associated with wastewater discharge is expected from the Chevron PRO Project.

The total sewage generated by the other cumulative projects in the El Segundo area is estimated to be about one million gpd (see Table 5-10) and most of these facilities are expected to discharge to the LACSD sewage system which is treated by the Joint Water Pollution Control Plant (JWPCP). The JWPCP has a design capacity of about 385 million gpd and currently process an average flow of 323 million gpd. Therefore, JWPCP has sufficient sewage treatment capacity to accommodate the sewage from the cumulative projects. Therefore, impacts to sewage service would not be cumulatively considerable.

1.10.4.2 Mitigation Measures

The proposed project impacts on hydrology/water quality were less than significant. Since no cumulative impacts were identified, no mitigation measures are required.

1.10.4.3 Level of Significance After Mitigation

The cumulative impacts on hydrology/water quality are considered to be less than significant.

1.10.5 NOISE

The Chevron PRO Project's contribution to noise impacts is not cumulative considerable and thus not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130).

1.10.5.1 Environmental Impacts from Construction

Construction phases of each of the related projects are expected to generate localized, short-term noise impacts, some of which may be significant during construction. Construction activities associated with the industrial projects are located in industrial areas where limited sensitive receptors are located. The use of muffling devices, restriction of most construction work hours to daytime hours, etc., are expected to mitigate the increase in noise at most of the construction sites.

The cumulative construction impacts associated with the related industrial projects are not expected to be significant or exceed noise ordinances. The Refinery and other industrial projects are generally a sufficient distance apart that the noise levels are not expected to overlap. Some of the commercial/office buildings on-site are located close to residential and other sensitive receptors and may create noise impacts in residential areas. Construction activities are expected to be limited to daytime hours, which reduce the potential for impacts on sensitive receptors.

1.10.5.2 Environmental Impacts from Operations

The operational noise impacts of the industrial projects are not expected to be significant. The noise impacts at the Chevron Refinery are not expected to result in a noticeable change to the surrounding community. The mitigated operational noise at the southern boundary of the El Segundo Power Plant project is predicted to be no greater than 52 dBA. This noise level is less than the SCAQMD's significance threshold of 90 dBA at the property boundary. Therefore, the noise due to the new generators is not expected to have a significant noise effect and the noise would not overlap with other existing or new noise sources at the Chevron Refinery. In addition, existing traffic noise levels are significant in the Vista Del Mar Boulevard corridor which runs between the power plant and the Refinery, generating a large portion of the community noise levels.

Most of the noise associated with other cumulative projects (e.g., commercial and office buildings) is expected to be primarily associated with traffic. Sufficient distance separates the Refinery from most of the other projects, thus, it is unlikely that noise impacts will overlap.

1.10.5.3 Mitigation Measures

Since noise impacts from the Refinery proposed project are not considered to be cumulatively considerable, they do not contribute to significant adverse cumulative worse impacts. As a result, no mitigation measures are required.

1.10.5.4 Level of Significance After Mitigation

The noise impacts associated with the cumulative projects are not expected to be significant or contribute to significant adverse cumulative noise impacts during construction or operation.

1.10.6 SOLID/HAZARDOUS WASTE

The Chevron PRO Project's contribution to solid and hazardous waste impacts is not cumulative considerable and thus not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130).

1.10.6.1 Environmental Impacts from Construction and Operations

Hazardous Waste: The Chevron Refinery and El Segundo Power Plant projects are the main industrial developments in the area that have the potential to generate hazardous waste either through remediation activities or through the discovery of contaminated soils. The total amount of hazardous waste generated by contaminated soil is uncertain but maximum estimates are about 6,975 tons will be generated at the Chevron site and about 4,000 tons at the El Segundo Power Plant. The impacts would be considered adverse but not significant since the existing hazardous waste facilities likely have sufficient capacity to handle the one-time deposition of hazardous wastes that would likely be generated, e.g., contaminated soils. However, the additional waste streams may impact the dwindling capacity of certain landfills. Together, the landfills in California have 10.8 million cubic yards permitted capacity, which will accommodate the waste generated by the proposed project during the construction phase. In addition, other hazardous waste facilities are located out-of-state. Therefore, the cumulative impact of the generation hazardous waste is not considered a significant impact.

Most of the hazardous waste generated during the operational phase of the industrial projects include used oil and spent catalysts, which are expected to be recycled for their economic value. The office, commercial, and residential projects are not expected to generate substantial quantities of hazardous waste. Therefore, no significant cumulative impacts on hazardous waste facilities are expected.

Solid Waste: Non-hazardous solid wastes are usually generated in offices, commercial buildings, and residential units. The estimates of solid waste generated by cumulative projects are about one million tons per year. Because the proposed project's contribution to solid and hazardous waste impacts is not cumulatively considerable, the cumulative impacts on solid/hazardous waste are not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130).

1.10.6.2 Mitigation Measures

No mitigation measures are required for the Chevron PRO Project because the impacts are less than significant. Chevron will continue to implement a source reduction and recycling program to minimize solid wastes generated at the Refinery. New development must comply with all applicable city, county, and state requirements regulating solid waste disposal. Cumulative impact mitigation is the responsibility of local regional and

state agencies and feasible mitigation measures are expected to be limited to source reduction and recycling measures.

1.10.6.3 Level of Significance After Mitigation

Individual project impacts on hazardous and solid waste from the Chevron PRO Project are less than significant and, therefore, not cumulatively considerable. Cumulative impacts on hazardous waste landfill facilities are expected to be less than significant because the industrial projects are expected to generate hazardous waste that can be recycled. Because the proposed project's contribution to solid and hazardous waste impacts is not cumulatively considerable, the cumulative impacts on solid/hazardous waste are not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130).

1.10.7 TRANSPORTATION/TRAFFIC

The potential significant adverse traffic impacts are expected to occur during the construction phase due to the temporary increase in construction workers at the Refinery. Following completion of construction, the increase in permanent workers is expected to be about 12 employees; therefore, the proposed project impacts on traffic during the operational phase are less than significant. Therefore the project's contribution to transportation and traffic impacts during project operation is not cumulative considerable and thus not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130).

1.10.7.1 Environmental Impacts from Construction

Traffic impacts associated with the construction of the Chevron proposed project are expected to be potentially significant during the evening peak hour at one intersection, Aviation Boulevard/El Segundo Boulevard and on portions of the I-105 and I-405 Freeways. Therefore, the proposed project may have cumulative traffic impacts with other projects in the area. The proposed project's contribution to cumulative impacts on traffic during the construction phase would be considered cumulatively considerable.

There could be cumulative construction traffic impacts associated with other industrial construction projects in the area that do not avoid peak traffic hours. However, the Chevron PRO Project is expected to provide the major portion of the traffic related to construction activities so cumulative construction impacts on traffic from these projects are considered significant.

1.10.7.2 Environmental Impacts from Operations

The cumulative traffic analysis for operations assumed that the ambient traffic growth rate in the city is 0.50 percent per year from year 2008 to year 2020 and no changes in existing intersection geometrics. On a cumulative basis, general growth in the area may result in significant traffic impacts at the intersections of: (1) Sepulveda Boulevard

(SR1) and El Segundo Boulevard; (2) Sepulveda (SR1) Boulevard and Rosecrans Avenue; (3) Aviation Boulevard and El Segundo Boulevard; and (4) Aviation Boulevard and Rosecrans Avenue.

The increase in traffic is unrelated to the proposed project but is related to general population growth in the area so mitigation measures will need to be developed as new projects that generate traffic are proposed and as part of the City of El Segundo's and Manhattan Beach's General Plan process.

1.10.7.3 Mitigation Measures

Chevron will encourage ride-sharing by construction workers to minimize construction impacts. In addition, different parking areas will be used with construction workers being bussed onto the Refinery so that traffic impacts will be spread throughout the area.

1.10.7.4 Level of Significance After Mitigation

The proposed project is expected to result in significant traffic impacts during the construction phase. However, the construction activities are expected to cease following completion of the proposed project so no long term significant traffic impacts are expected. Because the proposed project's contribution to transportation and traffic impacts during operation is not cumulatively considerable, the cumulative impacts on transportation and traffic are not significant because the environmental conditions would essentially be the same whether or not the proposed project is implemented (CEQA Guidelines §15130).

1.11 EXECUTIVE SUMMARY – CHAPTER 6: SUMMARY OF ALTERNATIVES

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

1.11.1 Description of Alternatives

Alternatives to the proposed project included Alternative 1 - No Project Alternative; Alternative 2 – No Additional Sulfur Recovery Facilities; Alternative 3 – Eliminate Vapor Recovery and Safety Flare System; Alternative 4 - Eliminate FCCU and Alkylation Unit Modifications; and Alternative 5 - Purchase Additional Electricity.

CEQA Guidelines §15126.6 (e) requires evaluation of a "No Project Alternative" which is Alternative 1 in Chapter 6. Under the "No Project Alternative," no Refinery modifications would occur. The proposed modifications to the No. 2 Crude Unit, No. 2 RSU, Minalk/Merox Unit, FCCU, Alkylation Unit, VRDS, ISOMAX Unit, Cogen Train D, Railcar Loading/Unloading Rack, and utility improvements would not occur. In addition, the proposed new SRU, SWS, TGU, vapor recovery and safety flare system, storage tanks, cooling tower, and hydrogen compression and transfer facilities would not be built and the Refinery would continue to operate under its current configuration.

Under Alternative 2, the Sulfur Recovery facilities, including the SWS, SRU, and TGU, would not be constructed. All other portions of the proposed project would still be constructed including the proposed modifications to the No. 2 Crude Unit, No. 2 RSU, Minalk/Merox Unit, FCCU, Alkylation Unit, VRDS, ISOMAX Unit, Cogen Train D, Railcar Loading/Unloading Rack, and utility improvements. In addition, the proposed vapor recovery and safety flare system, storage tanks, cooling tower, and hydrogen compression and transfer facilities would be built.

Under Alternative 3, the project as described in Chapter 2 would be constructed with the exception of the Vapor Recovery and Safety Flare System. This is a voluntary Refinery modification that is proposed to eliminate the potential for venting of PRDs to the atmosphere, thus minimizing VOC emissions at the Refinery.

Under Alternative 4, the modifications to the FCCU and Alkylation Unit would not occur and the related increase in the recovery of additional LPG from the fuel gas system will not occur. All other portions of the proposed project would still occur.

Under Alternative 5, the new Cogen Unit would not be constructed meaning the required additional electricity demand would be supplied by the local utility company. Under Alternative 5, a new auxiliary boiler or an increase in fired heat duty of an existing boiler would be required to supply the necessary stream demand of the proposed new and modified units. All other portions of the project would still occur.

1.11.2 Environmental Impacts of Alternatives

Based on the analyses in Chapter 6, no feasible alternatives were identified that would reduce or eliminate the potentially significant air quality or traffic impacts during construction activities related to the proposed project and achieve the objectives of the proposed project.

The No Project Alternative (Alternative 1) would prevent Chevron from achieving all of the project objectives. However, the No Project Alternative would eliminate the potentially significant impacts related to air quality and traffic impacts during construction activities, making it an environmentally superior alternative .

Alternative 2 would result in significant impacts to air quality and traffic during construction, but would reduce the emissions and related traffic since the Sulfur

Recovery facilities would not be built. Therefore, in addition to the No Project Alternative, Alternative 2 would be considered the environmentally superior alternative as it would reduce project environmental impacts as compared to the proposed project, but would not reduce potentially significant impacts to less than significant. However, Alternative 2 would not allow the Refinery to meet all the project objectives of: (1) producing low-sulfur fuel products and increase production of commercial grade elemental sulfur; and (2) allowing the Refinery to efficiently and reliably process a wider range of crude oils, including higher sulfur-containing crude oils.

Alternative 3 and 4 would have similar impacts on air quality, energy, hazards/hazardous materials, noise and traffic, as the proposed project. Alternatives 3 and 4 would result in significant impacts to air quality and traffic during construction, but would reduce the construction and operational emissions and related traffic since fewer units would be built. Alternative 3 would not allow the Refinery to control the potential atmospheric releases and related emissions from PRDs in specified units. Alternative 4 would not include the energy efficiency modifications proposed for the FCCU and Alkylation Unit. Alternatives 3 and 4 would reduce project construction-related air quality and traffic impacts, but would not reduce potentially significant impacts to less than significant.

Alternative 5 would reduce project construction-related air quality and traffic impacts, but would not reduce potentially significant impacts to less than significant. Alternative 5 could result in significant impacts on energy because the Cogen Train D would not be constructed. Greenhouse gas emissions would be greater under Alternative 5. Therefore, the proposed project is preferred because it would attain all project objectives.

1.12 EXECUTIVE SUMMARY – CHAPTER 7 AND 8: REFERENCES, ACRONYMS AND GLOSSARY

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

TABLE 1-1

Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
Air Quality		
The construction emissions for CO, VOC, NOx, PM10, and PM2.5 will exceed the SCAQMD CEQA significance thresholds are significant.	Develop a Construction Emission Management Plan for the proposed project; prohibiting truck idling in excess of five minutes, use electricity or alternate fuels for on-site equipment, where feasible, maintain construction equipment tuned up, use electric welders and electric generators where electricity is available; retrofit cranes of 200 hp or greater with diesel particulate filters; suspend construction activities during first stage smog alerts; develop a fugitive dust emission control plan.	Construction emissions are expected to remain significant for CO, VOC, NOx, PM10 and PM2.5.
The construction emissions of SOx will not exceed SCAQMD CEQA significant thresholds and are less than significant.	None required.	Construction emissions are expected to be less than significant for SOx.
Construction impacts for NO_2, CO, PM10 and PM2.5 would not exceed applicable local significance thresholds.	None required.	Concentrations of NO_2, CO, PM10 and PM2.5 are less than significant.
Traffic impacts from the proposed project are not expected to cause CO hotspots and no significant adverse impact on ambient air quality is expected.	None required.	Concentration of CO from traffic is less than significant.
Operational emissions of CO, NOx, SOx, PM10 and PM2.5 are less than significant.	None required. Project emissions are controlled through use of BACT.	Mass daily emissions of CO, NOx, SOx, PM10 and PM2.5 from stationary and fugitive sources are expected to be less than significant.
Operational emissions of criteria pollutants are significant for VOC.	VOC emissions from stationary sources will be offset.	The VOC offsets will reduce the proposed project to less than significant.

TABLE 1-1 (continued)

Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
Air Quality (continued)		
Ambient air quality modeling indicates that the project emissions on NO_2, CO, PM10, and PM2.5 will be below ambient air quality standards and are less than significant.	None required.	Project emissions of NO_2, CO, PM10, and PM2.5 will be below ambient air quality standards and are less than significant.
The cancer risk due to the operation of the proposed project is expected to be less than the significance criterion of 10 per million, so that project impacts are less than significant.	None required.	Cancer risk impacts are less than significant.
The proposed project's impacts associated with exposure to non-carcinogenic compounds are expected to be less than significant. The chronic hazard index and the acute hazard index are both below 1.0.	None required.	No significant non-carcinogenic health impacts are expected.
Energy		
No significant energy resource impacts are expected from the construction or operation of the proposed project, as the project includes Cogen Train D which will provide additional electricity to the Refinery.	None required.	Energy resources impacts are less than significant.
Hazards and Hazardous Materials		
None of the new or modified units will create a hazard that could extend further off-site so no significant adverse hazards and hazardous material impacts are expected from the construction or operation of the proposed project.	None required.	Hazards and hazardous material impacts are less than significant.

TABLE 1-1 (continued)

Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
Hydrology and Water Quality		
The increase in water demand associated with the project will be provided through the use of reclaimed water so no significant adverse impacts on water demand are expected.	None required.	Water demand impacts are less than significant.
The increase wastewater generated by the proposed project is within the capacity of the wastewater treatment plant and the facility's NPDES permit.	None required.	Wastewater impacts are less than significant.
Noise		
Construction noise increases are expected to be less than 1.2 decibels and less than significant.	None required.	Construction noise impacts are less than significant.
Operational noise increases are expected to be less than 1.3 decibel so no audible change in noise levels is expected and noise impacts are less than significant.	None required.	Operational noise impacts are less than significant.
Solid and Hazardous Waste		
No significant adverse solid and hazardous waste impacts are expected from the construction or operational phases of the proposed project.	None required.	Solid and hazardous waste impacts are less than significant.
Transportation and Traffic		
The demand for parking facilities due to construction workers will exceed the spaces available at the Refinery.	The proposed project includes the use of satellite parking lots and transporting workers to the Refinery via bus.	Parking impacts during construction are less than significant.

TABLE 1-1 (concluded)

Summary of Environmental Impacts, Mitigation Measures and Residual Impacts

IMPACT	MITIGATION MEASURES	RESIDUAL IMPACT
Transportation and Traffic (continued)		
During the peak construction period, evening peak traffic at the intersection of Aviation Boulevard/El Segundo Boulevard is expected to change the LOS from E to F, creating a significant traffic impact. The construction work shift is schedule to begin at 6:30 a.m. which will avoid the morning peak traffic period.	Ridesharing of construction will be encouraged but cannot be guaranteed.	Construction traffic impacts during the evening peak hour are expected to remain significant.
During the peak construction period, two freeway segments will be impacted during the evening peak hour, including the southbound lanes of I-405 between Rosecrans Ave. and El Segundo Blvd. and the northbound lanes of I-405 between El Segundo Blvd. and the I-105 interchange.	Ridesharing of construction will be encouraged but cannot be guaranteed.	Construction traffic impacts during the evening peak hour are expected to remain significant.
The proposed project is expected to generate an additional 24 trips per day during the operational phase and a reduction of truck trips of about 2 per day. No significant adverse traffic impacts are expected.	None required.	Transportation and traffic impacts associated with operation of the proposed project are less than significant.

APPENDIX B

EMISSIONS CALCULATIONS

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CHEVRON EL SEGUNDO REFINERY
PRODUCT RELIABILITY AND OPTIMIZATION PROJECT
WITH CURRENTLY PROPOSED MODIFICATIONS

APPENDIX B
EMISSION CALCULATIONS

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Table B-1
Chevron El Segundo Refinery
Product Reliability and Optimization Project
With Currently Proposed Modifications
CONSTRUCTION SUMMARY

Construction Period		Estimated Emissions - 2/11						
		VOC	CO	NOx	SOx	PM10	PM2.5[(1)]	CO_2
Construction Equipment		44.43	163.33	285.81	0.32	19.90	11.54	27621.06
Vehicle Emissions		13.38	115.64	45.70	0.17	2.46	1.43	17043.67
Fugitive Construction		0.00	0.00	0.00	0.00	52.65	30.53	0.00
Fugitive Road Dust		0.00	0.00	0.00	0.00	14.17	8.22	0.00
Architectural Coatings		0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL EMISSIONS		57.80	278.98	331.51	0.48	89.17	51.72	44664.73
SCAQMD Thresholds		75	550	100	150	150	55	--
Significant		No	No	Yes	No	Yes	Yes	--

Construction Period		Estimated Emissions - 3/11						
		VOC	CO	NOx	SOx	PM10	PM2.5[(1)]	CO_2
Construction Equipment		44.43	160.92	273.74	0.30	19.82	11.50	25933.79
Vehicle Emissions		15.65	137.54	48.32	0.20	2.70	1.57	19975.56
Fugitive Construction		0.00	0.00	0.00	0.00	20.24	11.74	0.00
Fugitive Road Dust		0.00	0.00	0.00	0.00	15.22	8.83	0.00
Architectural Coatings		0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL EMISSIONS		60.08	298.45	322.07	0.50	57.99	33.63	45909.35
SCAQMD Thresholds		75	550	100	150	150	55	--
Significant		No	No	Yes	No	No	No	--

(1) PM2.5 is calculated using Profile #391 from the SCAQMD Methodology to Calculate Particulate Matter (PM2.5) and PM2.5 CEQA Signficance Thresholds, SCAQMD , October 2006, https://www.aqmd.gov/ceqa/handbook/pm2_5/pm2_5ratio.xls.

Peak Value

Table B-2
Construction Equipment Emissions

Chevron El Segundo Refinery
Product Reliability and Optimization Project Addendum
With Currently Proposed Modifications
Construction Equipment - February 2011

Equipment Type	Total Hours Per Day[1]	2011 Emission Factors lb/hr[1]						Daily Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	CO_2	VOC	CO	NOx	SOx	PM10	CO_2
Air Compressor	14	0.0956	0.3321	0.5677	0.0006	0.0524	46.9502	1.34	4.65	7.95	0.01	0.73	657.30
Air Compressor	51	0.1093	0.2740	0.2350	0.0003	0.0253	22.2713	5.55	13.90	11.93	0.01	1.28	1130.27
Backhoe	27	0.1135	0.5873	0.8955	0.0011	0.0530	101.3869	3.01	15.56	23.73	0.03	1.40	2686.75
Cherry Picker	56	0.0657	0.2477	0.4270	0.0004	0.0346	38.0718	3.68	13.87	23.91	0.03	1.94	2132.02
Concrete Finisher	9	0.0118	0.0617	0.0737	0.0002	0.0029	10.1073	0.11	0.56	0.66	0.00	0.03	90.97
Concrete Pump	13	0.1463	0.4539	1.8649	0.0023	0.0550	201.3693	1.87	5.79	23.78	0.03	0.70	2567.46
Concrete Saw	0	0.0200	0.0678	0.1268	0.0002	0.0056	16.4777	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Crane	23	0.1726	0.6137	1.6493	0.0018	0.0627	180.1013	3.97	14.12	37.93	0.04	1.44	4142.33
Crawler Crane	0	0.1171	0.3276	1.1522	0.0013	0.0428	112.1589	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Crane	21	0.1149	0.4857	0.8777	0.0009	0.0514	80.3446	2.41	10.20	18.43	0.02	1.08	1687.24
Crawler Crane	14	0.1048	0.3686	0.6196	0.0006	0.0571	50.1480	1.47	5.16	8.67	0.01	0.80	702.07
Forklift	51	0.0545	0.2218	0.3262	0.0004	0.0312	31.2249	2.76	11.26	16.55	0.02	1.58	1584.66
Gas Engine Vibrator	0	0.0118	0.0617	0.0737	0.0002	0.0029	10.1073	0.00	0.00	0.00	0.00	0.00	0.00
Generator	83	0.1305	0.5007	0.8616	0.0009	0.0684	77.9494	10.76	41.31	71.09	0.08	5.64	6430.83
Grader	7	0.1647	0.7384	1.2722	0.0014	0.0745	123.9215	1.15	5.17	8.91	0.01	0.52	867.45
Heavy Roller	6	0.1126	0.4136	0.7005	0.0007	0.0612	58.9888	0.68	2.48	4.20	0.00	0.37	353.93
Lighting Center	4	0.1387	0.3716	0.3629	0.0005	0.0345	36.1908	0.55	1.49	1.45	0.00	0.14	144.76
Pump - Catalyst Vacuum	0	0.0413	0.1098	0.1845	0.0002	0.0125	19.4874	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Diapragm Sump	5	0.0141	0.0518	0.0827	0.0001	0.0058	7.4238	0.07	0.26	0.41	0.00	0.03	37.12
Pump - Drum Sucker/Minute Man	0	0.0141	0.0518	0.0827	0.0001	0.0058	7.4238	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Dry Vacuum Unit	0	0.0141	0.0518	0.0827	0.0001	0.0058	7.4238	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Gully Sucker	0	0.0141	0.0518	0.0827	0.0001	0.0058	7.4238	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Hydrotest	0	0.1253	0.3338	0.3424	0.0004	0.0317	34.3349	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Hydrotest	0	0.0413	0.1098	0.1845	0.0002	0.0125	19.4874	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Trash	3	0.0413	0.1098	0.1845	0.0002	0.0125	19.4874	0.12	0.33	0.55	0.00	0.04	58.46
Skip Loader	0	0.0833	0.3589	0.5288	0.0006	0.0478	51.7280	0.00	0.00	0.00	0.00	0.00	0.00
Tamper - Plate Type - Gas	32	0.0050	0.0263	0.0315	0.0001	0.0013	4.3138	0.16	0.83	0.99	0.00	0.04	135.88
Tamper - Single Butt	27	0.0050	0.0263	0.0315	0.0001	0.0013	4.3138	0.14	0.71	0.85	0.00	0.04	116.47
Truck Crane	30	0.1048	0.3686	0.6196	0.0006	0.0571	50.1480	3.14	11.06	18.59	0.02	1.71	1504.44
Upright Jumper	60	0.005	0.026	0.032	0.000	0.001	4.314	0.30	1.58	1.89	0.00	0.08	258.83
Welder	11	0.024	0.064	0.107	0.000	0.007	11.286	0.26	0.70	1.18	0.00	0.08	124.15
Welder	8	0.116	0.295	0.268	0.000	0.027	25.958	0.93	2.36	2.15	0.00	0.22	207.66
Emission Totals								44.43	163.33	285.81	0.32	19.90	27621.06

(1) Total hours of multiple pieces of equipment concurrently operating in various Project Units.
Equipment listed with zero hours are not used during the peak month. However, the equipment is used at some time during the project.

Table B-3
Construction Equipment Emissions

Chevron El Segundo Refinery
Product Reliability and Optimization Project Addendum
With Currently Proposed Modifications
Construction Equipment - March 2011

Equipment Type	Total Hours Per Day[1]	2011 Emission Factors lb/hr[1]						Daily Emissions (lbs/day)					
		VOC	CO	NOx	SOx	PM10	CO_2	VOC	CO	NOx	SOx	PM10	CO_2
Air Compressor	14	0.0956	0.3321	0.5677	0.0006	0.0524	46.9502	1.34	4.65	7.95	0.01	0.73	657.30
Air Compressor	51	0.1093	0.2740	0.2350	0.0003	0.0253	22.2713	5.55	13.90	11.93	0.01	1.28	1130.27
Backhoe	15	0.1135	0.5873	0.8955	0.0011	0.0530	101.3869	1.65	8.52	12.98	0.02	0.77	1470.11
Cherry Picker	56	0.0657	0.2477	0.4270	0.0004	0.0346	38.0718	3.68	13.87	23.91	0.03	1.94	2132.02
Concrete Finisher	7	0.0118	0.0617	0.0737	0.0002	0.0029	10.1073	0.08	0.43	0.52	0.00	0.02	70.75
Concrete Pump	10	0.1463	0.4539	1.8649	0.0023	0.0550	201.3693	1.43	4.43	18.18	0.02	0.54	1963.35
Concrete Saw	0	0.0200	0.0678	0.1268	0.0002	0.0056	16.4777	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Crane	15	0.1726	0.6137	1.6493	0.0018	0.0627	180.1013	2.59	9.21	24.74	0.03	0.94	2701.52
Crawler Crane	0	0.1171	0.3276	1.1522	0.0013	0.0428	112.1589	0.00	0.00	0.00	0.00	0.00	0.00
Crawler Crane	36	0.1149	0.4857	0.8777	0.0009	0.0514	80.3446	4.14	17.49	31.60	0.03	1.85	2892.40
Crawler Crane	14	0.1048	0.3686	0.6196	0.0006	0.0571	50.1480	1.47	5.16	8.67	0.01	0.80	702.07
Forklift	51	0.0545	0.2218	0.3262	0.0004	0.0312	31.2249	2.76	11.26	16.55	0.02	1.58	1584.66
Gas Engine Vibrator	0	0.0118	0.0617	0.0737	0.0002	0.0029	10.1073	0.00	0.00	0.00	0.00	0.00	0.00
Generator	85	0.1305	0.5007	0.8616	0.0009	0.0684	77.9494	11.09	42.56	73.24	0.08	5.82	6625.70
Grader	6	0.1647	0.7384	1.2722	0.0014	0.0745	123.9215	0.99	4.43	7.63	0.01	0.45	743.53
Heavy Roller	0	0.1126	0.4136	0.7005	0.0007	0.0612	58.9888	0.00	0.00	0.00	0.00	0.00	0.00
Lighting Center	12	0.1387	0.3716	0.3629	0.0005	0.0345	36.1908	1.66	4.46	4.35	0.01	0.41	434.29
Pump - Catalyst Vacuum	0	0.0413	0.1098	0.1845	0.0002	0.0125	19.4874	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Diapragm Sump	7	0.0141	0.0518	0.0827	0.0001	0.0058	7.4238	0.10	0.36	0.58	0.00	0.04	51.97
Pump - Drum Sucker/Minute Man	0	0.0141	0.0518	0.0827	0.0001	0.0058	7.4238	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Dry Vacuum Unit	0	0.0141	0.0518	0.0827	0.0001	0.0058	7.4238	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Gully Sucker	0	0.0141	0.0518	0.0827	0.0001	0.0058	7.4238	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Hydrotest	0	0.1253	0.3338	0.3424	0.0004	0.0317	34.3349	0.00	0.00	0.00	0.00	0.00	0.00
Pump - Hydrotest	4	0.0413	0.1098	0.1845	0.0002	0.0125	19.4874	0.17	0.44	0.74	0.00	0.05	77.95
Pump - Trash	3	0.0413	0.1098	0.1845	0.0002	0.0125	19.4874	0.12	0.33	0.55	0.00	0.04	58.46
Skip Loader	0	0.0833	0.3589	0.5288	0.0006	0.0478	51.7280	0.00	0.00	0.00	0.00	0.00	0.00
Tamper - Plate Type - Gas	26	0.0050	0.0263	0.0315	0.0001	0.0013	4.3138	0.13	0.67	0.80	0.00	0.03	110.00
Tamper - Single Butt	21	0.0050	0.0263	0.0315	0.0001	0.0013	4.3138	0.11	0.55	0.66	0.00	0.03	90.59
Truck Crane	37	0.1048	0.3686	0.6196	0.0006	0.0571	50.1480	3.88	13.64	22.93	0.02	2.11	1855.47
Upright Jumper	50	0.005	0.026	0.032	0.000	0.001	4.314	0.25	1.32	1.58	0.00	0.07	215.69
Welder	14	0.024	0.064	0.107	0.000	0.007	11.286	0.34	0.89	1.50	0.00	0.10	158.01
Welder	8	0.116	0.295	0.268	0.000	0.027	25.958	0.93	2.36	2.15	0.00	0.22	207.66
Emission Totals								44.43	160.92	273.74	0.30	19.82	25933.79

(1) Total hours of multiple pieces of equipment concurrently operating in various Project Units.
Equipment listed with zero hours are not used during the peak month. However, the equipment is used at some time during the project.

Table B-4
Chevron El Segundo Refinery
Product Reliability and Optimization Project Addendum
With Currently Proposed Modifications
Construction Vehicle Emissions for February and March 2011

Vehicle	Miles/Day/ Vehicle	No. of Vehicles 2011 Feb	No. of Vehicles 2011 Mar	Miles/Day 2011 Feb	Miles/Day 2011 Mar
Commuters	32.4	320	398	10368	12879
Pickup Trucks	10	44	52	435	517.5
Van	10	11	12	112.5	122.5
Total Light Vehicle Miles				10915.5	13519
Flatbed Truck	10	8	9	75	85
Bus[1]	60	11	11	660	660
Bin Truck	10	0	0	0	0
Concrete Truck	50	4	4	212.5	212.5
Delivery Truck	50	0	0	0	0
Dump Truck	50	4	5	212.5	225
Lube Truck	10	7	7	72.5	72.5
Water Truck	10	3	3	32.5	32.5
Total Medium/Heavy Duty Truck Miles				1265	1287.5
Semi Tractor	50	7	7	362.5	362.5
Total Heavy-Heavy Duty Truck Miles				362.5	362.5

CO	Emission Rate (lb/mi)[2] 2011	Emission Rate (lb/mi)[2] 2011	2011 Feb	2011 Mar
Light Duty	0.0082628	0.0082628	90.19	111.70
Medium Duty	0.0169324	0.0169324	21.42	21.80
Heavy Duty	0.0111246	0.0111246	4.03	4.03
Total			115.64	137.54

NOx	Emission Rate (lb/mi)[2] 2011	Emission Rate (lb/mi)[2] 2011	2011 Feb	2011 Mar
Light Duty	0.0008446	0.0008446	9.22	11.42
Medium Duty	0.0189337	0.0189337	23.95	24.38
Heavy Duty	0.0345581	0.0345581	12.53	12.53
Total			45.70	48.32

CO_2	Emission Rate (lb/mi)[2] 2011	Emission Rate (lb/mi)[2] 2011	2011 Feb	2011 Mar
Light Duty	1.1023515	1.1023515	12032.72	14902.69
Medium Duty	2.7518082	2.7518082	3481.04	3542.95
Heavy Duty	4.2204568	4.2204568	1529.92	1529.92
Total			17043.67	19975.56

VOC	Emission Rate (lb/mi)[2] 2011	Emission Rate (lb/mi)[2] 2011	2011 Feb	2011 Mar
Light Duty	0.0008523	0.0008523	9.30	11.52
Medium Duty	0.0024187	0.0024187	3.06	3.11
Heavy Duty	0.0027954	0.0027954	1.01	1.01
Total			13.38	15.65

SOx	Emission Rate (lb/mi)[2] 2011	Emission Rate (lb/mi)[2] 2011	2011 Feb	2011 Mar
Light Duty	0.0000108	0.0000108	0.12	0.15
Medium Duty	0.0000273	0.0000273	0.03	0.04
Heavy Duty	0.0000397	0.0000397	0.01	0.01
Total			0.17	0.20

PM10	Emission Rate (lb/mi)[2] 2011	Emission Rate (lb/mi)[2] 2011	2011 Feb	2011 Mar
Light Duty Exhaust	0.0000888	0.0000888	0.97	1.20
Medium Duty Exhaust	0.0007010	0.0007010	0.89	0.90
Heavy Duty Exhaust	0.0016609	0.0016609	0.60	0.60
Total Exhaust PM			2.46	2.70
Light Duty Fugitive[3]	0.00038589		4.21	5.22
Medium Duty Fugitve[3]	0.00210368		2.66	2.71
Heavy Duty Fugitive[3]	0.02011945		7.29	7.29
Total Fugitive PM			14.17	15.22
Total			16.62	17.92

(1) Available parking onsite for work force in August 2008. Therefore, no buses required.

(2) Based on 2007 SCAQMD on-road emission rates. (http://www.aqmd.gov/ceqa/handbook/onroad/onroad.html)

(3) Emission Calculations for travel on paved roads from EPA AP-42 Section 13.2.1, December 2003

$E = k(sL/2)^{0.65} \times (W/3)^{1.5} - C$, where: k = 0.016 lb/VMT for PM10, sL = road silt loading (gms/m2) from CARB Methodology 7.9 for paved roads, (0.240 for local roads and 0.037 for major/collector roads), W = weight of vehicles (2.4 tons for light; 5 for medium trucks, and 20 for heavy trucks), and C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear (0.00047 lbs/VMT).

Table B-5
Chevron El Segundo Refinery
Product Reliability and Optimization Project with Currently Proposed Modification
Fugitive PM Construction Emissions for February and March 201

Grading Operations	February Pieces of Equipment Operating	March Pieces of Equipment Operating	Hours of Operation	PM10 Emission Factor (lb/hour)	Water Control Factor	Controlled Emissions: February PM10 Emissions (lbs/day)	Controlled Emissions: March PM10 Emissions (lbs/day)	Uncontrolled Emissions: February PM10 Emissions (lbs/day)	Uncontrolled Emissions: March PM10 Emissions (lbs/day)	SCAQMD Emission Factor Source
Construction Activities[1]	3.25	1.25	7.5	5.837	0.5	71.14	27.36	142.2839093	54.72458048	Table A9-9-F

TRENCHING OPERATIONS (Backhoe) TEMPORARY STOCKPILES	February Tons of Materials Handled Per Day	March Tons of Materials Handled Per Day	PM10 Emission Factor (lb/ton)	Water Control Factor	Controlled Emissions: February PM10 Emissions Pounds/day	Controlled Emissions: March PM10 Emissions Pounds/day	Uncontrolled Emissions: February PM10 Emissions Pounds/day	Uncontrolled Emissions: March PM10 Emissions Pounds/day	SCAQMD Emission Factor Source
Construction Activities[2]	487.5	187.5	0.0035	0.5	0.853125	0.328125	1.70625	0.65625	Table A9-9-G

Assumptions: 1cubic yard trench spoils = 1 ton

WIND EROSION Disturbed Area and Temporary Stockpiles	Days of Construction	February Acreage Disturbed Per Day	March Acreage Disturbed Per Day	PM10 Emission Factor (lb/day/acre)	February PM10 Emissions Pounds/day	March PM10 Emissions Pounds/day	February PM10 Emissions Tons/Year	March PM10 Emissions Tons/Year	SCAQMD Emission Factor Source
Construction Activities[3]	22	0.503	0.103	0.200	0.100	0.021	0.001	0.000	Table A9-9-E

TRUCK FILLING/DUMPING	February Materials Handled Per Day (tons)	March Materials Handled Per Day (tons)	PM10 Emission Factor (lb/ton)	Water Control Factor	Controlled Emissions: February PM10 Emissions Pounds/day	Controlled Emissions: March PM10 Emissions Pounds/day	Uncontrolled Emissions: February PM10 Emissions Pounds/day	Uncontrolled Emissions: March PM10 Emissions Pounds/day	SCAQMD Emission Factor Source
Truck Filling[4]	487.5	187.5	0.02205	0.5	5.3746875	2.0671875	10.749375	4.134375	Table A9-9
Truck Dumping	0	0	0.009075	0.5	0	0	0	0	Table A9-9

TOTAL PM10 Pounds/day	Feb	Mar
(Controlled Emissions)	77.4701	33.08566
(Uncontrolled Emissions)	154.840	59.536
Mitigated Emissions[5]	52.646	20.242

(1) Emissions (lbs/hr) = [0.75 x ($G^{1.5}$)/($H^{1.4}$) x J
where G = silt content (7.5%), H = moisture content (2.0%) and J = hrs of operation (EPA AP-42 Table 11.9-1 for bulldozing overburden

(2) Emissions (lbs/ton) = 0.00112 x [($G/5)^{1.3}$/($H/2)^{1.4}$] x I/J
where G=mean wind speed (12 mph), H=moisture content of surface material (2%); I=lbs of dirt handled per day; and J=2,000 lbs/to

(3) Emissions (lbs/day/acre) = 1.7 x [(G/1.5)*(365-H)/235] x I/15 x
where G = silt content (7.5%); H = days with >0.01 inch of rain (34); I = percentage of time wind speed exceeds 12 mph (50%) and J= fraction of TSP (0.

(4) Used SCAQMD Table 9-9 Default emission factors

(5) Mitigated Emissions assume that watering 3 times per day controls emissions by 66 percent (Uncontrolled Emissions x 0.34)

Table B-6
Chevron El Segundo Refinery PRO Project - May 2008 FEIR
Construction CO_2 Emission Calculations

	2008											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
CO_2 (pounds/day)	0	0	0	0	12049.59	14618.13	32936.92	54526.82	64568.01	68797.62	73850.09	76449.15
Working Days per Month	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67
CO_2 (pounds/month)	0	0	0	0	261074.37	316726.13	713633.21	1181414.3	1398973.7	1490615.1	1600085.2	1656398.2
CO_2 (tons/year)												**4309.46**
CO_2 (metric tons/year)												**3909.48**
	2009											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
CO_2 (pounds/day)	95528.58	80191.28	70467.60	65269.46	60885.51	57498.61	49082.04	41389.94	36603.40	36128.44	11877.97	3187.76
Working Days per Month	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67
CO_2 (pounds/month)	2069785.8	1737477.7	1526798.1	1414171.7	1319186	1245803.3	1063444.3	896781.97	793073.6	782782.8	257355.95	69068.086
CO_2 (tons/year)												**6587.86**
CO_2 (metric tons/year)												**5976.41**
30 year amortizaion												**329.53**

Table B-7
Chevron El Segundo Refinery PRO Project with Currently Proposed Modifications
Construction CO_2 Emission Calculations

	2008											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
CO_2 (pounds/day)	0	0	0	0	4713.4539	6343.4861	13047.502	15844.512	17799.333	17692.361	20351.873	20453.652
Working Days per Month	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67
CO_2 (pounds/month)	0	0	0	0	102124.83	137442.2	282695.87	343297.76	385652.21	383334.49	440957.24	443162.46
CO_2 (tons/year)												**1259.33**
CO_2 (metric tons/year)												**1142.45**
	2009											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
CO_2 (pounds/day)	36818.368	28031.1	15666.632	12641.589	14160.101	15710.736	20021.486	18794.077	23770.413	11735.084	13432.862	12727.881
Working Days per Month	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67
CO_2 (pounds/month)	797731.3	607340.5	339443.68	273901.09	306802.19	340399.28	433798.86	407204.99	515025.62	254260.15	291045.34	275770.76
CO_2 (tons/year)												**2421.36**
CO_2 (metric tons/year)												**2196.62**
	2010											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
CO_2 (pounds/day)	12734.191	13195.411	12924.144	10517.638	8051.5419	16209.768	16742.345	15754.131	12595.263	20897.957	22357.064	25691.28
Working Days per Month	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67
CO_2 (pounds/month)	275907.48	285900.56	280023.12	227882.15	174450.08	351211.64	362750.81	341339.5	272897.36	452789.07	484403.06	556644.4
CO_2 (tons/year)												**2033.10**
CO_2 (metric tons/year)												**1844.40**
	2011											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
CO_2 (pounds/day)	42850.471	45674.22	45937.714	43991.386	41857.302	41161.276	40843.531	31546.226	24754.865	18803.43	20274.324	21168.892
Working Days per Month	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67
CO_2 (pounds/month)	928426.86	989608.09	995317.15	953146.7	906908.21	891827.64	884943.17	683501.56	536355.4	407407.65	439277.02	458659.33
CO_2 (tons/year)												**4537.69**
CO_2 (metric tons/year)												**4116.52**
	2012											
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
CO_2 (pounds/day)	20765.92	20015.396	20619.55	21430.911	16039.911	10960.708	10312.88	10312.88	11832.968	22017.48	5427.5068	814.62432
Working Days per Month	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67	21.67
CO_2 (pounds/month)	449928.26	433666.91	446756.92	464336.41	347531.4	237482	223445.73	223445.73	256380.97	477045.4	117595.98	17650.194
CO_2 (tons/year)												**1847.63**
CO_2 (metric tons/year)												**1676.14**
30 year amortizaion												**365.87**

TABLE B-8
CHEVRON PRODUCTS COMPANY
EL SEGUNDO REFINERY
SULFUR RECOVERY FACILITY EMISSIONS
FROM TAIL GAS TREATING PLANT INCINERATOR/SO_2 SCRUBBER

Pollutant	**Units**	**CO**	**VOC**	**NO_x**	**SO_x**	**PM_{10}**
Permit Limit	ppmv, dry, 0% O_2	12.7		5.2	12	
Stack Flow	lb mols/hr, dry, 0% O_2	3180		3180	3144	
Pollutant Flow	lb mols/hr	0.0404		0.0165	0.0377	
Pollutant MW	lb/lb-mol	28		46	64	
Pollutant Flow	lb/hr	1.13		0.76	2.41	
Burner Duty	mmBTU/hr		41.9			41.9
Fuel Heating Value	BTU/scf (HHV)		1050			1050
Fuel Flow	scf/hr		39,905			39,905
Fuel Flow	mmscf/day		0.958			0.958
Emission Factor	lb/mmscf		7.0			7.6
Pollutant Flow	**lb/day**	**27.1**	**6.7**	**18.3**	**58.0**	**7.3**

Note:

Calculation of mass emission limits for criteria pollutants from anticipated permit limits

VOC and PM_{10} emission factors from SCAQMD General Instruction Book for 2006-2007 AER, Appendix A Table 1.

NOx and CO concentrations based on 0.02 and 0.03 lb/MMBTU, respectively, burner manufacturer guarantees.

SOx concentration based on caustic scrubber manufacturer guarantee.

The burner duty of 41.9 MMBTUH is set by an operating scenario characterized by tail gas with a reduced combustibles content (H2, CO, COS), which requires added heat release from the burner. Because of the low COS content, this scenario does not produce the maximum SOx emissions. Maximum SOx emissions occur in the EOR scenario, characterized by an increased combustibles content, including increased COS. In the EOR scenario, the firing rate is 38.2 MMBTUH and the stack flow is 3144 lb mols/hr.

TABLE B-9

Permit Unit: Process 16 - System New (Gasoline Tank - Floating Roof w External Fixed Dome)

Modification ID XX-XX-XXX (Tank 303)

REFINERY FUGITIVE EMISSIONS - AQMD FACTORS

EQPT. TYPE	SERVICE	No. of Sources	Controlled Emission Factors lbs/yr*	Annual ROG Emission lbs/yr
Valves	HC Vapor	0	23	0
	Bellows Sealed	0	0	0
Valves	Fuel Gas	0	12	0
	Bellows Sealed	0	0	0
Valves	Light Liquid	1	19	19
	Bellows Sealed	22	0	0
Valves	Heavy Liquid	0	3	0
	Bellows Sealed	0	0	0
Flanges	Light Liquid/Vapor	56	1.5	84
Flanges	Heavy Liquid	0	1.5	0
Connectors	Light Liquid/Vapor	13	1.5	19.5
Connectors	Heavy Liquid	0	1.5	0
Pumps	Light Liquid	3	104	312
Pumps	Heavy Liquid	0	80	0
	(Non-Rule 1173)			
Pumps	< 10% HC	0	104	0
	(Non-Rule 1173)		(520 x 0.2= 104)	
Compressors	HC Gas/Vapor	0	514	0
Compressors	< 10% HC	0	51.4	0
	(Non-Rule 1173)		(514 x 0.1 = 51.4)	
PRV's Heavy Liquid (To Atmosphere)		0	1,135	0
PRV's Heavy Liquid (Closed System)		0	0	0
PRV's Light Liquid/Vapor (To Atmosphere)		0	1,135	0
PRV's Light Liquid/Vapor (Closed System)		2	0	0
Drains		4	80	320
(non-emergency, without watercseal and venting to atmosphere)				

Total Count:	101	Total (lb/yr)	**754.5**
		Hydrocarbon Emissions (lbs/day)	**2.1**

Light liquid and gas/liquid streams: Liquid or gas/liquid stream with a vapor pressure greater than that of kerosene (> 0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatile class present at > 20% by volume.

kerosene (> 0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatitle class present at > 20% by volume.

Heavy liquid: Streams with a vapor pressure equal to or less than that of kerosene (= 0.1 psia @ 100°F or 689 Pa @ 38°C) based on the most volatile class present > 20% by volume.

* Emission factors for all components based on factors used for Chevron Reformulated Gasoline Project.

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	Tank 303 (New Speciation) 5-08-09
City:	Los Angeles AP
State:	California
Company:	Chevron Products USA
Type of Tank:	Domed External Floating Roof Tank
Description:	Tank 303 New

Tank Dimensions

Diameter (ft):	150.00
Volume (gallons):	7,392,000.00
Turnovers:	85.23

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	Gray/Light
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Detail

B-10

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Automatic Gauge Float Well/Bolted Cover, Gasketed	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	30
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	50
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Sleeve,Wiper	1

Meterological Data used in Emissions Calculations: Los Angeles AP, California (Avg Atmospheric Pressure = 14.67 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Tank 303 (New Speciation) 5-08-09 - Domed External Floating Roof Tank
Los Angeles AP, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (1)	All	71.00	62.31	79.70	65.19	10.9900	N/A	N/A	68.0000			114.00	
1,2,4-Trimethylbenzene						0.0314	N/A	N/A	120.1900	0.0827	0.0004	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						1.5725	N/A	N/A	78.1100	0.0356	0.0085	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butadiene, 1,3-						36.6817	N/A	N/A	54.1000	0.0000	0.0000	54.10	Option 2: A=6.8499, B=930.546, C=238.854
Cyclohexane						1.6200	N/A	N/A	84.1600	0.0611	0.0151	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethylbenzene						0.1576	N/A	N/A	106.1700	0.0382	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.5297	N/A	N/A	86.1700	0.0746	0.0288	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Naphthalene						0.0040	N/A	N/A	128.2000	0.0059	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Propylene						140.8109	N/A	N/A	42.0800	0.0090	0.1933	42.08	Option 2: A=7.58, B=1133.65, C=283.26
Toluene						0.4611	N/A	N/A	92.1300	0.1486	0.0105	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						34.1082	N/A	N/A	79.1806	0.3307	0.7382	184.57	
Xylene (mixed isomers)						0.1317	N/A	N/A	106.1700	0.2136	0.0043	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

Tank 303 (New Speciation) 5-08-09 - Domed External Floating Roof Tank
Los Angeles AP, California

Annual Emission Calcaulations

Rim Seal Losses (lb):	2,034.2639
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000
Average Wind Speed (mph):	0.0000
Seal-related Wind Speed Exponent:	1.0000
Value of Vapor Pressure Function:	0.3324
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	10.9900
Tank Diameter (ft):	150.0000
Vapor Molecular Weight (lb/lb-mole):	68.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	1,004.3271
Annual Net Throughput (gal/yr.):	630,020,160.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	7.1000
Tank Diameter (ft):	150.0000
Roof Fitting Losses (lb):	1,841.4609
Value of Vapor Pressure Function:	0.3324
Vapor Molecular Weight (lb/lb-mole):	68.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	81.4700
Average Wind Speed (mph):	0.0000
Total Losses (lb):	4,880.0519

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2	1.60	0.00	0.00	72.3294
Automatic Gauge Float Well/Bolted Cover, Gasketed	1	2.80	0.00	0.00	63.2882
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	10.6234
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	140.1382
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	30	1.20	0.14	0.65	813.7055
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	50	0.49	0.16	0.14	553.7718
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Sleeve,Wiper	1	8.30	4.40	1.60	187.6043

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank 303 (New Speciation) 5-08-09 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (1)	2,034.26	1,004.33	1,841.46	0.00	4,880.05
Hexane (-n)	58.56	74.92	53.01	0.00	186.49
Benzene	17.37	35.75	15.73	0.00	68.85
Toluene	21.26	149.24	19.25	0.00	189.75
Ethylbenzene	1.87	38.37	1.69	0.00	41.93
Xylene (mixed isomers)	8.73	214.52	7.90	0.00	231.16
1,2,4-Trimethylbenzene	0.81	83.06	0.73	0.00	84.59
Cyclohexane	30.72	61.36	27.80	0.00	119.88
Naphthalene	0.01	5.93	0.01	0.00	5.94
Butadiene, 1,3-	0.08	0.01	0.07	0.00	0.16
Propylene	393.26	9.04	355.99	0.00	758.29
Unidentified Components	1,501.60	332.12	1,359.28	0.00	3,193.00

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Comparison of Toxic Emissions from Tank 303

	Revised	Tank Dimensions	Tank Dimensions	PRO Project EIR	Tank Dimensions	Tank Dimensions	Increase
	150' x 64'	150' x 64'	150' x 64'	Submitted	155' x 64'	155' x 64'	(bbl/yr)
	Throughput (bbl/yr)	15,000,000	15,000,000	Throughput (bbl/yr)	8,395,200	8,395,200	6,604,800
	Date: 5/5/09	Tank Loss	Tank Loss	EIR	Tank Loss	Tank Loss	Tank Loss
Chemical	Liquid Wt.%	lb/hr	lb/yr	Liquid Wt.%	lb/hr	lb/yr	lb/yr
1,3-Butiadiene	0.0007	0.000018	0.16	0.0007	0.000016	0.14	0.02
Propylene	0.9	0.086563	758.29	0.05	0.000000	0.00	758.29
Benzene	3.56	0.007860	68.85	0.82	0.001304	11.42	57.43
Cyclohexane	6.11	0.013685	119.88	1.26	0.002043	17.90	101.98
Ethyl Benzene	3.82	0.004787	41.93	1.79	0.001284	11.25	30.68
n-Hexane	7.46	0.021289	186.49	0.04	0.007999	10.07	116.42
Naphthalene	0.59	0.000678	5.94	0.59	0.000371	3.25	2.69
1,2,4-Trimethylbenzene	8.27	0.009656	84.59	3.42	0.002191	19.19	65.40
Toluene	14.86	0.021661	189.75	6.83	0.006193	54.25	135.50
Xylenes	21.36	0.026388	231.16	10.02	0.007040	61.67	169.49

TABLE B-10

Permit Unit: Process 16 - System New (Gasoline Tank - Floating Roof w External Fixed Dome)

Modification ID XX-XX-XXX (Tank 304)

REFINERY FUGITIVE EMISSIONS - AQMD FACTORS

EQPT. TYPE	SERVICE	No. of Sources	Controlled Emission Factors lbs/yr*	Annual ROG Emission lbs/yr
Valves	HC Vapor	0	23	0
	Bellows Sealed	0	0	0
Valves	Fuel Gas	0	12	0
	Bellows Sealed	0	0	0
Valves	Light Liquid	1	19	19
	Bellows Sealed	22	0	0
Valves	Heavy Liquid	0	3	0
	Bellows Sealed	0	0	0
Flanges	Light Liquid/Vapor	56	1.5	84
Flanges	Heavy Liquid	0	1.5	0
Connectors	Light Liquid/Vapor	13	1.5	19.5
Connectors	Heavy Liquid	0	1.5	0
Pumps	Light Liquid	3	104	312
Pumps	Heavy Liquid	0	80	0
	(Non-Rule 1173)			
Pumps	< 10% HC	0	104	0
	(Non-Rule 1173)		(520 x 0.2= 104)	
Compressors	HC Gas/Vapor	0	514	0
Compressors	< 10% HC	0	51.4	0
	(Non-Rule 1173)		(514 x 0.1 = 51.4)	
PRV's Heavy Liquid (To Atmosphere)		0	1,135	0
PRV's Heavy Liquid (Closed System)		0	0	0
PRV's Light Liquid/Vapor (To Atmosphere)		0	1,135	0
PRV's Light Liquid/Vapor (Closed System)		2	0	0
Drains		4	80	320
(non-emergency, without watercseal and venting to atmosphere)				

Total Count:	101	Total (lb/yr)	**754.5**
		Hydrocarbon Emissions (lbs/day)	**2.1**

Light liquid and gas/liquid streams: Liquid or gas/liquid stream with a vapor pressure greater than that of kerosene (> 0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatile class present at > 20% by volume.

kerosene (> 0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatitle class present at > 20% by volume.

Heavy liquid: Streams with a vapor pressure equal to or less than that of kerosene (= 0.1 psia @ 100°F or 689 Pa @ 38°C) based on the most volatile class present > 20% by volume.

* Emission factors for all components based on factors used for Chevron Reformulated Gasoline Project.

TANKS 4.0.9d
Emissions Report - Detail Format
Tank Indentification and Physical Characteristics

Identification

User Identification:	Tank 304 (New Speciation) 5-08-09
City:	Los Angeles AP
State:	California
Company:	Chevron Products USA
Type of Tank:	Domed External Floating Roof Tank
Description:	Tank 304 Storage (New)

Tank Dimensions

Diameter (ft):	160.00
Volume (gallons):	8,442,000.00
Turnovers:	89.55

Paint Characteristics

Internal Shell Condition:	Light Rust
Shell Color/Shade:	Gray/Light
Shell Condition	Good

Roof Characteristics

Type:	Pontoon
Fitting Category	Detail

B-16

Tank Construction and Rim-Seal System

Construction:	Welded
Primary Seal:	Mechanical Shoe
Secondary Seal	Rim-mounted

Deck Fitting/Status	Quantity
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2
Automatic Gauge Float Well/Bolted Cover, Gasketed	1
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	40
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	70
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Sleeve,Wiper	1
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1

Meterological Data used in Emissions Calculations: Los Angeles AP, California (Avg Atmospheric Pressure = 14.67 psia)

TANKS 4.0.9d
Emissions Report - Detail Format
Liquid Contents of Storage Tank

Tank 304 (New Speciation) 5-08-09 - Domed External Floating Roof Tank
Los Angeles AP, California

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F) Avg.	Min.	Max.	Liquid Bulk Temp (deg F)	Vapor Pressure (psia) Avg.	Min.	Max.	Vapor Mol. Weight.	Liquid Mass Fract.	Vapor Mass Fract.	Mol. Weight	Basis for Vapor Pressure Calculations
Gasoline (1)	All	71.00	62.31	79.70	65.19	10.9900	N/A	N/A	68.0000			114.00	
1,2,4-Trimethylbenzene						0.0314	N/A	N/A	120.1900	0.0827	0.0004	120.19	Option 2: A=7.04383, B=1573.267, C=208.56
Benzene						1.5725	N/A	N/A	78.1100	0.0356	0.0085	78.11	Option 2: A=6.905, B=1211.033, C=220.79
Butadiene, 1,3-						36.6817	N/A	N/A	54.1000	0.0000	0.0000	54.10	Option 2: A=6.8499, B=930.546, C=238.854
Cyclohexane						1.6200	N/A	N/A	84.1600	0.0611	0.0151	84.16	Option 2: A=6.841, B=1201.53, C=222.65
Ethylbenzene						0.1576	N/A	N/A	106.1700	0.0382	0.0009	106.17	Option 2: A=6.975, B=1424.255, C=213.21
Hexane (-n)						2.5297	N/A	N/A	86.1700	0.0746	0.0288	86.17	Option 2: A=6.876, B=1171.17, C=224.41
Naphthalene						0.0040	N/A	N/A	128.2000	0.0059	0.0000	128.20	Option 2: A=7.3729, B=1968.36, C=222.61
Propylene						140.8109	N/A	N/A	42.0800	0.0090	0.1933	42.08	Option 2: A=7.58, B=1133.65, C=283.26
Toluene						0.4611	N/A	N/A	92.1300	0.1486	0.0105	92.13	Option 2: A=6.954, B=1344.8, C=219.48
Unidentified Components						34.1082	N/A	N/A	79.1806	0.3307	0.7382	184.57	
Xylene (mixed isomers)						0.1317	N/A	N/A	106.1700	0.2136	0.0043	106.17	Option 2: A=7.009, B=1462.266, C=215.11

TANKS 4.0.9d
Emissions Report - Detail Format
Detail Calculations (AP-42)

Tank 304 (New Speciation) 5-08-09 - Domed External Floating Roof Tank
Los Angeles AP, California

Annual Emission Calcaulations

Rim Seal Losses (lb):	2,169.8815
Seal Factor A (lb-mole/ft-yr):	0.6000
Seal Factor B (lb-mole/ft-yr (mph)^n):	0.4000
Average Wind Speed (mph):	0.0000
Seal-related Wind Speed Exponent:	1.0000
Value of Vapor Pressure Function:	0.3324
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	10.9900
Tank Diameter (ft):	160.0000
Vapor Molecular Weight (lb/lb-mole):	68.0000
Product Factor:	1.0000
Withdrawal Losses (lb):	1,129.8289
Annual Net Throughput (gal/yr.):	755,997,984.0000
Shell Clingage Factor (bbl/1000 sqft):	0.0015
Average Organic Liquid Density (lb/gal):	7.1000
Tank Diameter (ft):	160.0000
Roof Fitting Losses (lb):	2,334.2048
Value of Vapor Pressure Function:	0.3324
Vapor Molecular Weight (lb/lb-mole):	68.0000
Product Factor:	1.0000
Tot. Roof Fitting Loss Fact.(lb-mole/yr):	103.2700
Average Wind Speed (mph):	0.0000
Total Losses (lb):	5,633.9151

Roof Fitting/Status	Quantity	Roof Fitting Loss Factors KFa(lb-mole/yr)	KFb(lb-mole/(yr mph^n))	m	Losses(lb)
Access Hatch (24-in. Diam.)/Bolted Cover, Gasketed	2	1.60	0.00	0.00	72.3294
Automatic Gauge Float Well/Bolted Cover, Gasketed	1	2.80	0.00	0.00	63.2882
Gauge-Hatch/Sample Well (8-in. Diam.)/Weighted Mech. Actuation, Gask.	1	0.47	0.02	0.97	10.6234
Roof Leg (3-in. Diameter)/Adjustable, Pontoon Area, Sock	40	1.20	0.14	0.65	1,084.9407
Roof Leg (3-in. Diameter)/Adjustable, Center Area, Sock	70	0.49	0.16	0.14	775.2806
Slotted Guide-Pole/Sample Well/Gask. Sliding Cover, w. Pole Sleeve,Wiper	1	8.30	4.40	1.60	187.6043
Vacuum Breaker (10-in. Diam.)/Weighted Mech. Actuation, Gask.	1	6.20	1.20	0.94	140.1382

TANKS 4.0.9d
Emissions Report - Detail Format
Individual Tank Emission Totals

Emissions Report for: Annual

Tank 304 (New Speciation) 5-08-09 - Domed External Floating Roof Tank
Los Angeles AP, California

	Losses(lbs)				
Components	Rim Seal Loss	Withdrawl Loss	Deck Fitting Loss	Deck Seam Loss	Total Emissions
Gasoline (1)	2,169.88	1,129.83	2,334.20	0.00	5,633.92
Hexane (-n)	62.46	84.29	67.20	0.00	213.95
Benzene	18.53	40.22	19.93	0.00	78.69
Toluene	22.68	167.89	24.40	0.00	214.97
Ethylbenzene	1.99	43.16	2.14	0.00	47.30
Xylene (mixed isomers)	9.31	241.33	10.02	0.00	260.67
1,2,4-Trimethylbenzene	0.86	93.44	0.92	0.00	95.22
Cyclohexane	32.76	69.03	35.24	0.00	137.04
Naphthalene	0.01	6.67	0.01	0.00	6.68
Butadiene, 1,3-	0.08	0.01	0.09	0.00	0.18
Propylene	419.48	10.17	451.25	0.00	880.90
Unidentified Components	1,601.70	373.63	1,723.00	0.00	3,698.33

Comparison of Toxic Emissions from Tank 304

	Revised	Tank Dimensions	Tank Dimensions	PRO Project EIR	Tank Dimensions	Tank Dimensions	Increase
	150' x 64'	150' x 64'	150' x 64'	Submitted	155' x 64'	155' x 64'	(bbl/yr)
	Throughput (bbl/yr)	15,000,000	15,000,000	Throughput (bbl/yr)	8,395,200	8,395,200	6,604,800
	Date: 5/5/09	Tank Loss	Tank Loss	EIR	Tank Loss	Tank Loss	Tank Loss
Chemical	Liquid Wt.%	lb/hr	lb/yr	Liquid Wt.%	lb/hr	lb/yr	lb/yr
1,3-Butiadiene	0.0007	0.000021	0.18	0.0007	0.000015	0.13	0.05
Propylene	0.9	0.100559	880.9	0.05	0.000000	0.00	880.90
Benzene	3.56	0.008983	78.69	0.82	0.001798	15.75	62.94
Cyclohexane	6.11	0.015644	137.04	1.26	0.002796	24.49	112.55
Ethyl Benzene	3.82	0.005400	47.3	1.79	0.002547	22.31	24.99
n-Hexane	7.46	0.024424	213.95	0.04	0.009935	87.03	126.92
Naphthalene	0.59	0.000763	6.68	0.59	0.000798	6.99	-0.31
1,2,4-Trimethylbenzene	8.27	0.010870	95.22	3.42	0.004639	40.64	54.58
Toluene	14.86	0.024540	214.97	6.83	0.010865	95.18	119.79
Xylenes	21.36	0.029757	260.67	10.02	0.014138	123.85	136.82

APPENDIX C

LOCALIZED SIGNIFICANCE THRESHOLD ANALYSIS AND AMBIENT AIR QUALITY MODELING

Chevron El Segundo Refinery
Product Reliability and Optimization Project
With Currently Proposed Modifications
SCAQMD Localized Significance Threshold Analysis

April 16, 2010

Prepared for: Chevron El Segundo Refinery

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Chevron El Segundo Refinery
Safety, Compliance and Optimization Project
SCAQMD Localized Significance Threshold Analysis

INTRODUCTION

This Localized Significance Threshold (LST) analysis has been prepared to evaluate the potential impacts of the criteria pollutants carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns in diameter (PM10), and particulate matter less than 2.5 microns in diameter (PM2.5) emitted by the construction activities associated with the proposed Chevron El Segundo Refinery Product Reliability and Optimization (PRO) Project Addendum. An Environmental Impact Report (EIR) for the PRO Project was certified in May 2008 and included an LST for the PRO Project. The currently proposed modifications to the PRO Project include changes to the proposed tankage at the El Segundo Refinery (Refinery) and the addition of a scrubber to the tail gas unit (TGU) for additional control of sulfur oxides (SOx) to meet Best Available Control Technology (BACT) requirements established by the South Coast Air Quality Management District (SCAQMD) during the permitting process.

As part of the Addendum to the PRO Project, Environmental Audit, Inc. (EAI) has calculated construction emissions to evaluate the potential impacts from construction activities associated with the currently proposed modifications to the PRO Project. Based on information provided by Chevron, construction scheduling has changed. Therefore, the new LST analysis includes the criteria pollutants for the new peak daily emissions from the Pro Project including currently proposed modifications. The results of this analysis are provided below.

Based on information provided by Chevron, construction activities by month for the proposed project are calculated to determine the peak construction day. The peak construction day is expected to occur during February 2011 for PM10 andPM2.5 and March 2011 for CO and NOx. Construction activities included in this evaluation are the use of construction equipment, vehicle activities on-site (i.e., buses, contractors arriving and leaving the site), and fugitive dust emissions from earth moving activities. Criteria pollutants evaluated include CO, NO_2, PM10, and PM2.5 associated with the construction activities.

FACILITY LOCATION

The Refinery is located at 324 West El Segundo Boulevard in the City of El Segundo, California in the southern portion of Los Angeles County (See Figure C-1). The SCAQMD identification number for the facility is 800030. The Refinery is bounded by El Segundo Boulevard to the north, Sepulveda Boulevard to the east, Rosecrans Avenue to the south, and Vista Del Mar to the west. The Chevron Refinery is located in an area of mixed land uses, with industrial, recreation, residential, and commercially zoned areas nearby. Land use to the north of the Chevron Refinery is primarily residential, with a mix of commercial and light industrial zoning mixed in. The predominant adjacent land uses west of the Refinery are nearly all heavy industrial, or open space, which includes: Dockweiler State Beach, Manhattan Beach, and the El Segundo Generating Station, although a small parcel of land at the southwest corner of the Chevron property is made up of commercial and multiple-family residential.

Directly south of the Refinery, there is a single-family residential area bordering the entire length of the Refinery separated by Rosecrans Avenue. The corridor immediately east of the Refinery is comprised of a golf course at the corner of Sepulveda Boulevard and El Segundo Boulevard, with light commercial and heavy industrial zoning for the rest of the tract. The Refinery is located in the City of El Segundo within Los Angeles County in an urbanized area that includes a substantial amount of industrial development, due to the proximity of Los Angeles International Airport (LAX).

EMISSION ESTIMATES

Construction emission estimates for the peak day are calculated by each portion of the project that will be under construction during that period (see Table C-1). Construction emissions vary based on activities and the worst-case scenario has been evaluated. It is expected that the calculated peak day emissions estimates will occur infrequently during the proposed project construction activities and, most of the time, construction emissions will be less.

CRITERIA POLLUTANT IMPACT MODELING

In order to determine the groundlevel concentrations, the U.S. EPA AERMOD air dispersion model is used to calculate the annual average and maximum 1-hour, 8-hour, and 24-hour concentrations. The LST included in the May 2008 Final EIR was prepared using the U.S. EPA ISCST3 model. Since that time, AERMOD has become the preferred model with SCAQMD-supplied meteorological data. However, ISCST3 will be used to say consistent with the previous analysis.

The location of the source is identified based on data provided by Chevron and the Venice USGS Quadrangle (see Figure B-1). The emissions for each pollutant are run in separate modeling runs using the emissions for each source in grams per second per square meter in the ISCST3 model. The ISCST3 model is run using the Long Beach meteorological data available from the SCAQMD. The following settings are used in running the ISCST3 dispersion model:

- Use stack-tip downwash;
- Use buoyancy-induced dispersion;
- Do not use gradual plume rise;
- Do not use calm wind processing routine;
- Do not use missing data processing routine;
- Use default wind profile exponents;
- Use default vertical potential temperature gradients; and
- Use urban mode dispersion.

ISCST3 is not set to include algorithms to model the effects of building downwash on emissions since area sources are not influenced by building downwash in ISCST3.

Terrain elevations are taken into account even though the facility and the vicinity are in a relatively flat area.

The ISCST3 model is run using a receptor grid of 100 meters, and extends at least 1,000 meters in every cardinal direction from the boundaries of the Refinery (see Figure C-1).

The maximum impact location is determined for the applicable averaging periods from the ISCST3 model output. The maximum groundlevel concentration and the Universal Tranverse Mercator (NAD 27) coordinates for each maximum impact point are presented in Table C-2.

CRITERIA POLLUTANT IMPACT ANALYSIS

The proposed project maximum groundlevel concentrations are compared to the significance thresholds established in Rule 1303, Appendix A, Table A-2 to demonstrate that the project will not cause a violation of any state or national ambient air quality standard. The ambient air quality data for Southwest Coastal Los Angeles County (Station No. 820) is used to establish background levels of NOx, CO, and PM10. Table C-3 identifies the ambient air quality data for CO and NO_2 published by the SCAQMD in the last three years (2006, 2007, and 2008). PM10 and PM2.5 are compared to 10.4 micrograms per cubic meter ($\mu g/m^3$), which is comparable to the requirement in Rule 403. PM10 and PM2.5 are evaluated differently that CO and NO_2 because PM10 in nearly the entire district exceeds the state or federal PM10 and PM2.5 standards.

The CO 1-hour, 8-hour, NO_2 1-hour, and NO_2 annual average concentrations are combined with the maximum ambient concentrations and compared to the Most Stringent Air Quality Standard. The PM10/PM2.5 24-hour and annual average concentrations are compared to the Significant Change in Air Quality Concentration thresholds. The results are presented in Table C-4.

The maximum CO impact concentrations for 1-hour and 8-hour averages are 4,764.1 and 2,927.3 $\mu g/m^3$, respectively. The maximum NO_2 impact concentrations for 1-hour and annual averages are 331.9 and 33.6 $\mu g/m^3$, respectively. The maximum PM10 impact concentration for 24-hour average is 9.3 $\mu g/m^3$. PM2.5 is a fraction of PM10; therefore, the PM2.5 impact concentration for 24-hour average will be less than 9.3 $\mu g/m^3$.

CONCLUSIONS

The localized significance threshold analysis results in no significant change in air quality from construction activities for NO_2, CO, PM10, or PM2.5. Therefore, the proposed project complies with the localized significance threshold methodology.

FIGURE

ENVIRONMENTAL AUDIT, INC.

CHEVRON EL SEGUNDO REFINERY
SOURCE LOCATION AND RECEPTOR MAP

Project No. 2505a

Figure C-1

N:\2505a\LST\Figure 1 - LST.cdr

TABLES

Localized Significance Threshold Evaluation for
Chevron El Segundo Refinery
Process Reliability and Optimization Construction Emissions

Table C-1. Peak Day Calculated Construction Emissions and Source Dimensions[1]

Phase	Source Description	Source Name	Emissions (lb/day)			Emissions (g/s)			Area of Source (m^2)	Emissions (g/s-m^2)		
			CO	NOx	PM10[2][3]	CO	NOx	PM10		CO	NOx	PM10
Aug '08 - Peak PM10	Cogen Train D	COGEN	N/A	N/A	5.03E+00	N/A	N/A	6.33E-02	4180	N/A	N/A	1.52E-05
Aug '08 - Peak PM10	VRDS	VRDS	N/A	N/A	2.23E+01	N/A	N/A	2.81E-01	17570	N/A	N/A	1.6E-05
Aug '08 - Peak PM10	Sulfur Recovery Facility	SRF	N/A	N/A	1.11E+01	N/A	N/A	1.39E-01	4640	N/A	N/A	3E-05
Aug '08 - Peak PM10	Tanks/Loading Racks	T304	N/A	N/A	1.26E+01	N/A	N/A	1.59E-01	3715	N/A	N/A	4.28E-05
Aug '08 - Peak PM10	Flare Modifications	FLARE	N/A	N/A	2.07E+01	N/A	N/A	2.61E-01	3715	N/A	N/A	7.03E-05
Aug '08 - Peak PM10	Tanks/Loading Racks	T303	N/A	N/A	1.26E+01	N/A	N/A	1.59E-01	7190	N/A	N/A	2.21E-05
Aug '08 - Peak PM10	Tanks/Loading Racks	LOADRACK	N/A	N/A	5.10E+00	N/A	N/A	6.42E-02	3620	N/A	N/A	1.77E-05
Aug '08 - Peak PM10	Tanks/Loading Racks	T722	N/A	N/A	5.10E+00	N/A	N/A	6.42E-02	750	N/A	N/A	8.56E-05
Aug '08 - Peak PM10	Basin	BASIN	N/A	N/A	4.22E+00	N/A	N/A	5.31E-02	74320	N/A	N/A	7.15E-07
Aug '08 - Peak PM10	Flare Modifications	FLAREMOD	N/A	N/A	1.49E+00	N/A	N/A	1.88E-02	13980	N/A	N/A	1.35E-06
Jan '09 - Peak CO/NOx	Cogen Train D	COGEN	4.46E+01	4.27E+01	N/A	2.81E-01	2.69E-01	N/A	4180	6.72E-05	6.43E-05	N/A
Jan '09 - Peak CO/NOx	VRDS	VRDS	2.15E+01	3.02E+01	N/A	1.35E-01	1.90E-01	N/A	17570	7.70E-06	1.08E-05	N/A
Jan '09 - Peak CO/NOx	Sulfur Recovery Facility	SRF	9.12E+01	8.92E+01	N/A	5.74E-01	5.62E-01	N/A	4640	1.24E-04	1.21E-04	N/A
Jan '09 - Peak CO/NOx	Tanks/Loading Racks	T304	2.97E+01	2.68E+01	N/A	1.87E-01	1.69E-01	N/A	3715	5.04E-05	4.54E-05	N/A
Jan '09 - Peak CO/NOx	Flare Modifications	FLARE	2.23E+01	3.58E+01	N/A	1.40E-01	2.25E-01	N/A	3715	3.78E-05	6.07E-05	N/A
Jan '09 - Peak CO/NOx	Tanks/Loading Racks	T303	2.97E+01	2.68E+01	N/A	1.87E-01	1.69E-01	N/A	7190	2.60E-05	2.35E-05	N/A
Jan '09 - Peak CO/NOx	Tanks/Loading Racks	LOADRACK	1.13E+01	1.42E+01	N/A	7.10E-02	8.95E-02	N/A	3620	1.96E-05	2.47E-05	N/A
Jan '09 - Peak CO/NOx	Tanks/Loading Racks	T722	1.13E+01	1.42E+01	N/A	7.10E-02	8.95E-02	N/A	750	9.47E-05	1.19E-04	N/A
Jan '09 - Peak CO/NOx	Edison	EDISON	3.33E+01	4.34E+01	N/A	2.10E-01	2.73E-01	N/A	74320	2.83E-06	3.68E-06	N/A
Jan '09 - Peak CO/NOx	Flare Modifications	FLAREMOD	5.45E+00	3.43E+00	N/A	3.43E-02	2.16E-02	N/A	13980	2.46E-06	1.55E-06	N/A

(1) Emissions were allocated to each source by engineering estimates.

(2) PM10 emissions adjusted to remove off-site on-road fugitive dust emissions.

(3) The PM2.5 is a subset of PM10, therefore, will never exceed PM10 emission rates.

Localized Significance Threshold Evaluation for
Chevron El Segundo Refinery
Process Reliability and Optimization Construction Emissions

Table C-2. ISCST3 Modeling Results for November 2007 Peak Day Construction Emissions

Criteria Pollutant	Averaging Period	Peak PM10 Max Conc. ($\mu g/m^3$)	Peak CO/NOx Max Conc. ($\mu g/m^3$)	Absolute Max Conc. ($\mu g/m^3$)	UTM Coordinates	
					Easting	Northing
CO	1-hr	N/A	148.53	148.53	368500	3752900
	8-hr	N/A	53.78	53.78	368500	3752800
NO_2	1-hr	N/A	143.09	143.09	368500	3752900
	Annual	N/A	4.36	4.36	368500	3752900
PM10	24-hr	9.35	N/A	9.35	368500	3752800

Table C-3. Maximum Ambient Concentration Data[(1)]

Criteria Pollutant	Averaging Period	Concentration (ppm)			Max Conc.	
		2006	2007	2008	(ppm)	($\mu g/m^3$)
CO	1-hr	3	3	4	4	4597.60
	8-hr	2.3	2.4	2.5	2.5	2873.50
NO_2	1-hr	0.1	0.08	0.1	0.1	188.80
	Annual	0.0155	0.014	0.0143	0.0155	29.26

(1) Data from Southwest Coastal LA County Station (No. 820)

Localized Significance Threshold Evaluation for
Chevron El Segundo Refinery
Process Reliability and Optimization Construction Emissions

Table C-4. Localized Significance Threshold Evaluation for Construction Emissions

Criteria Pollutant	Averaging Period	Ambient Background Conc. ($\mu g/m^3$)	Calculated Concentration ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	Most Stringent Air Quality Standard ($\mu g/m^3$)	Localized Significance Threshold ($\mu g/m^3$)	Exceeds Threshold? Yes/No
CO	1-hr	4597.6	148.5	4746.1	23000		No
	8-hr	2873.5	53.8	2927.3	10000		No
NO_2	1-hr	188.8	143.1	331.9	339		No
	Annual	29.3	4.4	33.6	57		No
PM10/2.5[(1)]	24-hr		9.3		NA	10.4	No

(1) The PM2.5 and PM10 significance thresholds are the same, since PM10 is not significant for LST, PM2.5 is also not significant.

Chevron El Segundo Refinery
Product Reliability and Optimization Project
With Currently Proposed Modifications
Ambient Air Quality Report

April 16, 2010

Prepared for: Chevron El Segundo Refinery

By: Environmental Audit, Inc.
1000-A Ortega Way
Placentia, CA 92870
714-632-8521.

INTRODUCTION

This Ambient Air Quality (AAQ) analysis has been prepared to evaluate the potential impacts of the criteria pollutants carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns in diameter (PM10), and particulate matter less than 2.5 microns in diameter (PM2.5) emitted by the proposed Chevron El Segundo Refinery Product Reliability and Optimization (PRO) Project Addendum. An Environmental Impact Report (EIR) for the PRO Project was certified in May 2008 and included an AAQ for the PRO Project. The currently proposed modifications to the PRO Project include changes to the proposed tankage at the El Segundo Refinery (Refinery) and the addition of a scrubber to the tail gas unit (TGU) for additional control of sulfur oxides (SOx) to meet Best Available Control Technology (BACT) requirements established by the District during the permitting process.

FACILITY LOCATION

The Refinery is located at 324 West El Segundo Boulevard in the City of El Segundo, California in the southern portion of Los Angeles County (See Figure C-2). The South Coast Air Quality Management District (SCAQMD) identification number for the facility is 800030. The Refinery is bounded by El Segundo Boulevard to the north, Sepulveda Boulevard to the east, Rosecrans Avenue to the south, and Vista Del Mar to the west. The Chevron Refinery is located in an area of mixed land uses, with industrial, recreation, residential, and commercially zoned areas nearby. Land use to the north of the Chevron Refinery is primarily residential, with a mix of commercial and light industrial zoning mixed in. The predominant adjacent land uses west of the Refinery are nearly all heavy industrial, or open space, which includes: Dockweiler State Beach, Manhattan Beach, and the El Segundo Generating Station, although a small parcel of land at the southwest corner of the Chevron property is made up of commercial and multiple-family residential.

Directly south of the Refinery, there is a single-family residential area bordering the entire length of the Refinery separated by Rosecrans Avenue. The corridor immediately east of the Refinery is comprised of a golf course at the corner of Sepulveda Boulevard and El Segundo Boulevard, with light commercial and heavy industrial zoning for the rest of the tract. The Refinery is located in the City of El Segundo within Los Angeles County in an urbanized area that includes a substantial amount of industrial development, due to the proximity of Los Angeles International Airport (LAX).

PROJECT DESCRIPTIONS

As part of the Addendum to the PRO Project, Environmental Audit, Inc. (EAI) has calculated emissions to evaluate the potential impacts of the currently proposed modifications to the PRO Project. Based on information provided by Chevron, emissions for the TGU have changed. Therefore, the new AAQ analysis prepared includes the criteria pollutants for the Safety Flare, the Cogen Train D, and Cooling Tower as previous analyzed and the Tail Gas Unit (TGU) modified to reflect the currently proposed modifications to the PRO Project. No other currently proposed modifications affect the AAQ. Descriptions for each unit are below.

The Pressure Relief Devices (PRDs) on the No. 2 Crude Unit, the No. 2 Residuum Stripper Unit, the waste gas compressors, and the Minalk/Merox Unit that currently may vent to atmosphere under upset conditions will be routed to this new Vapor Recovery and Safety Flare System. In addition, PRDs from the new Sour Water Stripper (SWS), Sulfur Recovery Unit (SRU) and TGU will be routed to this new Vapor Recovery and Safety Flare System. The recovered gases will be treated prior to being added to the existing refinery fuel gas system.

The new 49 MW Cogen Train D includes a natural gas fired turbine electrical generator, a new steam-driven turbine electrical generator, feed gas compressors, knockout and surge pots, waste heat boilers (including refinery fuel gas-fired duct burners) to generate steam, a CO catalyst unit, and a Selective Catalytic Reduction (SCR) unit to control nitrogen oxide (NOx) emissions.

A new SRU with a capacity of 175 long tons per day will be installed to process increased amounts of H_2S to commercial grade, molten sulfur for sale. Ammonia in the feed stream to the SRU will be converted to atmospheric nitrogen and water and exhausted through the TGU to the atmosphere. The exhaust from the SRU will be vented to a new TGU for further processing before discharging to the atmosphere. The TGU will include a new incinerator and a scrubber.

A new cooling tower with a water circulation rate of approximately 12,000 gpm will be constructed to support cooling needs at the existing Alkylation Unit, new SRU, new SWS, and new TGU. The cooling tower has two exhaust fans.

EMISSION ESTIMATES

The emissions estimates emissions associated with the currently proposed modifications were provided by Chevron. Best available control technology (BACT) will be applied to the units, as required. The emissions are presented in Table C-5.

CRITERIA POLLUTANT IMPACT MODELING

In order to determine the groundlevel concentrations, the U.S. EPA AERMOD air dispersion model is used to calculate the annual average and maximum 1-hour, 8-hour, and 24-hour concentrations. The AAQ included in the May 2008 Final EIR was prepared using the U.S. EPA ISCST3 model. Since that time, AERMOD has become the preferred model with SCAQMD-supplied meteorological data. Therefore, AERMOD has been used for the current AAQ.

The location of the source is identified based on data provided by Chevron and the Venice USGS Quadrangle (see attached Figures C-2 and C-3). Calculated emissions rates were used in the AERMOD model. The AERMOD model is run using the Los Angeles International Airport meteorological data available from the SCAQMD. The following settings are used in running the AERMOD dispersion model:

- Use stack-tip downwash;
- Do not use calm wind processing routine;
- Do not use missing data processing routine;

- Use default wind profile exponents;
- Use urban mode dispersion.

AERMOD also is set to include algorithms to model the effects of building downwash on emissions from nearby or adjacent point sources. The model makes use of direction-specific information for all building downwash cases. Terrain elevations were taken into account even though the Refinery and the vicinity are in a relatively flat area.

The receptors used in the model include a fenceline receptors and a fine receptor grid. The terrain surrounding the facility is relatively constant; however, terrain variations were included for the receptor networks. The fenceline receptors (maximal spacing every 100 meters(m)) were used to determine the maximum concentrations at the property line of the Refinery. A fine receptor grid (100 m x 100 m spacing) was used to identify maximum impact locations. The grid originates near the southwestern corner of the facility and extends 3,900 meters to the west, and 3,600 meters to the north.

The maximum impact location is determined for the applicable averaging periods from the AERMOD model output. The summary tables from the AERMOD output files are included in Attachment A. The complete modeling files are on file with the SCAQMD. The maximum groundlevel concentration and the Universal Tranverse Mercator (NAD 27) coordinates for each maximum impact point are presented in Table C-6. Figure C-3 show the maximum impact locations.

CRITERIA POLLUTANT IMPACT ANALYSIS

The proposed project maximum groundlevel concentrations are compared to the significance thresholds established in Rule 1303, Appendix A, Table A-2 to demonstrate that the project will not cause a violation of any state or national ambient air quality standard. The ambient air quality data for Southwest Coastal Los Angeles County (Station No. 820) is used to establish background levels of NOx, CO, and PM10. Table C-7 identifies the maximum concentration published by the SCAQMD in the last five years (2004, 2005, 2006. 2007, and 2008) for each of the pollutants.

The CO 1-hour, 8-hour, NO_2 1-hour, and NO_2 annual average concentrations are combined with the maximum ambient concentrations and compared to the Most Stringent Air Quality Standard. The PM10 24-hour and annual average concentrations are compared to the Significant Change in Air Quality Concentration thresholds. The results are presented in Table C-8.

The maximum NO_2 impact concentrations for 1-hour and annual averages are 188.78 and 27.49 micrograms per cubic meter ($\mu g/m^3$), respectively. The maximum CO impact concentrations for 1-hour and 8-hour averages are 4,610.11 and 3,451.88 $\mu g/m^3$, respectively. The maximum PM10 impact concentrations for 24-hour and annual averages are 0.39 and 0.05 $\mu g/m^3$, respectively. Since PM2.5 is either equal to or a fraction of PM10 and the thresholds are the same, PM2.5 was not modeled. The maximum PM2.5 impact concentration will be equal to or less than the PM10 impact concentrations.

CONCLUSIONS

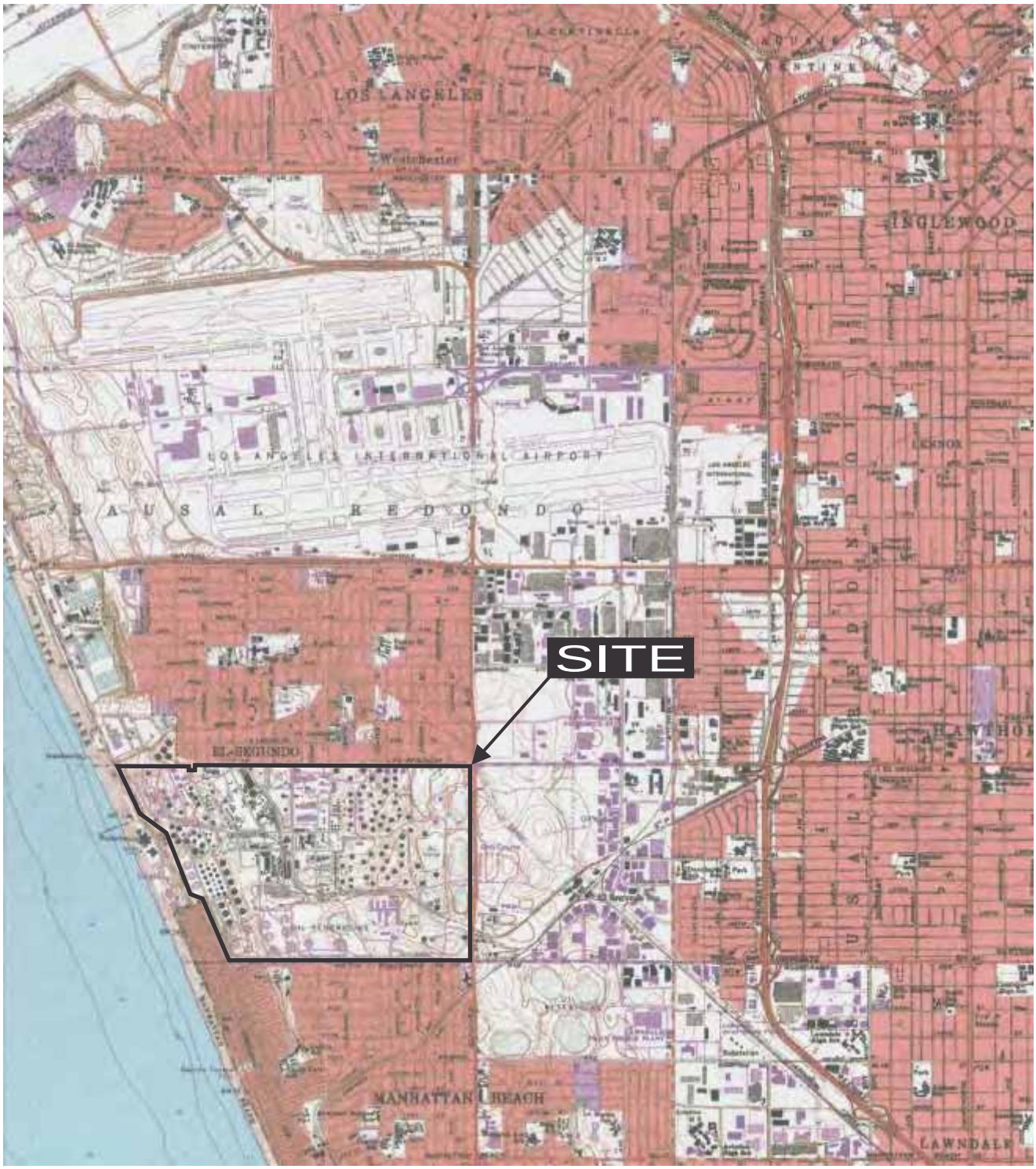
The criteria pollutant analysis results in no significant change in air quality and no exceedance of the most stringent air quality standard for NO_2, CO, PM10, or PM2.5. Therefore, the proposed project complies with Ambient Air Quality Standards.

MRB:mc

Attachments

M:\Mrb\2505 Chevron\AAQ\2505a AAQ report(rev3).doc

FIGURES



Environmental Audit, Inc.

0 4,000'

N

SITE LOCATION MAP
324 West El Segundo Boulevard
El Segundo, California

Project No. 2505a

Figure C-2

N:\2505a\Appendix C\AAQ Site Map (rev.1).cdr

ENVIRONMENTAL AUDIT, INC.

N

CHEVRON EL SEGUNDO REFINERY
SOURCE LOCATION AND MAXIMUM IMPACT MAP

TABLES

TABLE C-5

Chevron PRO Project with Currently Proposed Modifications
Criteria Pollutant Emission Rates

Source	NOx (lb/hr)	CO (lb/hr)	PM10 (lb/hr)
Flare	3.49E-01	9.40E-02	2.01E-02
Cogen	1.08E+01	2.98E+00	0.00E+00
TGU	7.63E-01	1.13E+00	3.04E-01
Cooling Tower Fan 1	0.00E+00	0.00E+00	1.20E-01
Cooling Tower Fan 2	0.00E+00	0.00E+00	1.20E-01

TABLE C-6

Chevron PRO Project with Currently Proposed Modifications
Criteria Pollutant Groundlevel
Concentration Calculations

NOx Groundlevel Concentrations

Averaging Period	Coordinates		Calculated Concentration ($\mu g/m^3$)
	UTME	UTMN	
1 Hour	368843.00	3753533.50	18.8571
Annual	369843.00	3753532.75	0.4881

CO Groundlevel Concentrations

Averaging Period	Coordinates		Calculated Concentration ($\mu g/m^3$)
	UTME	UTMN	
1 Hour	369018.56	3752035.25	12.5111
8 Hour	369018.56	3752035.25	3.6839
Annual	368948.78	3752222.50	0.1611

PM10 Groundlevel Concentrations

Averaging Period	Coordinates		Calculated Concentration ($\mu g/m^3$)
	UTME	UTMN	
24	369018.56	3752035.25	0.3936
Annual	368948.78	3752222.50	0.0545

Calculated emission are outputs from the AERMOD model.

TABLE C-7

Chevron PRO Project with Currently Proposed Modifications
Criteria Pollutant Ambient
Concentration Calculations

Criteria Pollutant	Averaging Period	Concentration (ppm)					Max Conc.	
		2004	2005	2006	2007	2008	(ppm)	($\mu g/m^3$)
NO2	1-hr	0.09	0.09	0.1	0.08	0.1	0.1	188.80
	Annual	0.0136	0.0134	0.0155	0.014	0.0143	0.0155	29.26
CO	1-hr	4	3	3	3	4	4	4597.60
	8-hr	3	2.1	2.3	2.4	2.5	3	3448.20
		Concentration (ug/m3)						
PM10	24-hr	47	44	45	96	50		96.00
	AAM	25.1	22.9	26.5	27.7	25.6		27.70

Data from Source No. 3 Southwestern Coastal Los Angeles Station number 820

TABLE C-8

Chevron PRO Project with Currently Proposed Modifications
Significance Threshold Evaluation

Criteria Pollutant	Averaging Period	Ambient Background Conc. ($\mu g/m^3$)	Calculated Conc. ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	Most Stringent Air Quality Standard ($\mu g/m^3$)	Significant Change in Air Quality Conc. ($\mu g/m^3$)	Below Threshold? Yes/No
NO2	1-hr	188.80	18.86	**207.66**	**339**	20	Yes
	Annual	29.26	0.49	**29.75**	**57**	1	Yes
CO	1-hr	4597.60	12.51	**4610.11**	**23000**	1100	Yes
	8-hr	3448.20	3.68	**3451.88**	**10000**	500	Yes
PM10	24-hr	96.00	**0.39**	96.39	50	**2.5**	Yes
	AAM	27.70	**0.05**	27.75	20	**1**	Yes

PM2.5 will be equal to PM10 with the same threshold and therefore, below significance.
Evaluation Criteria **Bolded**

ATTACHMENT A

AERMOD Model Output Summary Tables

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF MAXIMUM ANNUAL (3 YRS) RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)				NETWORK OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.48866 AT (	369843.00,	3753532.75,	35.93,	35.93,	0.00)	DC
	2ND HIGHEST VALUE IS	0.48050 AT (	369854.00,	3753540.00,	36.70,	36.70,	0.00)	DC
	3RD HIGHEST VALUE IS	0.46967 AT (	369943.00,	3753532.75,	40.80,	40.80,	0.00)	DC
	4TH HIGHEST VALUE IS	0.46269 AT (	369954.00,	3753540.00,	41.57,	41.57,	0.00)	DC
	5TH HIGHEST VALUE IS	0.44706 AT (	369743.00,	3753533.00,	30.18,	30.18,	0.00)	DC
	6TH HIGHEST VALUE IS	0.44358 AT (	369754.00,	3753540.00,	30.30,	30.30,	0.00)	DC
	7TH HIGHEST VALUE IS	0.43623 AT (	370043.00,	3753532.75,	43.98,	43.98,	0.00)	DC
	8TH HIGHEST VALUE IS	0.43094 AT (	370054.00,	3753540.00,	44.32,	44.32,	0.00)	DC
	9TH HIGHEST VALUE IS	0.40138 AT (	369954.00,	3753640.00,	37.61,	37.61,	0.00)	DC
	10TH HIGHEST VALUE IS	0.40018 AT (	370143.00,	3753532.50,	45.59,	45.59,	0.00)	DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
FLARE HIGH 1ST HIGH VALUE IS	4.73605	ON 07040804:	AT (371027.53, 3753039.50, 30.26, 30.26, 0.00)	DC	
COGEN HIGH 1ST HIGH VALUE IS	18.06268	ON 07062501:	AT (369054.00, 3753640.00, 39.20, 39.20, 0.00)	DC	
TGU HIGH 1ST HIGH VALUE IS	8.56165	ON 07091205:	AT (369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	
ALL HIGH 1ST HIGH VALUE IS	18.90191	ON 06071402:	AT (368843.00, 3753533.50, 37.99, 37.99, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
FLARE HIGH 1ST HIGH VALUE IS	0.99033	ON 07081508:	AT (370154.00, 3751940.00, 30.48, 30.48, 0.00)	DC	
COGEN HIGH 1ST HIGH VALUE IS	9.20023	ON 07081508:	AT (369254.00, 3751940.00, 51.15, 52.43, 0.00)	DC	
TGU HIGH 1ST HIGH VALUE IS	2.55046	ON 06053108:	AT (369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	
ALL HIGH 1ST HIGH VALUE IS	9.24611	ON 07081508:	AT (369254.00, 3751940.00, 51.15, 52.43, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)				NETWORK OF TYPE	GRID-ID
FLARE	HIGH	1ST HIGH VALUE IS	0.41743	ON 07081524: AT (	370154.00,	3751940.00,	30.48,	30.48,	0.00)	DC
COGEN	HIGH	1ST HIGH VALUE IS	3.57962	ON 07081524: AT (	369254.00,	3751940.00,	51.15,	52.43,	0.00)	DC
TGU	HIGH	1ST HIGH VALUE IS	0.85073	ON 06053124: AT (	369018.56,	3752035.25,	42.53,	44.50,	0.00)	DC
ALL	HIGH	1ST HIGH VALUE IS	3.59627	ON 07081524: AT (	369254.00,	3751940.00,	51.15,	52.43,	0.00)	DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

```
 *** AERMOD - VERSION 07026 ***     *** C:\Documents and Settings\Micheal\My Documents\My Projects\2505Chev\ ***        01/21/10
                                    *** NOx                                                                  ***        10:44:16
**MODELOPTs:                                                                                                          PAGE 350
CONC                         DFAULT ELEV


*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            0 Warning Message(s)
A Total of          152 Informational Message(s)

A Total of           15 Calm Hours Identified

A Total of          137 Missing Hours Identified (  0.52 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
              ***  NONE  ***


   ***********************************
   *** AERMOD Finishes Successfully ***
   ***********************************
```

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF MAXIMUM ANNUAL (3 YRS) RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)				NETWORK OF TYPE	GRID-ID
FLARE	1ST HIGHEST VALUE IS	0.01663 AT	(371030.66,	3753139.50,	29.30,	29.30,	0.00)	DC
	2ND HIGHEST VALUE IS	0.01611 AT	(371054.00,	3753140.00,	30.30,	30.30,	0.00)	DC
	3RD HIGHEST VALUE IS	0.01563 AT	(371033.81,	3753239.25,	27.32,	27.32,	0.00)	DC
	4TH HIGHEST VALUE IS	0.01563 AT	(371027.53,	3753039.50,	30.26,	30.26,	0.00)	DC
	5TH HIGHEST VALUE IS	0.01532 AT	(371054.00,	3753240.00,	27.13,	27.13,	0.00)	DC
	6TH HIGHEST VALUE IS	0.01492 AT	(371054.00,	3753040.00,	30.72,	30.72,	0.00)	DC
	7TH HIGHEST VALUE IS	0.01422 AT	(371154.00,	3753240.00,	33.59,	33.59,	0.00)	DC
	8TH HIGHEST VALUE IS	0.01404 AT	(371154.00,	3753140.00,	36.09,	36.09,	0.00)	DC
	9TH HIGHEST VALUE IS	0.01347 AT	(371154.00,	3753340.00,	35.78,	35.78,	0.00)	DC
	10TH HIGHEST VALUE IS	0.01339 AT	(371054.00,	3753340.00,	31.52,	31.52,	0.00)	DC
COGEN	1ST HIGHEST VALUE IS	0.12709 AT	(369843.00,	3753532.75,	35.93,	35.93,	0.00)	DC
	2ND HIGHEST VALUE IS	0.12488 AT	(369854.00,	3753540.00,	36.70,	36.70,	0.00)	DC
	3RD HIGHEST VALUE IS	0.12176 AT	(369943.00,	3753532.75,	40.80,	40.80,	0.00)	DC
	4TH HIGHEST VALUE IS	0.11983 AT	(369954.00,	3753540.00,	41.57,	41.57,	0.00)	DC
	5TH HIGHEST VALUE IS	0.11625 AT	(369743.00,	3753533.00,	30.18,	30.18,	0.00)	DC
	6TH HIGHEST VALUE IS	0.11526 AT	(369754.00,	3753540.00,	30.30,	30.30,	0.00)	DC
	7TH HIGHEST VALUE IS	0.11184 AT	(370043.00,	3753532.75,	43.98,	43.98,	0.00)	DC
	8TH HIGHEST VALUE IS	0.11029 AT	(370054.00,	3753540.00,	44.32,	44.32,	0.00)	DC
	9TH HIGHEST VALUE IS	0.10306 AT	(369954.00,	3753640.00,	37.61,	37.61,	0.00)	DC
	10TH HIGHEST VALUE IS	0.10115 AT	(370054.00,	3753640.00,	42.37,	42.37,	0.00)	DC
TGU	1ST HIGHEST VALUE IS	0.12072 AT	(368948.78,	3752222.50,	43.56,	43.56,	0.00)	DC
	2ND HIGHEST VALUE IS	0.11171 AT	(368954.00,	3752140.00,	39.62,	44.50,	0.00)	DC
	3RD HIGHEST VALUE IS	0.10695 AT	(368983.69,	3752128.75,	43.26,	43.26,	0.00)	DC
	4TH HIGHEST VALUE IS	0.10386 AT	(368854.00,	3752140.00,	31.58,	43.89,	0.00)	DC
	5TH HIGHEST VALUE IS	0.10129 AT	(368913.88,	3752316.25,	44.62,	44.62,	0.00)	DC
	6TH HIGHEST VALUE IS	0.09969 AT	(368854.00,	3752240.00,	37.43,	43.59,	0.00)	DC
	7TH HIGHEST VALUE IS	0.09538 AT	(368954.00,	3752040.00,	35.42,	44.50,	0.00)	DC
	8TH HIGHEST VALUE IS	0.09400 AT	(368754.00,	3752140.00,	18.78,	45.72,	0.00)	DC
	9TH HIGHEST VALUE IS	0.09147 AT	(368854.00,	3752040.00,	23.96,	44.81,	0.00)	DC
	10TH HIGHEST VALUE IS	0.09010 AT	(369018.56,	3752035.25,	42.53,	44.50,	0.00)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF MAXIMUM ANNUAL (3 YRS) RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)				NETWORK OF TYPE	GRID-ID
ALL	1ST HIGHEST VALUE IS	0.16602 AT (	368948.78,	3752222.50,	43.56,	43.56,	0.00)	DC
	2ND HIGHEST VALUE IS	0.15575 AT (	368954.00,	3752140.00,	39.62,	44.50,	0.00)	DC
	3RD HIGHEST VALUE IS	0.15217 AT (	368854.00,	3752240.00,	37.43,	43.59,	0.00)	DC
	4TH HIGHEST VALUE IS	0.15207 AT (	368854.00,	3752140.00,	31.58,	43.89,	0.00)	DC
	5TH HIGHEST VALUE IS	0.15104 AT (	368913.88,	3752316.25,	44.62,	44.62,	0.00)	DC
	6TH HIGHEST VALUE IS	0.14905 AT (	368983.69,	3752128.75,	43.26,	43.26,	0.00)	DC
	7TH HIGHEST VALUE IS	0.14874 AT (	369843.00,	3753532.75,	35.93,	35.93,	0.00)	DC
	8TH HIGHEST VALUE IS	0.14661 AT (	369854.00,	3753540.00,	36.70,	36.70,	0.00)	DC
	9TH HIGHEST VALUE IS	0.14491 AT (	369943.00,	3753532.75,	40.80,	40.80,	0.00)	DC
	10TH HIGHEST VALUE IS	0.14465 AT (	368854.00,	3752340.00,	41.45,	43.59,	0.00)	DC

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
FLARE HIGH 1ST HIGH VALUE IS	1.27561	ON 07040804:	AT (371027.53, 3753039.50, 30.26, 30.26, 0.00)	DC	
COGEN HIGH 1ST HIGH VALUE IS	4.97475	ON 07062501:	AT (369054.00, 3753640.00, 39.20, 39.20, 0.00)	DC	
TGU HIGH 1ST HIGH VALUE IS	12.67977	ON 07091205:	AT (369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	
ALL HIGH 1ST HIGH VALUE IS	13.09335	ON 07091205:	AT (369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
FLARE	HIGH 1ST HIGH VALUE IS 0.26674	ON 07081508:	AT (370154.00, 3751940.00, 30.48, 30.48, 0.00)	DC	
COGEN	HIGH 1ST HIGH VALUE IS 2.53389	ON 07081508:	AT (369254.00, 3751940.00, 51.15, 52.43, 0.00)	DC	
TGU	HIGH 1ST HIGH VALUE IS 3.77722	ON 06053108:	AT (369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	
ALL	HIGH 1ST HIGH VALUE IS 3.99910	ON 06053108:	AT (369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)					NETWORK OF TYPE	GRID-ID
FLARE	HIGH	1ST HIGH VALUE IS	0.11243	ON 07081524: AT (	370154.00,	3751940.00,	30.48,	30.48,	0.00)	DC	
COGEN	HIGH	1ST HIGH VALUE IS	0.98588	ON 07081524: AT (	369254.00,	3751940.00,	51.15,	52.43,	0.00)	DC	
TGU	HIGH	1ST HIGH VALUE IS	1.25993	ON 06053124: AT (	369018.56,	3752035.25,	42.53,	44.50,	0.00)	DC	
ALL	HIGH	1ST HIGH VALUE IS	1.33558	ON 06053124: AT (	369018.56,	3752035.25,	42.53,	44.50,	0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

**MODELOPTs:
CONC DFAULT ELEV

*** Message Summary : AERMOD Model Execution ***

--------- Summary of Total Messages --------

A Total of 0 Fatal Error Message(s)
A Total of 0 Warning Message(s)
A Total of 152 Informational Message(s)

A Total of 15 Calm Hours Identified

A Total of 137 Missing Hours Identified (0.52 Percent)

******** FATAL ERROR MESSAGES ********
*** NONE ***

******** WARNING MESSAGES ********
*** NONE ***

****
*** AERMOD Finishes Successfully ***
****

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF MAXIMUM ANNUAL (3 YRS) RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)				NETWORK OF TYPE	GRID-ID
FLARE	1ST HIGHEST VALUE IS	0.00355 AT	371030.66,	3753139.50,	29.30,	29.30,	0.00)	DC
	2ND HIGHEST VALUE IS	0.00345 AT	371054.00,	3753140.00,	30.30,	30.30,	0.00)	DC
	3RD HIGHEST VALUE IS	0.00334 AT	371033.81,	3753239.25,	27.32,	27.32,	0.00)	DC
	4TH HIGHEST VALUE IS	0.00334 AT	371027.53,	3753039.50,	30.26,	30.26,	0.00)	DC
	5TH HIGHEST VALUE IS	0.00328 AT	371054.00,	3753240.00,	27.13,	27.13,	0.00)	DC
	6TH HIGHEST VALUE IS	0.00319 AT	371054.00,	3753040.00,	30.72,	30.72,	0.00)	DC
	7TH HIGHEST VALUE IS	0.00304 AT	371154.00,	3753240.00,	33.59,	33.59,	0.00)	DC
	8TH HIGHEST VALUE IS	0.00300 AT	371154.00,	3753140.00,	36.09,	36.09,	0.00)	DC
	9TH HIGHEST VALUE IS	0.00288 AT	371154.00,	3753340.00,	35.78,	35.78,	0.00)	DC
	10TH HIGHEST VALUE IS	0.00286 AT	371054.00,	3753340.00,	31.52,	31.52,	0.00)	DC
COGEN	1ST HIGHEST VALUE IS	0.00000 AT	0.00,	0.00,	0.00,	0.00,	0.00)	
	2ND HIGHEST VALUE IS	0.00000 AT	0.00,	0.00,	0.00,	0.00,	0.00)	
	3RD HIGHEST VALUE IS	0.00000 AT	0.00,	0.00,	0.00,	0.00,	0.00)	
	4TH HIGHEST VALUE IS	0.00000 AT	0.00,	0.00,	0.00,	0.00,	0.00)	
	5TH HIGHEST VALUE IS	0.00000 AT	0.00,	0.00,	0.00,	0.00,	0.00)	
	6TH HIGHEST VALUE IS	0.00000 AT	0.00,	0.00,	0.00,	0.00,	0.00)	
	7TH HIGHEST VALUE IS	0.00000 AT	0.00,	0.00,	0.00,	0.00,	0.00)	
	8TH HIGHEST VALUE IS	0.00000 AT	0.00,	0.00,	0.00,	0.00,	0.00)	
	9TH HIGHEST VALUE IS	0.00000 AT	0.00,	0.00,	0.00,	0.00,	0.00)	
	10TH HIGHEST VALUE IS	0.00000 AT	0.00,	0.00,	0.00,	0.00,	0.00)	
TGU	1ST HIGHEST VALUE IS	0.03248 AT	368948.78,	3752222.50,	43.56,	43.56,	0.00)	DC
	2ND HIGHEST VALUE IS	0.03005 AT	368954.00,	3752140.00,	39.62,	44.50,	0.00)	DC
	3RD HIGHEST VALUE IS	0.02877 AT	368983.69,	3752128.75,	43.26,	43.26,	0.00)	DC
	4TH HIGHEST VALUE IS	0.02794 AT	368854.00,	3752140.00,	31.58,	43.89,	0.00)	DC
	5TH HIGHEST VALUE IS	0.02725 AT	368913.88,	3752316.25,	44.62,	44.62,	0.00)	DC
	6TH HIGHEST VALUE IS	0.02682 AT	368854.00,	3752240.00,	37.43,	43.59,	0.00)	DC
	7TH HIGHEST VALUE IS	0.02566 AT	368954.00,	3752040.00,	35.42,	44.50,	0.00)	DC
	8TH HIGHEST VALUE IS	0.02529 AT	368754.00,	3752140.00,	18.78,	45.72,	0.00)	DC
	9TH HIGHEST VALUE IS	0.02461 AT	368854.00,	3752040.00,	23.96,	44.81,	0.00)	DC
	10TH HIGHEST VALUE IS	0.02424 AT	369018.56,	3752035.25,	42.53,	44.50,	0.00)	DC

**MODELOPTs:
CONC DFAULT ELEV

*** THE SUMMARY OF MAXIMUM ANNUAL (3 YRS) RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID		AVERAGE CONC	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
CT	1ST HIGHEST VALUE IS	0.01983 AT (	368983.69, 3752128.75, 43.26, 43.26, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.01961 AT (	368954.00, 3752140.00, 39.62, 44.50, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.01902 AT (	368948.78, 3752222.50, 43.56, 43.56, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.01849 AT (	368954.00, 3752040.00, 35.42, 44.50, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.01823 AT (	369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.01795 AT (	368854.00, 3752140.00, 31.58, 43.89, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.01733 AT (	368854.00, 3752040.00, 23.96, 44.81, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.01651 AT (	368854.00, 3752240.00, 37.43, 43.59, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.01623 AT (	368913.88, 3752316.25, 44.62, 44.62, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.01599 AT (	368954.00, 3751940.00, 31.46, 44.20, 0.00)	DC	
ALL	1ST HIGHEST VALUE IS	0.05390 AT (	368948.78, 3752222.50, 43.56, 43.56, 0.00)	DC	
	2ND HIGHEST VALUE IS	0.05232 AT (	368954.00, 3752140.00, 39.62, 44.50, 0.00)	DC	
	3RD HIGHEST VALUE IS	0.05123 AT (	368983.69, 3752128.75, 43.26, 43.26, 0.00)	DC	
	4TH HIGHEST VALUE IS	0.04833 AT (	368854.00, 3752140.00, 31.58, 43.89, 0.00)	DC	
	5TH HIGHEST VALUE IS	0.04698 AT (	368954.00, 3752040.00, 35.42, 44.50, 0.00)	DC	
	6TH HIGHEST VALUE IS	0.04563 AT (	368854.00, 3752240.00, 37.43, 43.59, 0.00)	DC	
	7TH HIGHEST VALUE IS	0.04555 AT (	368913.88, 3752316.25, 44.62, 44.62, 0.00)	DC	
	8TH HIGHEST VALUE IS	0.04515 AT (	369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	
	9TH HIGHEST VALUE IS	0.04428 AT (	368854.00, 3752040.00, 23.96, 44.81, 0.00)	DC	
	10TH HIGHEST VALUE IS	0.04281 AT (	368754.00, 3752140.00, 18.78, 45.72, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** THE SUMMARY OF HIGHEST 1-HR RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
FLARE	HIGH 1ST HIGH VALUE IS 0.27276	ON 07040804:	AT (371027.53, 3753039.50, 30.26, 30.26, 0.00)	DC	
COGEN	HIGH 1ST HIGH VALUE IS 0.00000	ON 00000000:	AT (0.00, 0.00, 0.00, 0.00, 0.00)		
TGU	HIGH 1ST HIGH VALUE IS 3.41119	ON 07091205:	AT (369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	
CT	HIGH 1ST HIGH VALUE IS 1.25305	ON 07082903:	AT (368754.00, 3752440.00, 32.61, 44.50, 0.00)	DC	
ALL	HIGH 1ST HIGH VALUE IS 3.94644	ON 07082903:	AT (368725.00, 3752468.00, 31.61, 42.98, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** AERMOD - VERSION 07026 *** *** C:\Documents and Settings\Micheal\My Documents\My Projects\2505Chev\ *** 01/21/10
*** PM10 *** 12:12:16
**MODELOPTs: PAGE 428
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 8-HR RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID	AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	NETWORK OF TYPE	GRID-ID
FLARE HIGH 1ST HIGH VALUE IS	0.05704	ON 07081508: AT (	370154.00, 3751940.00, 30.48, 30.48, 0.00)	DC	
COGEN HIGH 1ST HIGH VALUE IS	0.00000	ON 00000000: AT (	0.00, 0.00, 0.00, 0.00, 0.00)		
TGU HIGH 1ST HIGH VALUE IS	1.01617	ON 06053108: AT (	369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	
CT HIGH 1ST HIGH VALUE IS	0.24533	ON 07031308: AT (	368913.88, 3752316.25, 44.62, 44.62, 0.00)	DC	
ALL HIGH 1ST HIGH VALUE IS	1.21722	ON 06053108: AT (	369018.56, 3752035.25, 42.53, 44.50, 0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

*** AERMOD - VERSION 07026 *** *** C:\Documents and Settings\Micheal\My Documents\My Projects\2505Chev\ *** 01/21/10
*** PM10 *** 12:12:16
**MODELOPTs: PAGE 429
CONC DFAULT ELEV

*** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

** CONC OF AAQ IN MICROGRAMS/M**3 **

GROUP ID			AVERAGE CONC	DATE (YYMMDDHH)	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)					NETWORK OF TYPE	GRID-ID
FLARE	HIGH	1ST HIGH VALUE IS	0.02404	ON 07081524: AT (	370154.00,	3751940.00,	30.48,	30.48,	0.00)	DC	
COGEN	HIGH	1ST HIGH VALUE IS	0.00000	ON 00000000: AT (	0.00,	0.00,	0.00,	0.00,	0.00)		
TGU	HIGH	1ST HIGH VALUE IS	0.33896	ON 06053124: AT (	369018.56,	3752035.25,	42.53,	44.50,	0.00)	DC	
CT	HIGH	1ST HIGH VALUE IS	0.10923	ON 07081524: AT (	369954.00,	3751940.00,	36.58,	36.58,	0.00)	DC	
ALL	HIGH	1ST HIGH VALUE IS	0.40611	ON 06053124: AT (	369018.56,	3752035.25,	42.53,	44.50,	0.00)	DC	

*** RECEPTOR TYPES: GC = GRIDCART
GP = GRIDPOLR
DC = DISCCART
DP = DISCPOLR

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 *** AERMOD - VERSION 07026 ***     *** C:\Documents and Settings\Micheal\My Documents\My Projects\2505Chev\ ***        01/21/10
                                    *** PM10                                                                ***        12:12:16
**MODELOPTs:                                                                                                        PAGE 430
CONC                        DFAULT ELEV


*** Message Summary : AERMOD Model Execution ***

 --------- Summary of Total Messages --------

A Total of            0 Fatal Error Message(s)
A Total of            1 Warning Message(s)
A Total of          152 Informational Message(s)

A Total of           15 Calm Hours Identified

A Total of          137 Missing Hours Identified (  0.52 Percent)


   ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


   ********   WARNING MESSAGES   ********
SO W320    43 PPARM :Input Parameter May Be Out-of-Range for Parameter       QS

   ***********************************
   *** AERMOD Finishes Successfully ***
   ***********************************
```

APPENDIX D

HEALTH RISK ASSESSMENT

Chevron El Segundo Refinery
Product Reliability and Optimization Project Addendum
Health Risk Assessment

February 10, 2010

Prepared for: Chevron El Segundo Refinery
Prepared by: Environmental Audit, Inc.
1000-A Ortega Way
Placentia, CA 92870
714-632-8521

INTRODUCTION

This Health Risk Assessment (HRA) has been prepared to evaluate the toxic air contaminant (TAC) impacts of the proposed Chevron El Segundo Refinery Product Reliability and Optimization (PRO) Project Addendum. The Environmental Impact Report (EIR) for the PRO Project was certified in May 2008 and included an HRA for the PRO Project. The currently proposed modifications include changing to the tankage proposed at the El Segundo Refinery (Refinery). Chevron is also proposing to add a scrubber to the tail gas unit (TGU) for additional control of sulfur oxides (SOx) to meet Best Available Control Technology (BACT) requirements established by the District during the permitting process. Additionally, the modifications in the ISOMAX Unit as previously described in the May 2008 Final EIR will not occur.

FACILITY LOCATION AND SCAQMD ID NUMBER

The Refinery is located at 324 West El Segundo Boulevard in the City of El Segundo, California in the southern portion of Los Angeles County (See Figure 1). The South Coast Air Quality Management District (SCAQMD) identification number for the facility is 800030. The Refinery is bounded by El Segundo Boulevard to the north, Sepulveda Boulevard to the east, Rosecrans Avenue to the south, and Vista Del Mar to the west. The Chevron Refinery is located in an area of mixed land uses, with industrial, recreation, residential, and commercially zoned areas nearby. Land use to the north of the Chevron Refinery is primarily residential, with a mix of commercial and light industrial zoning mixed in. The predominant adjacent land uses west of the Refinery are nearly all heavy industrial, or open space, which includes: Dockweiler State Beach, Manhattan Beach, and the El Segundo Generating Station, although a small parcel of land at the southwest corner of the Chevron property is made up of commercial and multiple-family residential.

Directly south of the Refinery, there is a single-family residential area bordering the entire length of the Refinery separated by Rosecrans Avenue. The corridor immediately east of the Refinery is comprised of a golf course at the corner of Sepulveda Boulevard and El Segundo Boulevard, with light commercial and heavy industrial zoning for the rest of the tract. The Refinery is located in the City of El Segundo within Los Angeles County in an urbanized area that includes a substantial amount of industrial development, due to the proximity of Los Angeles International Airport (LAX).

DESCRIPTION OF FACILITY AND PROCESSES

Crude oil, used to produce gasoline and other Refinery products, is delivered by ship to the marine terminal and pumped to the Refinery by existing pipelines or received via pipeline directly to the Refinery. The crude oil is then processed in the crude units where it is heated and distilled into multiple feedstock components that are later processed elsewhere in the Refinery. The heavy residual oil leaving the crude units is further distilled in the vacuum units to yield additional, lighter hydrocarbon products and vacuum residuum. The vacuum residuum is processed in the Coker Unit and the lighter hydrocarbon components from the crude units and vacuum units are fed to other Refinery units for further processing. Some of the major downstream processes are cracking in the Fluidized Catalytic Cracking Unit (FCCU) and ISOMAX Unit, processing to separate sulfur in the

hydrotreating units including the Vacuum Residuum Desulfurization (VRDS) Unit, synthesizing in the Alkylation Unit, and reforming in the Continuous Catalytic Reformer (CCR) Unit.

Auxiliary systems are also needed to support Refinery operations including hydrogen plants (to produce hydrogen needed for certain refinery reactions), boilers to produce steam, cogeneration plants to produce electricity and steam, and wastewater treatment systems.

PROJECT DESCRIPTION

The Chevron PRO Project was evaluated in the May 2008 Final EIR (SCH No. 2007081057). The project evaluated in the May 2008 Final EIR included modifications to the No. 2 Crude Unit, No. 2 Residuum Stripper Unit (RSU), Minalk/Merox Unit, Waste Gas Compressors, Fluidized Catalytic Cracking Unit (FCCU), Alkylation Unit, Vacuum Residuum Desulfurization Unit (VRDS), ISOMAX Unit, Cogeneration (Cogen) Facilities, and the Railcar Loading/Unloading Rack. New process units included sulfur processing facilities (i.e., Sour Water Stripper (SWS), Sulfur Recovery Unit (SRU), and Tail Gas Unit (TGU)), Vapor Recovery and Safety Flare System, Water Treatment Facilities (i.e., reverse osmosis units and nitrogen removal units), and additional storage capacity. The purpose of these modifications and additions was to increase the reliability, energy efficiency, and capacity of specific existing Refinery processing equipment; allow the processing of a wider range of crude oils; and voluntarily reduce potential atmospheric emissions from existing pressure relief devices (PRDs).

Chevron has determined that the proposed Tank 447 is not necessary for the storage of ISOMAX diesel and, at its current size and location, is not optimal for storage at the Refinery. Therefore, Chevron is proposing to construct a larger tank in the tank farm at the west side of the Refinery, and to renumber it Tank 304. In addition, Tank 303 was proposed to be located adjacent to the proposed Tank 302. Chevron is proposing to relocate Tank 303 to be adjacent to Tank 304. Both Tanks 303 and 304 will be used to store a variety of intermediate hydrocarbon streams and products and provide flexibility in commodity management. The modifications in the ISOMAX Unit will not occur due to the downturn in the economic climate.

The May 2008 Final EIR included evaluation of sulfur processing facilities including a sulfur recovery unit (SRU) and TGU. During the permitting process for the proposed SRU and TGU, it was determined that BACT for the TGU would require a scrubber as additional control. The scrubber will reduce emissions from the TGU. Since the May 2008 Final EIR was certified, the final design of the sulfur processing facilities has been completed and the necessary emissions adjustments have been incorporated. As discussed below, the impacts associated with the modifications have been addressed in the previous CEQA document prepared for the PRO Project. This HRA evaluates the health risk due to the modifications to the PRO Project.

Based on information provided by Chevron, the emissions are modeled as 18 area sources and three (3) point sources at the locations shown on the plot plan (see Figure 2). Toxic Air Contaminants (TACs) in the emissions from the sources are included in the *Office of Environmental Health Hazard Assessment/Air Resources Board (OEHHA/ARB) Consolidated Table of Approved Risk Assessment Health Values* (June 2008). The sources are expected to emit 38 chemicals– 14 are considered to be carcinogens, 22 are considered to have adverse chronic health effects, and 14 are

considered to have adverse acute health effects (see Attachment 1). The health risks were evaluated using the SCAQMD *Risk Assessment Procedures for Rules 1401 and 212 Version 7.0* (July 2005). The tier four analysis for cancer and non-cancer risks is presented below.

EMISSION ESTIMATES

Emission rates for proposed project are shown in Attachment 2. Emission rates are based on operating 24 hours per day, and 365 days per year.

VOC emission factors for tanks and fugitive components installed in conjunction with the proposed project were based on the latest TANKS 4.0.9d and SCAQMD guidelines for fugitive components, assuming the use of BACT and an inspection and monitoring program (SCAQMD, 1999). Speciation of VOC emissions was derived from speciation data used by the Refinery for annual emissions reporting and AB2588 reporting. Combustion source emissions are calculated based on fuel feed rate and standard emission factors or emission factor guarantees provided by the manufacturer.

HEALTH RISK ASSESSMENT

The CARB Hotspots Analysis Reporting Program (HARP) model is the most appropriate model for determining the air quality impacts from the proposed project in the South Coast Air Basin. The HARP model (CARB, 2008) combines the US EPA Industrial Source Complex dispersion model with a risk calculation model based on the Air Toxics Hot Spots Program Risk Assessment Guidelines (OEHHA, 2003). The dispersion portion of the HARP model provides estimates of source-specific annual and hourly maximum ambient ground level concentrations. The risk calculator in the HARP model estimates the cancer risk, chronic index, and acute index values.

The following settings were used in running the ISCST3 dispersion model:

- Use stack-tip downwash;
- Use buoyancy-induced dispersion;
- Do not use gradual plume rise;
- Do not use calm wind processing routine;
- Do not use missing data processing routine;
- Use default wind profile exponents;
- Use default vertical potential temperature gradients;
- Use urban mode dispersion; and,
- Use simple terrain.

HARP was set to include algorithms to model the effects of building downwash on emissions from nearby or adjacent point sources. Terrain elevations were also taken into account even though the Refinery is located in a relatively flat area.

The 1981 meteorological data for the Lennox station was used for wind and surface data. The Lennox station is the closest to the Refinery for which meteorological data are available in the HARP model.

The project is modeled as 18 area sources and three (3) point sources. The source parameters are listed in Attachment 3. The location of the sources was identified based on data provided by Chevron and the Torrance USGS Quadrangle (see attached Figures 1 and 2).

The receptors used in the model include fenceline receptors and a fine receptor grid. The fenceline receptors (maximal spacing every 50 meters(m)) were used to determine the maximum concentrations at the property line of the Refinery. A fine receptor grid (100 m x 100 m spacing) was used to identify maximum impact locations. The grid originates near the western corner of the Refinery and extends at least 1,000 meters in every cardinal direction. Discrete receptors for sensitive endpoints were modeled to determine the health risk for schools, parks, medical centers, etc. Figure 3 shows all modeled source locations and receptors.

The nearest off-site residential receptors are adjacent to the west, north, and south of the Refinery. The nearest off-site occupational receptors are adjacent on all sides of the Refinery. All the maximum impact locations are verified as credible locations for receptors (i.e., streets, railroad tracks, and waterways are not considered valid receptor locations) and reported below. Selected tables from the HARP model are included in Attachment 4. The complete output results from the HARP model are on file with the SCAQMD.

DETAILED CANCER RISK ANALYSIS

The maximum exposed incremental cancer risk at a resident (MEIR) is located just north of the Refinery (Receptor No. 470, UTM Coordinates 369054, 3753640, see Figure 4). The incremental cancer risk is 5.09×10^{-7} or 0.51 in one million at the MEIR. Naphthalene and benzene contributes 53.8 and 23.4 percent of the calculated cancer risk at the MEIR, respectively. The inhalation pathway accounts for 96.7 percent of the cancer risk.

The maximum exposed incremental cancer risk at an occupational exposure (MEIW) is 2.38×10^{-7} or 0.24 in one million located just east of the Refinery (Receptor No. 990, UTM Coordinates 371054, 3752640, see Figure 4). Benzene and polycyclic aromatic hydrocarbons (PAHs) contributes 80.7 and 6.1 percent of the calculated cancer risk at the MEIW, respectively. The inhalation pathway accounts for 93.3 percent of the cancer risk.

The maximum exposed incremental cancer risk at a sensitive receptor is 1.89×10^{-7} or 0.19 in one million located north of the Refinery (Receptor No. 1937, UTM Coordinates 369950, 3753775, see Figure 4) at Saint Anthony's School. Benzene and naphthalene contributes 42.3 and 19.0 percent of the calculated cancer risk at the school, respectively. The inhalation pathway accounts for 90 percent of the cancer risk.

The cancer risk contributions by pathway and pollutants are presented in Attachment 4.

DETAILED NON-CANCER RISK ANALYSIS

The maximum chronic hazard index total for the respiratory system is 0.00699 and occurs just east of the Refinery (Receptor No. 890, UTM Coordinates 371054, 3752840, see Figure 4). Hydrogen sulfide and nickel contribute 38.8 and 25.0 percent to the chronic hazard index, respectively. The

contribution by pollutant to the chronic hazard index for the maximum receptor location is presented in Attachment 4.

The maximum acute hazard index total for the target endpoint of the central nervous system is 0.0313. Hydrogen Sulfide contributes 98.1 percent of the maximum acute hazard index. The maximum acute hazard index occurs at the northern boundary of the Refinery (Receptor No. 1899, UTM 369843, 3753533, see Figure 4). The contribution by pollutant to the acute hazard index for the maximum receptor location is presented in Attachment 4.

CONCLUSIONS

The residential and worker cancer risk for the TAC emitted by the proposed project are below the significance threshold of 10 per million. The chronic and acute hazard indices for the proposed project are below the 1.0 threshold for all receptors. Therefore, no additional health risk analysis is required.

REFERENCES

CARB/OEHHA, 2003. *Air Resources Board Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk,* October 2003.

CARB, 2008. *Hotspots Analysis and Reporting Program* (HARP Version 1.4a Build 23.07.00) and resources, http://www.arb.ca.gov/toxics/harp/downloads.htm.

OEHHA, 2003. *Air Toxics Hot Spots Program Risk Assessment` Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment,* August 2003.

OEHHA/ARB, 2008. *Consolidated Table of Approved Risk Assessment Health Values,* June 2008.

SCAQMD, 1999. *Jay Chen Memo, BACT/LAER for Valves as VOC Fugitive Sources,* April 2, 1999.

SCAQMD, 2007. *2006-2007 Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory Supplemental Instruction,* June, 2007.

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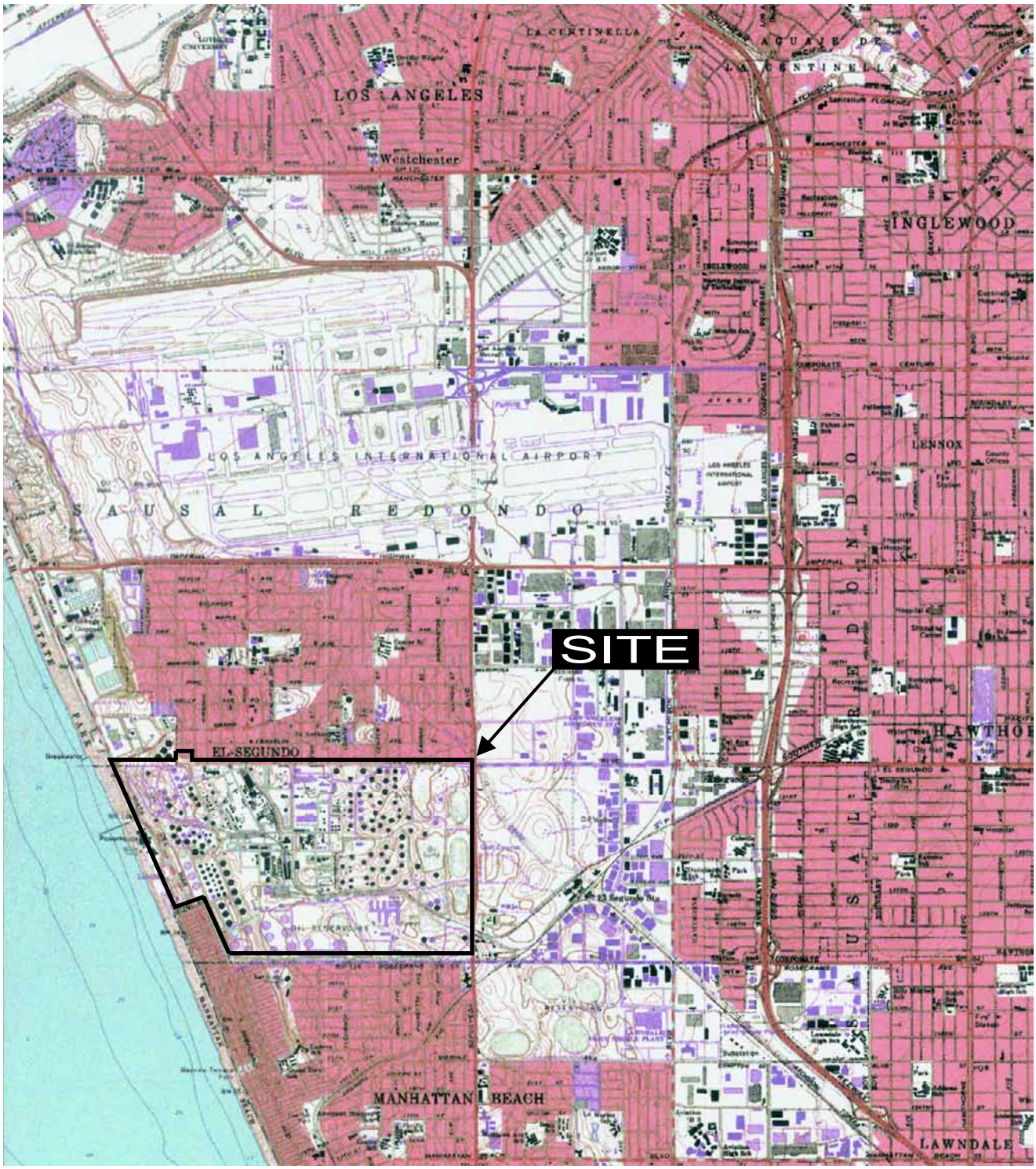
FIGURES



Environmental Audit, Inc.

0 2,000'

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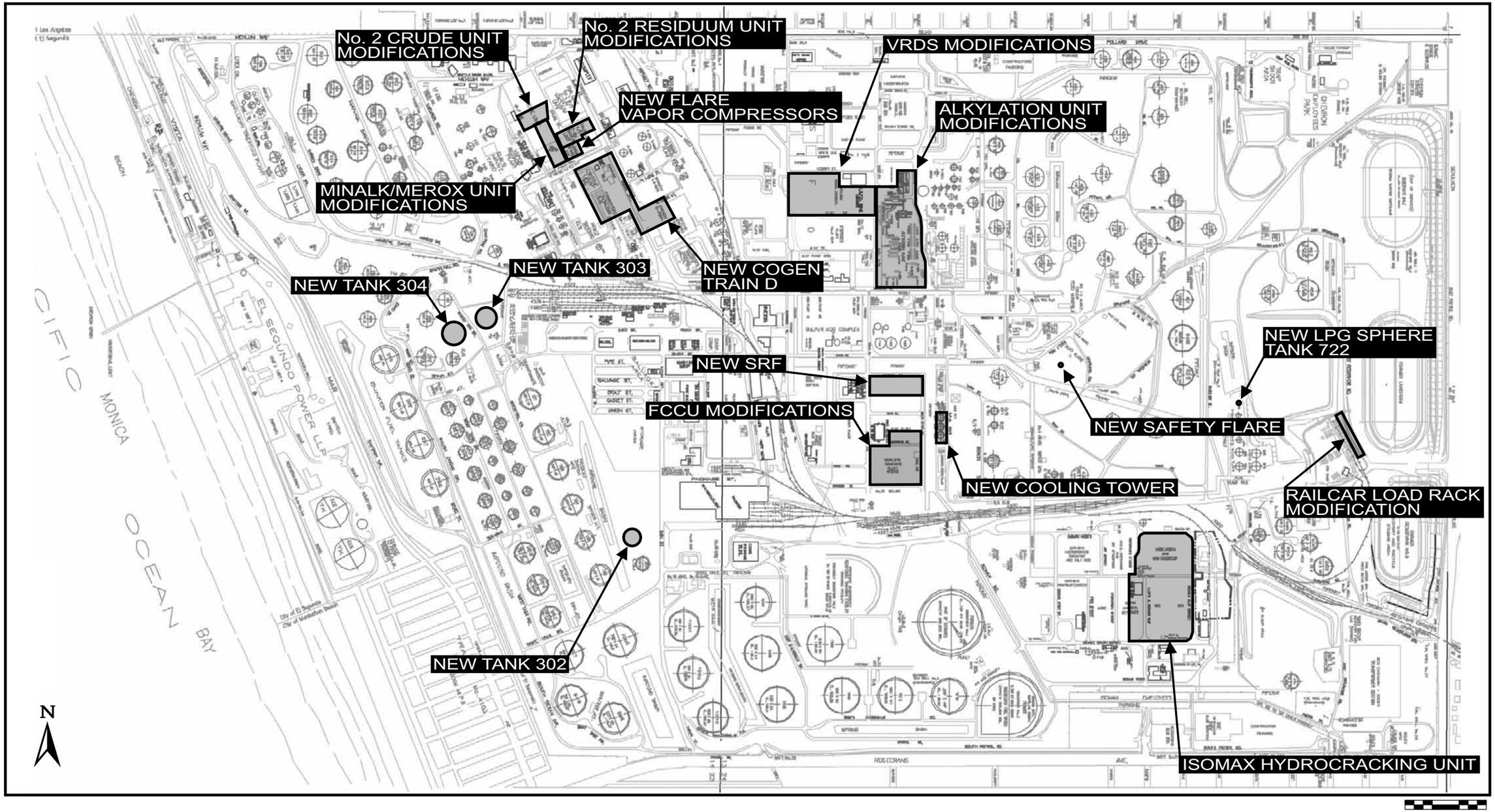
SITE LOCATION MAP
Chevron Products Company
El Segundo Refinery

Project No. 2505a

Figure 1

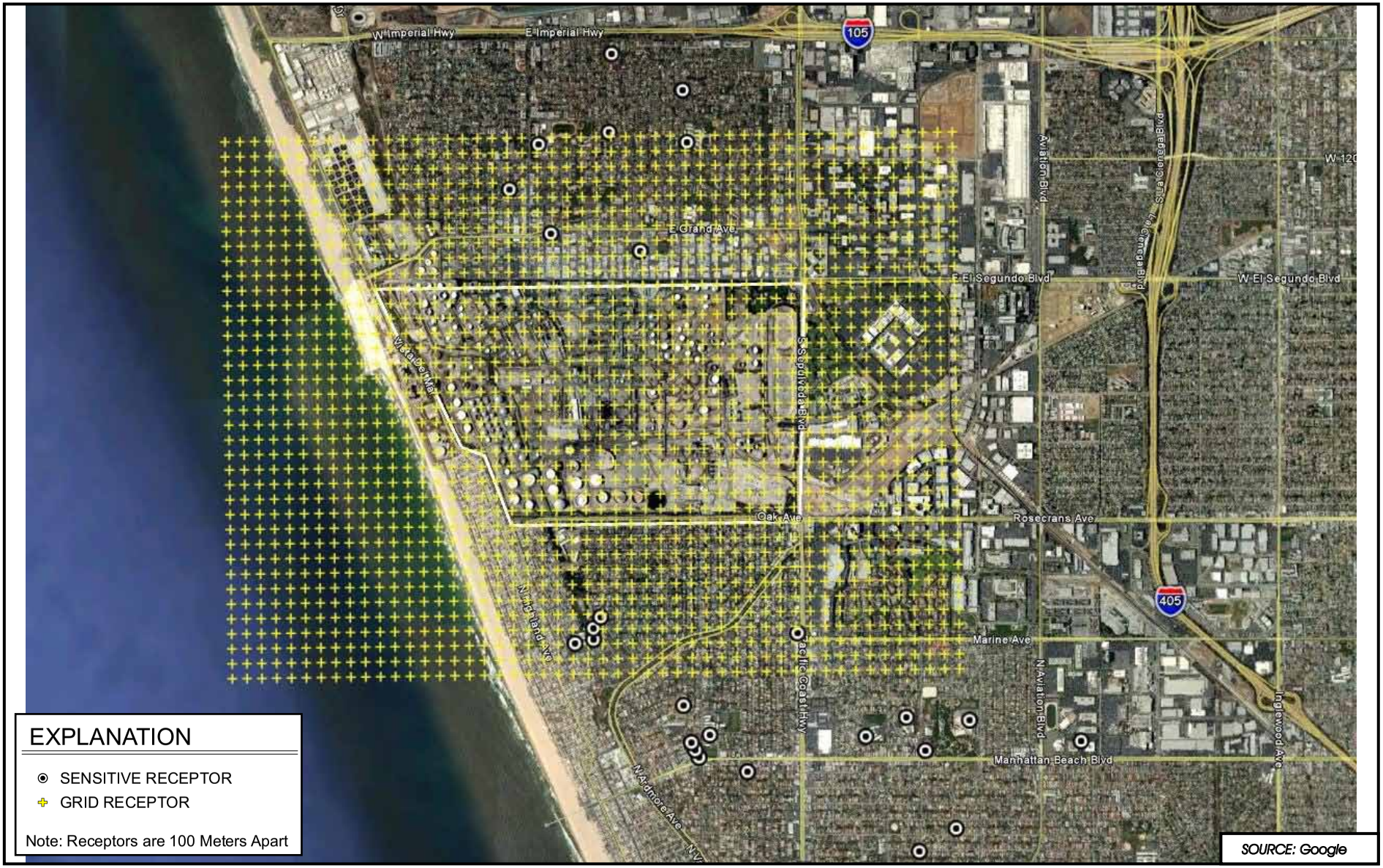
N:\2505a\HRA\SiteLocMap.cdr



PROJECT COMPONENT LOCATIONS
CHEVRON PRODUCTS COMPANY
EL SEGUNDO REFINERY

Project No. 2505a **Figure 2**

N:\2505a\HRA\SourceLocationsMap (rev.11).CDR

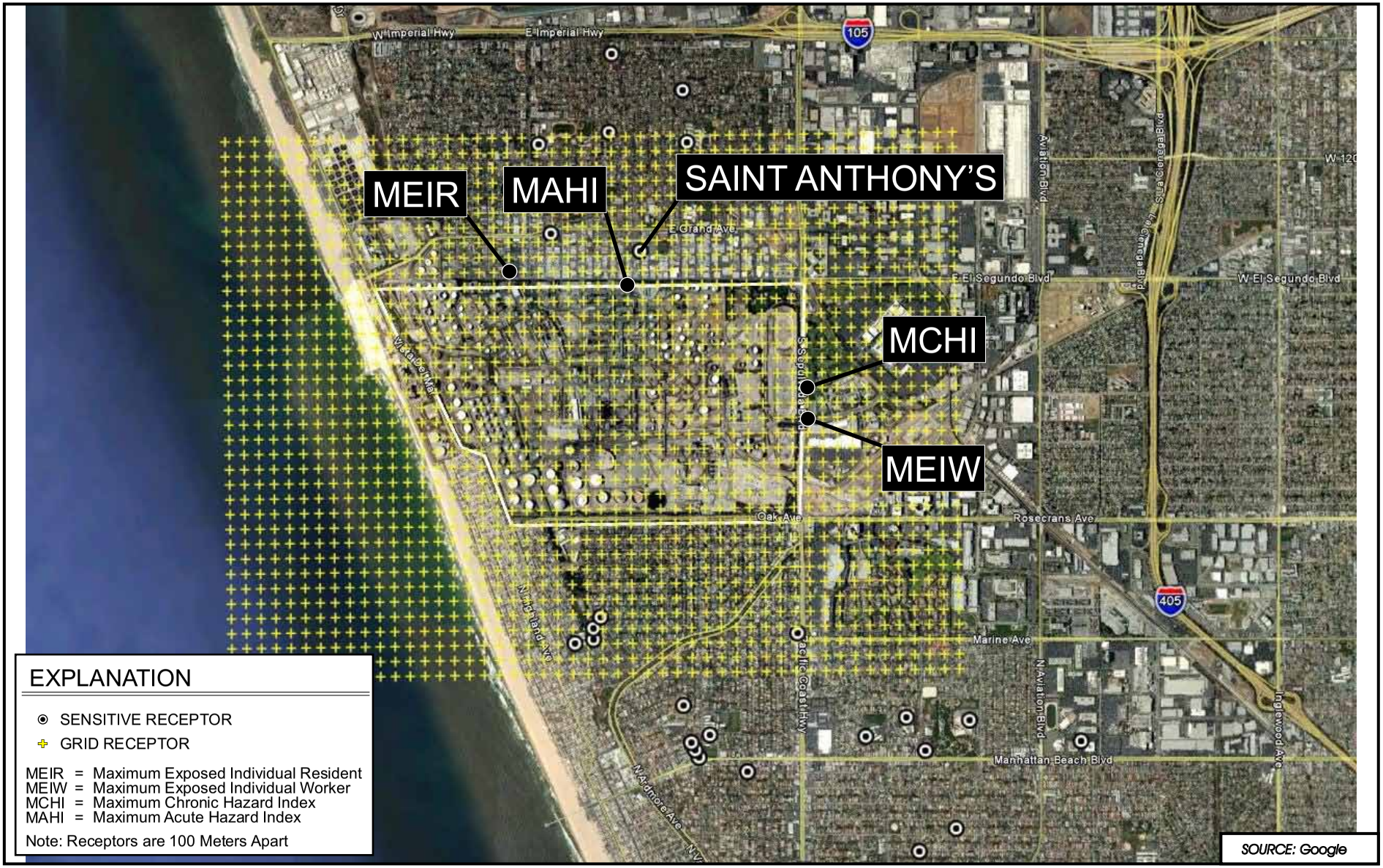


ENVIRONMENTAL AUDIT, INC.

RECEPTOR MAP
Chevron Products Company
El Segundo Refinery

Project No. 2505a
N:\2505a\HRA\Receptor Grid.cdr

Figure 3
Original in Color



ENVIRONMENTAL AUDIT, INC.

MAXIMUM IMPACT MAP
Chevron Products Company
El Segundo Refinery

Project No. 2505a
N:\2505a\HRA\Max Impact (rev.1).cdr

Figure 4
Original in Color

ATTACHMENT 1

Health Data

Chevron
El Segundo Refinery
PRO Project Addendum
Attachment 1
Health Data

CAS	Chemical	CancerPF(Inh) $(mg/kg\text{-}d)^{-1}$	CancerPF(Oral) $(mg/kg\text{-}d)^{-1}$	ChronicREL(Inh) $\mu g/m^3$	ChronicREL(Oral) mg/kg-d	AcuteREL $\mu g/m^3$
95636	1,2,4-Trimethylbenzene	*	*	*	*	*
106990	1,3-Butadiene	0.6	*	2.00E+01	*	*
75070	Acetaldehyde	1.00E-02	*	9	*	*
107028	Acrolein	*	*	6.00E-02	*	0.19
7664417	Ammonia	*	*	2.00E+02	*	3.20E+03
71432	Benzene	1.00E-01	*	60	*	1300
50328	Benzo[a]pyrene	3.90E+00	12	*	*	*
205992	Benzo[b]fluoranthene	3.90E-01	1.2	*	*	*
191242	Benzo[g,h,i]perylene	*	*	*	*	*
7440439	Cadmium	1.50E+01	*	0.02	0.0005	*
75150	Carbon Disulfide	*	*	800	*	6200
463581	Carbonyl Sulfide	*	*	*	*	*
67663	Chloroform	0.019	*	3.00E+02	*	150
7440473	Chromium	*	*	*	*	*
18540299	Chromium (VI)	5.10E+02	*	2.00E-01	2.00E-02	*
7440484	Cobalt	*	*	*	*	*
7440508	Copper	*	*	*	*	100
110827	Cyclohexane	*	*	*	*	*
100414	Ethyl Benzene	0.0087	*	2000	*	*
74851	Ethylene	*	*	*	*	*
50000	Formaldehyde	2.10E-02	*	3.00E+00	*	9.40E+01
110543	Hexane	*	*	7.00E+03	*	*
7783064	Hydrogen Sulfide	*	*	1.00E+01	*	4.20E+01
7439921	Lead	4.20E-02	0.0085	*	*	*
7439965	Manganese	*	*	0.2	*	*
7439976	Mercury	*	*	0.09	0.0003	1.8
74828	Methane	*	*	*	*	*
91203	Naphthalene	1.20E-01	*	9	*	*
7440020	Nickel	0.91	*	0.05	0.05	6
1151	PAHs	3.90E+00	1.20E+01	*	*	*
108952	Phenol	*	*	200	*	5.80E+03
7723140	Phosphorus	*	*	*	*	*
115071	Propylene	*	*	3.00E+03	*	*
7782492	Selenium	*	*	20	*	*
108883	Toluene	*	*	3.00E+02	*	37000
7440622	Vanadium	*	*	*	*	30
1330207	Xylenes	*	*	7.00E+02	*	22000
7440666	Zinc	*	*	*	*	*

ATTACHMENT 2

Emissions

Chevron
El Segundo Refinery
PRO Project Addendum
Attachment 2
Operational Emissions

Chemical	lb/yr	lb/hr
1,2,4-Trimethylbenzene	3.64E+02	4.16E-02
1,3-Butadiene	9.25E+00	1.26E-03
Acetaldehyde	1.08E+02	1.23E-02
Acrolein	1.18E+00	1.35E-04
Ammonia	3.97E+04	4.53E+00
Benzene	3.47E+02	3.95E-02
Benzo[a]pyrene	2.31E-02	2.64E-06
Benzo[b]fluoranthene	3.01E-02	3.44E-06
Benzo[g,h,i]perylene	7.70E-02	8.79E-06
Cadmium	2.52E+00	2.87E-04
Carbon Disulfide	1.20E-02	1.37E-06
Carbonyl Sulfide	3.70E-02	4.22E-06
Chloroform	6.07E-03	6.93E-07
Chromium	2.01E+01	2.29E-03
Chromium (VI)	6.07E-03	6.93E-07
Cobalt	1.10E+00	1.25E-04
Copper	3.36E+01	3.83E-03
Cyclohexane	3.83E+02	4.37E-02
Ethyl Benzene	2.62E+02	2.99E-02
Ethylene	3.45E+02	5.30E-02
Formaldehyde	3.18E+01	3.63E-03
Hexane	8.04E+02	9.17E-02
Hydrogen Sulfide	9.51E+02	1.09E-01
Lead	5.67E+00	6.47E-04
Manganese	1.59E+01	1.81E-03
Mercury	2.81E+00	3.20E-04
Methane	7.43E+02	8.48E-02
Naphthalene	9.86E+01	1.13E-02
Nickel	1.28E+01	1.47E-03
PAHs	1.57E-01	1.79E-05
Phenol	6.06E-02	6.91E-06
Phosphorus	9.82E+01	1.12E-02
Propylene	2.79E+03	3.18E-01
Selenium	5.57E+00	6.36E-04
Toluene	9.41E+02	1.07E-01
Vanadium	6.32E-04	7.20E-08
Xylenes	1.26E+03	1.44E-01
Zinc	1.47E+02	1.68E-02

ATTACHMENT 3

Source Parameters

Chevron
El Segundo Refinery
PRO Project Addendum
Attachment 3
Source Parameters

Source Number	Stack Number	Description	Type	UTME	UTMN	Release Height (ft)	Width (ft)	Length (ft)	Angle (degree)	Velocity (ft/min)	Diameter (ft)	Temp. (F)
S001	1	New Flare	Point	370179	3752782	148.0				22.4	4.8	1832
S002	2	New Flare Fugitives	Area	370143	3752746	6.6	240	240				
S003	3	PSV Compressors	Area	369085	3753281	6.6	96	112	64			
S004	4	VRDS Modifications	Area	369588	3753139	6.6	600	280				
S006	6	Tank 302	Area	369222	3752403	48.0	150	150				
S005	7	Alkylation Modifications	Area	370176	3752974	6.6	311	355				
S007	12	LPG Rack	Area	370795	3752682	6.6	345	35	61			
S008	13	LPG Rack Fugitives	Area	370795	3752682	6.6	345	35	61			
S009	14	Minalk Modifications	Area	369032	3753321	6.6	76.5	290	64			
S010	16	TAME modifications	Area	369807	3752629	6.6	230	90				
S011	18	New Cogen	Point	369293	3753109	87.5				2707	10.5	238
S012	19	New Cogen Fugitives	Area	369249	3753146	6.6	500	200	64			
S013	20	TGU Fugitives	Area	369769	3752738	6.6	332	126				
S014	21	TGU Stack	Point	369849	3752757	100.0				3980.44	3.50	326.50
S015	28	SRU	Area	369769	3752738	6.6	332.00	126.00				
S016	29	SWS	Area	369769	3752738	6.6	332.00	126.00				
S017	30	Isomax Modifications	Area	370334	3752193	6.6	460.00	770.00				
S018	31	PSA	Area	370334	3752193	6.6	460.00	770.00				
S019	32	Tank 722 Fugitives	Area	370599	3752726	6.6	30.00	30.00				
S020	33	Tank 303	Area	368892	3752878	64.0	133	133				
S021	34	Tank 304	Area	368824	3752850	64.0	142.00	142.00				

ATTACHMENT 4

Health Risk Tables

Chevron
El Segundo Refinery
PRO Project Addendum
Attachment 4
Maximum Exposed Individual Resident

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Naphthalene	2.74E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-07
Benzene	1.19E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-07
1,3-Butadiene	5.56E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.56E-08
Cadmium	2.29E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.29E-08
PAHs	4.77E-10	6.34E-09	9.50E-10	0.00E+00	0.00E+00	0.00E+00	8.04E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-08	1.58E-08
Ethyl Benzene	8.88E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.88E-09
Nickel	7.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.09E-09
Chromium (VI)	1.88E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-09
Benzo[a]pyrene	4.90E-11	6.52E-10	9.77E-11	0.00E+00	0.00E+00	0.00E+00	8.27E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-09	1.63E-09
Acetaldehyde	6.65E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.65E-10
Lead	1.30E-10	8.26E-12	2.72E-10	0.00E+00	0.00E+00	0.00E+00	1.94E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.75E-10	6.04E-10
Formaldehyde	5.84E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-10
Benzo[b]fluoranthene	6.39E-12	8.49E-11	1.27E-11	0.00E+00	0.00E+00	0.00E+00	1.08E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-10	2.12E-10
Chloroform	7.00E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.00E-14
SUM	4.92E-07	7.09E-09	1.33E-09	0.00E+00	0.00E+00	0.00E+00	9.17E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-08	5.09E-07

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Naphthalene	53.83%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	53.83%
Benzene	23.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	23.38%
1,3-Butadiene	10.92%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.92%
Cadmium	4.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.50%
PAHs	0.09%	1.25%	0.19%	0.00%	0.00%	0.00%	1.58%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.01%	3.10%
Ethyl Benzene	1.74%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.74%
Nickel	1.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.39%
Chromium (VI)	0.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.37%
Benzo[a]pyrene	0.01%	0.13%	0.02%	0.00%	0.00%	0.00%	0.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.31%	0.32%
Acetaldehyde	0.13%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%
Lead	0.03%	0.00%	0.05%	0.00%	0.00%	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%	0.12%
Formaldehyde	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.11%
Benzo[b]fluoranthene	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%
Chloroform	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SUM	96.66%	1.39%	0.26%	0.00%	0.00%	0.00%	1.80%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.46%	100.00%

Chevron
El Segundo Refinery
PRO Project Addendum
Attachment 4
Maximum Exposed Individual Worker

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Benzene	1.92E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-07
PAHs	5.41E-10	1.24E-08	1.61E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-08	1.46E-08
Cadmium	1.12E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-08
Naphthalene	7.06E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.06E-09
1,3-Butadiene	4.39E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.39E-09
Nickel	3.46E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.46E-09
Ethyl Benzene	2.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-09
Chromium (VI)	9.18E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.18E-10
Formaldehyde	8.43E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.43E-10
Benzo[a]pyrene	2.67E-11	6.13E-10	7.97E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.93E-10	7.20E-10
Lead	7.06E-11	1.32E-10	2.22E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.54E-10	4.24E-10
Acetaldehyde	3.36E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-10
Benzo[b]fluoranthene	3.48E-12	7.99E-11	1.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.03E-11	9.37E-11
Chloroform	3.42E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.42E-14
SUM	2.22E-07	1.32E-08	1.93E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-08	2.38E-07

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Benzene	80.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	80.67%
PAHs	0.23%	5.21%	0.68%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.88%	6.13%
Cadmium	4.71%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.71%
Naphthalene	2.97%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.97%
1,3-Butadiene	1.84%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.84%
Nickel	1.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.45%
Ethyl Benzene	0.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.88%
Chromium (VI)	0.39%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.39%
Formaldehyde	0.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.35%
Benzo[a]pyrene	0.01%	0.26%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.29%	0.30%
Lead	0.03%	0.06%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.15%	0.18%
Acetaldehyde	0.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.14%
Benzo[b]fluoranthene	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.04%
Chloroform	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SUM	93.28%	5.55%	0.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.39%	100.00%

Chevron
El Segundo Refinery
PRO Project Addendum
Attachment 4
Maximum Exposed Individual Sensitive Receptor

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Benzene	7.99E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.99E-08
Naphthalene	3.60E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08
1,3-Butadiene	2.95E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-08
PAHs	5.71E-10	7.59E-09	1.14E-09	0.00E+00	0.00E+00	0.00E+00	9.63E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-08	1.89E-08
Cadmium	1.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-08
Ethyl Benzene	5.33E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.33E-09
Nickel	3.78E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.78E-09
Formaldehyde	1.01E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-09
Chromium (VI)	1.00E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-09
Benzo[a]pyrene	2.62E-11	3.48E-10	5.21E-11	0.00E+00	0.00E+00	0.00E+00	4.41E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.41E-10	8.67E-10
Acetaldehyde	3.69E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.69E-10
Lead	6.91E-11	4.41E-12	1.45E-10	0.00E+00	0.00E+00	0.00E+00	1.04E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-10	3.22E-10
Benzo[b]fluoranthene	3.41E-12	4.53E-11	6.78E-12	0.00E+00	0.00E+00	0.00E+00	5.75E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-10	1.13E-10
Chloroform	3.73E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.73E-14
SUM	1.70E-07	7.99E-09	1.34E-09	0.00E+00	0.00E+00	0.00E+00	1.02E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-08	1.89E-07

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
Benzene	42.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	42.28%
Naphthalene	19.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	19.05%
1,3-Butadiene	15.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	15.61%
PAHs	0.30%	4.02%	0.60%	0.00%	0.00%	0.00%	5.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.74%	10.00%
Cadmium	6.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.46%
Ethyl Benzene	2.82%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.82%
Nickel	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.00%
Formaldehyde	0.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.53%
Chromium (VI)	0.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.53%
Benzo[a]pyrene	0.01%	0.18%	0.03%	0.00%	0.00%	0.00%	0.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.44%	0.46%
Acetaldehyde	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.20%
Lead	0.04%	0.00%	0.08%	0.00%	0.00%	0.00%	0.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%	0.17%
Benzo[b]fluoranthene	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.06%	0.06%
Chloroform	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SUM	89.95%	4.23%	0.71%	0.00%	0.00%	0.00%	5.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.37%	100.00%

Chevron
El Segundo Refinery
PRO Project Addendum
Attachment 4
Maxium Chronic Hazard Index

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	RESP
Hydrogen Sulfide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**2.71E-03**	0.00E+00	0.00E+00	38.77%
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E-05	0.00E+00	0.00E+00	0.00E+00	**1.75E-03**	0.00E+00	1.75E-03	25.04%
Ammonia	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.36E-03**	0.00E+00	0.00E+00	19.46%
Cadmium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-03	0.00E+00	**8.55E-04**	0.00E+00	0.00E+00	12.23%
Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.11E-04**	0.00E+00	0.00E+00	1.59%
Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**7.90E-05**	0.00E+00	0.00E+00	1.13%
Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**5.12E-05**	0.00E+00	0.00E+00	0.73%
Toluene	0.00E+00	3.86E-05	0.00E+00	3.86E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**3.86E-05**	0.00E+00	0.00E+00	0.55%
Xylenes	0.00E+00	2.22E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**2.22E-05**	0.00E+00	0.00E+00	0.32%
Propylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.15E-05**	0.00E+00	0.00E+00	0.16%
Acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**5.41E-06**	0.00E+00	0.00E+00	0.08%
Chromium (VI)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**2.06E-07**	0.00E+00	9.75E-09	0.00%
Mercury	0.00E+00	4.23E-03	0.00E+00	4.23E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.23E-03	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Manganese	0.00E+00	1.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Benzene	0.00E+00	1.90E-04	0.00E+00	1.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	1.90E-04	0.00%
1,3-Butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.30E-06	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Hexane	0.00E+00	2.27E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Selenium	1.89E-06	1.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-06	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Ethyl Benzene	0.00E+00	0.00E+00	0.00E+00	1.83E-06	1.83E-06	0.00E+00	1.83E-06	0.00E+00	1.83E-06	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Phenol	7.05E-09	7.05E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.05E-09	0.00E+00	7.05E-09	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Carbon Disulfide	0.00E+00	3.12E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E-10	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Chloroform	0.00E+00	0.00E+00	0.00E+00	1.38E-10	0.00E+00	0.00E+00	1.38E-10	0.00E+00	1.38E-10	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
SUM	1.90E-06	5.68E-03	0.00E+00	4.46E-03	1.83E-06	0.00E+00	2.56E-05	0.00E+00	5.51E-03	8.30E-06	**6.99E-03**	0.00E+00	1.94E-03	100.00%

Chevron
El Segundo Refinery
PRO Project Addendum
Attachment 4
Maxium Acute Hazard Index

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	CNS
Hydrogen Sulfide	0.00E+00	**3.07E-02**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	98.08%
Mercury	0.00E+00	**5.68E-04**	0.00E+00	5.68E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81%
Toluene	0.00E+00	**1.88E-05**	0.00E+00	1.88E-05	0.00E+00	1.88E-05	0.00E+00	0.00E+00	0.00E+00	1.88E-05	1.88E-05	0.00E+00	0.00E+00	0.06%
Chloroform	0.00E+00	**4.92E-09**	0.00E+00	4.92E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.92E-09	0.00E+00	0.00E+00	0.00E+00	0.00%
Carbon Disulfide	0.00E+00	**1.12E-09**	0.00E+00	1.12E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-09	0.00E+00	0.00E+00	0.00E+00	0.00%
Ammonia	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	1.55E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-03	0.00E+00	0.00E+00	0.00%
Formaldehyde	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	4.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Nickel	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-04	0.00E+00	0.00E+00	2.60E-04	0.00E+00	0.00E+00	0.00%
Acrolein	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	2.26E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-04	0.00E+00	0.00E+00	0.00%
Benzene	0.00E+00	**0.00E+00**	0.00E+00	1.93E-04	0.00E+00	0.00E+00	0.00E+00	1.93E-04	0.00E+00	1.93E-04	0.00E+00	0.00E+00	1.93E-04	0.00%
Xylenes	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	4.30E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.30E-05	0.00E+00	0.00E+00	0.00%
Copper	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.08E-05	0.00E+00	0.00E+00	0.00%
Acetaldehyde	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	3.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-05	0.00E+00	0.00E+00	0.00%
Phenol	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	1.19E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-08	0.00E+00	0.00E+00	0.00%
SUM	0.00E+00	**3.13E-02**	0.00E+00	7.80E-04	0.00E+00	2.28E-03	0.00E+00	4.53E-04	0.00E+00	2.12E-04	2.17E-03	0.00E+00	1.93E-04	100.00%

```
This file: C:\HARP\PROJECTS\2505aChv\2505HRA3\2505a HRA3 MEIR.txt

Created by HARP Version 1.4a  Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 2/9/2010 3:20:53 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2505aChv\2505HRA3\2505HRA3.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\HARP\PROJECTS\Pathway\resident pathway.sit

Coordinate system: UTM NAD27

Screening mode is OFF

Exposure duration: 70 year (adult resident)
Analysis method:   Derived  (Adjusted) Method
Health effect:     Cancer Risk
Receptor(s):       470
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)            0.02

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source         0.052
   Fraction of ingested exposed vegetable
     from home grown source         0.052
   Fraction of ingested protected vegetable
     from home grown source         0.052
   Fraction of ingested root vegetable
     from home grown source         0.052

PIGS, CHICKENS AND EGGS
```

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	71432	Benzene	Benzene	0.000E+00
0002	50000	Formaldehyde	Formaldehyde	0.000E+00
0003	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0004	91203	Naphthalene	Naphthalene	0.000E+00
0005	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0006	107028	Acrolein	Acrolein	0.000E+00
0007	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0008	110543	Hexane	Hexane	0.000E+00
0009	108883	Toluene	Toluene	0.000E+00
0010	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0011	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0012	463581	CarbonylSulfide	Carbonyl sulfide	0.000E+00
0013	74851	Ethylene	Ethylene	0.000E+00
0014	115071	Propylene	Propylene	0.000E+00
0015	7664417	NH3	Ammonia	0.000E+00
0016	7783064	H2S	Hydrogen sulfide	0.000E+00
0017	95636	1,2,4TriMeBenze	1,2,4-Trimethylbenzene	0.000E+00
0018	110827	Cyclohexane	Cyclohexane	0.000E+00
0019	108952	Phenol	Phenol	0.000E+00
0020	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0021	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0022	191242	B[g,h,i]perylen	Benzo[g,h,i]perylene	0.000E+00
0023	7440439	Cadmium	Cadmium	0.000E+00
0024	67663	Chloroform	Chloroform	0.000E+00
0025	7440473	Chromium	Chromium	0.000E+00
0026	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0027	7440484	Cobalt	Cobalt	0.000E+00
0028	7440508	Copper	Copper	0.000E+00
0029	7439921	Lead	Lead	0.000E+00
0030	7439965	Manganese	Manganese	0.000E+00
0031	7439976	Mercury	Mercury	0.000E+00
0032	7440020	Nickel	Nickel	0.000E+00
0033	7723140	Phosphorus	Phosphorus	0.000E+00
0034	7782492	Selenium	Selenium	0.000E+00
0035	7440622	Vanadium	Vanadium (fume or dust)	0.000E+00
0036	7440666	Zinc	Zinc	0.000E+00
0037	74828	CH4	Methane	0.000E+00
0038	75150	CS2	Carbon disulfide	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3

0001	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0002	50000	Formaldehyde	2.10E-02	*	9.00E+00	*	5.50E+01
0003	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0004	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0005	75070	Acetaldehyde	1.00E-02	*	1.40E+02	*	4.70E+02
0006	107028	Acrolein	*	*	3.50E-01	*	2.50E+00
0007	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0008	110543	Hexane	*	*	7.00E+03	*	*
0009	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0010	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0011	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0012	463581	CarbonylSulfide	*	*	*	*	*
0013	74851	Ethylene	*	*	*	*	*
0014	115071	Propylene	*	*	3.00E+03	*	*
0015	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0016	7783064	H2S	*	*	1.00E+01	*	4.20E+01
0017	95636	1,2,4TriMeBenze	*	*	*	*	*
0018	110827	Cyclohexane	*	*	*	*	*
0019	108952	Phenol	*	*	2.00E+02	*	5.80E+03
0020	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0021	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0022	191242	B[g,h,i]perylen	*	*	*	*	*
0023	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0024	67663	Chloroform	1.90E-02	*	3.00E+02	*	1.50E+02
0025	7440473	Chromium	*	*	*	*	*
0026	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0027	7440484	Cobalt	*	*	*	*	*
0028	7440508	Copper	*	*	*	*	1.00E+02
0029	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0030	7439965	Manganese	*	*	9.00E-02	*	*
0031	7439976	Mercury	*	*	3.00E-02	1.60E-04	6.00E-01
0032	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0033	7723140	Phosphorus	*	*	*	*	*
0034	7782492	Selenium	*	*	2.00E+01	*	*
0035	7440622	Vanadium	*	*	*	*	3.00E+01
0036	7440666	Zinc	*	*	*	*	*
0037	74828	CH4	*	*	*	*	*
0038	75150	CS2	*	*	8.00E+02	*	6.20E+03

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=2505 DEV=1 PRO=1 STK=1 NAME=CHEVRON EL SEGUNDO REFINERY STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	3.75	0.000428
50000	Formaldehyde	1	0	27.5	0.00314
1151	PAHs-w/o	1	0	0.0707	0.00000807
91203	Naphthalene	1	0	0.259	0.0000296
75070	Acetaldehyde	1	0	1.01	0.000116
107028	Acrolein	1	0	0.236	0.0000269
100414	Ethyl Benzene	1	0	34	0.00388
110543	Hexane	1	0	0.683	0.000078
108883	Toluene	1	0	1.37	0.000156
1330207	Xylenes	1	0	0.683	0.000078
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*

7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=1 PRO=2 STK=2 NAME=CHEVRON EL SEGUNDO REFINERY STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.8918	0.0001018
463581	CarbonylSulfide	1	0	0.008261	0.000000943
74851	Ethylene	1	0	71.74	0.008189
115071	Propylene	1	0	72.52	0.008279
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*

7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=2 PRO=1 STK=3 NAME=CHEVRON EL SEGUNDO REFINERY STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	2.739	0.0003127
463581	CarbonylSulfide	1	0	0.02537	0.000002897
74851	Ethylene	1	0	220.3	0.02515
115071	Propylene	1	0	222.7	0.02543
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=3 PRO=1 STK=4 NAME=CHEVRON EL SEGUNDO REFINERY STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	6.948	0.0007931
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	2.405	0.0002746
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	6.969	0.0007955
110543	Hexane	1	0	44.53	0.005083

108883	Toluene	1	0	26.05	0.002974
1330207	Xylenes	1	0	28.74	0.003281
106990	1,3-Butadiene	1	0	4.192	0.0004785
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	447.7	0.0511
7664417	NH3	1	0	0.9675	0.0001104
7783064	H2S	1	0	5.44	0.000621
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=4 PRO=1 STK=6 NAME=CHEVRON EL SEGUNDO REFINERY STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	21.01	0.002398
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	10.23	0.001167
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	32.2	0.003676
110543	Hexane	1	0	70.5	0.008048
108883	Toluene	1	0	134.4	0.01534
1330207	Xylenes	1	0	179.2	0.02045
106990	1,3-Butadiene	1	0	0.1482	0.00001692
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	0.612	0.00006987
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	59.3	0.00677
110827	Cyclohexane	1	0	32.67	0.003729
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*

7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=5 PRO=1 STK=7 NAME=CHEVRON EL SEGUNDO REFINERY STACK 7 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	0.1861	0.00002125
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.8743	0.0000998
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.4663	0.00005323
110543	Hexane	1	0	0.3938	0.00004496
108883	Toluene	1	0	2.974	0.0003395
1330207	Xylenes	1	0	4.809	0.0005489
106990	1,3-Butadiene	1	0	0.2944	0.00003361
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	0.2863	0.00003268
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=8 PRO=1 STK=12 NAME=CHEVRON EL SEGUNDO REFINERY STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	29.29	0.003344
50000	Formaldehyde	1	0	*	*

1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1723	0.00001967
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.5169	0.00005901
110543	Hexane	1	0	26.19	0.00299
108883	Toluene	1	0	2.24	0.0002557
1330207	Xylenes	1	0	1.723	0.0001967
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.3446	0.00003934
110827	Cyclohexane	1	0	0.8615	0.00009834
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=8 PRO=2 STK=13 NAME=CHEVRON EL SEGUNDO REFINERY STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	19.81	0.002262
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1166	0.0000133
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.3497	0.00003991
110543	Hexane	1	0	17.72	0.002022
108883	Toluene	1	0	1.515	0.000173
1330207	Xylenes	1	0	1.166	0.000133
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.2331	0.00002661
110827	Cyclohexane	1	0	0.5828	0.00006652
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*

205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=9 PRO=1 STK=14 NAME=CHEVRON EL SEGUNDO REFINERY STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	1.529	0.0001745
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	57.55	0.00657
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	3.618	0.000413
110543	Hexane	1	0	0.049	0.000005594
108883	Toluene	1	0	7.956	0.0009083
1330207	Xylenes	1	0	24.04	0.002745
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	0.02077	0.000002371
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=10 PRO=1 STK=16 NAME=CHEVRON EL SEGUNDO REFINERY STACK 16 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	37.43	0.004273
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	3.642	0.0004157
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	31.82	0.003632
110543	Hexane	1	0	24.91	0.002844
108883	Toluene	1	0	115.2	0.01315
1330207	Xylenes	1	0	186.4	0.02128
106990	1,3-Butadiene	1	0	0.06676	0.000007621
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	46.05	0.005256
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	0.06057	0.000006914
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=11 PRO=1 STK=18 NAME=CHEVRON EL SEGUNDO REFINERY STACK 18 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	0.05135	0.000005862
91203	Naphthalene	1	0	1.617	0.0001846
75070	Acetaldehyde	1	0	105.9	0.01209
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*

7664417	NH3	1	0	39595.19	4.52
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	0.02311	0.000002638
205992	B[b]fluoranthen	1	0	0.0301	0.000003436
191242	B[g,h,i]perylen	1	0	0.07702	0.000008793
7440439	Cadmium	1	0	2.516	0.0002872
67663	Chloroform	1	0	0.006072	0.000000693
7440473	Chromium	1	0	20.09	0.002293
18540299	Cr(VI)	1	0	0.006072	0.000000693
7440484	Cobalt	1	0	1.098	0.0001253
7440508	Copper	1	0	33.57	0.003832
7439921	Lead	1	0	5.668	0.000647
7439965	Manganese	1	0	15.85	0.00181
7439976	Mercury	1	0	2.805	0.0003202
7440020	Nickel	1	0	12.84	0.001465
7723140	Phosphorus	1	0	98.2	0.01121
7782492	Selenium	1	0	5.571	0.000636
7440622	Vanadium	1	0	0.0006321	0.000000072
7440666	Zinc	1	0	147	0.01678
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=11 PRO=2 STK=19 NAME=CHEVRON EL SEGUNDO REFINERY STACK 19 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.1978	0.0002258
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	13.21	0.01508
115071	Propylene	1	0	120.8	0.01379
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*

7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	743.2	0.08484
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=1 STK=20 NAME=CHEVRON EL SEGUNDO REFINERY STACK 20 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.3611	0.00004122
463581	CarbonylSulfide	1	0	0.003345	0.000000382
74851	Ethylene	1	0	29.05	0.003316
115071	Propylene	1	0	29.36	0.003352
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=2 STK=21 NAME=CHEVRON EL SEGUNDO REFINERY STACK 21 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	2.027	0.0002314
50000	Formaldehyde	1	0	4.3	0.0004908
1151	PAHs-w/o	1	0	0.03496	0.000003991
91203	Naphthalene	1	0	0.1049	0.00001197
75070	Acetaldehyde	1	0	1.084	0.0001237
107028	Acrolein	1	0	0.9438	0.0001077
100414	Ethyl Benzene	1	0	2.412	0.0002753
110543	Hexane	1	0	1.608	0.0001836

108883	Toluene	1	0	9.264	0.001057
1330207	Xylenes	1	0	6.886	0.0007861
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	185.3	0.02115
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=3 STK=28 NAME=CHEVRON EL SEGUNDO REFINERY STACK 28 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	101.5	0.01159
7783064	H2S	1	0	944.8	0.1079
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*

7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=4 STK=29 NAME=CHEVRON EL SEGUNDO REFINERY STACK 29 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	3.063	0.0003497
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	2.31	0.0002637
110543	Hexane	1	0	*	*
108883	Toluene	1	0	9.695	0.001107
1330207	Xylenes	1	0	11.01	0.001257
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	11.5	0.001313
7783064	H2S	1	0	0.04711	0.000005377
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=17 PRO=1 STK=30 NAME=CHEVRON EL SEGUNDO REFINERY STACK 30 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*

1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=18 PRO=1 STK=31 NAME=CHEVRON EL SEGUNDO REFINERY STACK 31 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	86.01	0.009818
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	11.03	0.001259
115071	Propylene	1	0	7.017	0.000801
7664417	NH3	1	0	*	*
7783064	H2S	1	0	0.6115	0.0000698
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*

205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	0.01203	0.000001373

EMISSIONS FOR FACILITY FAC=2505 DEV=19 PRO=1 STK=32 NAME=CHEVRON EL SEGUNDO REFINERY STACK 32 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	20.587	0.00235
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1211	0.0000138
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.3633	0.0000415
110543	Hexane	1	0	18.4072	0.002101
108883	Toluene	1	0	1.5743	0.00018
1330207	Xylenes	1	0	1.211	0.0001383
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=21 PRO=1 STK=33 NAME=CHEVRON EL SEGUNDO REFINERY STACK 33 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	95.71	0.0109
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	10.39	0.00119
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	70.75	0.00808
110543	Hexane	1	0	242.78	0.0277
108883	Toluene	1	0	301.87	0.0345
1330207	Xylenes	1	0	392.32	0.0448
106990	1,3-Butadiene	1	0	0.17	0.0000189
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	765.08	0.0873
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	146.99	0.0168
110827	Cyclohexane	1	0	165.98	0.0189
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=20 PRO=1 STK=34 NAME=CHEVRON EL SEGUNDO REFINERY STACK 34 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	105.55	0.012
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	11.13	0.00127
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	76.12	0.00869
110543	Hexane	1	0	270.24	0.0308
108883	Toluene	1	0	327.09	0.0373
1330207	Xylenes	1	0	421.83	0.0482
106990	1,3-Butadiene	1	0	0.19	0.0000212
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	887.69	0.101

7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	157.62	0.018
110827	Cyclohexane	1	0	183.14	0.0209
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

CANCER RISK REPORT

DOMINANT PATHWAYS, Receptor 470

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG
0001	A	-	-	-	-	-	-	-	-	-	-	-
0002	A	-	-	-	-	-	-	-	-	-	-	-
0003	-	YES	-	-	-	-	YES	-	-	-	-	-
0004	A	-	-	-	-	-	-	-	-	-	-	-
0005	A	-	-	-	-	-	-	-	-	-	-	-
0006	-	-	-	-	-	-	-	-	-	-	-	-
0007	A	-	-	-	-	-	-	-	-	-	-	-
0008	-	-	-	-	-	-	-	-	-	-	-	-
0009	-	-	-	-	-	-	-	-	-	-	-	-
0010	-	-	-	-	-	-	-	-	-	-	-	-
0011	A	-	-	-	-	-	-	-	-	-	-	-
0012	-	-	-	-	-	-	-	-	-	-	-	-
0013	-	-	-	-	-	-	-	-	-	-	-	-
0014	-	-	-	-	-	-	-	-	-	-	-	-
0015	-	-	-	-	-	-	-	-	-	-	-	-
0016	-	-	-	-	-	-	-	-	-	-	-	-
0017	-	-	-	-	-	-	-	-	-	-	-	-
0018	-	-	-	-	-	-	-	-	-	-	-	-
0019	-	-	-	-	-	-	-	-	-	-	-	-
0020	-	YES	-	-	-	-	YES	-	-	-	-	-
0021	-	YES	-	-	-	-	YES	-	-	-	-	-
0022	-	-	-	-	-	-	-	-	-	-	-	-
0023	A	-	-	-	-	-	-	-	-	-	-	-
0024	A	-	-	-	-	-	-	-	-	-	-	-
0025	-	-	-	-	-	-	-	-	-	-	-	-
0026	A	-	-	-	-	-	-	-	-	-	-	-
0027	-	-	-	-	-	-	-	-	-	-	-	-
0028	-	-	-	-	-	-	-	-	-	-	-	-
0029	-	-	YES	-	-	-	YES	-	-	-	-	-
0030	-	-	-	-	-	-	-	-	-	-	-	-
0031	-	-	-	-	-	-	-	-	-	-	-	-

0032	A	-	-	-	-	-	-	-	-	-	-	-
0033	-	-	-	-	-	-	-	-	-	-	-	-
0034	-	-	-	-	-	-	-	-	-	-	-	-
0035	-	-	-	-	-	-	-	-	-	-	-	-
0036	-	-	-	-	-	-	-	-	-	-	-	-
0037	-	-	-	-	-	-	-	-	-	-	-	-
0038	-	-	-	-	-	-	-	-	-	-	-	-

DERIVED CANCER RISK, RECEPTOR 470

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
UTME	UTMN														
0001	1.19E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-07
0002	5.84E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.84E-10
0003	4.77E-10	6.34E-09	9.50E-10	0.00E+00	0.00E+00	0.00E+00	8.04E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-08	1.58E-08
0004	2.74E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-07
0005	6.65E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.65E-10
0006	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	8.88E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.88E-09
0008	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	5.56E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.56E-08
0012	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	4.90E-11	6.52E-10	9.77E-11	0.00E+00	0.00E+00	0.00E+00	8.27E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.58E-09	1.63E-09
0021	6.39E-12	8.49E-11	1.27E-11	0.00E+00	0.00E+00	0.00E+00	1.08E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-10	2.12E-10
0022	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0023	2.29E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.29E-08
0024	7.00E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.00E-14
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	1.88E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E-09
0027	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	1.30E-10	8.26E-12	2.72E-10	0.00E+00	0.00E+00	0.00E+00	1.94E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.75E-10	6.04E-10
0030	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	7.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.09E-09
0033	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0037	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0038	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	4.92E-07	7.09E-09	1.33E-09	0.00E+00	0.00E+00	0.00E+00	9.17E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-08	5.09E-07
369054	3753640														

This file: C:\HARP\PROJECTS\2505aChv\2505HRA3\2505a HRA3 MEIW.txt

Created by HARP Version 1.4a Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 2/9/2010 2:38:46 PM

EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2505aChv\2505HRA3\2505HRA3.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\HARP\PROJECTS\Pathway\worker pathway.sit

Coordinate system: UTM NAD27

Screening mode is OFF

Exposure duration: Standard work schedule (49 wks/yr, 5 days/wk, 8 hrs/day, 40 yrs)
Analysis method: Point estimate
Health effect: Cancer Risk
Receptor(s):   990
Sources(s):   All
Chemicals(s):   All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)   0.02

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

*** Pathway disabled ***

PIGS, CHICKENS AND EGGS

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway disabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	71432	Benzene	Benzene	0.000E+00
0002	50000	Formaldehyde	Formaldehyde	0.000E+00
0003	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0004	91203	Naphthalene	Naphthalene	0.000E+00
0005	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0006	107028	Acrolein	Acrolein	0.000E+00
0007	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0008	110543	Hexane	Hexane	0.000E+00
0009	108883	Toluene	Toluene	0.000E+00
0010	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0011	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0012	463581	CarbonylSulfide	Carbonyl sulfide	0.000E+00
0013	74851	Ethylene	Ethylene	0.000E+00
0014	115071	Propylene	Propylene	0.000E+00
0015	7664417	NH3	Ammonia	0.000E+00
0016	7783064	H2S	Hydrogen sulfide	0.000E+00
0017	95636	1,2,4TriMeBenze	1,2,4-Trimethylbenzene	0.000E+00
0018	110827	Cyclohexane	Cyclohexane	0.000E+00
0019	108952	Phenol	Phenol	0.000E+00
0020	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0021	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0022	191242	B[g,h,i]perylen	Benzo[g,h,i]perylene	0.000E+00
0023	7440439	Cadmium	Cadmium	0.000E+00
0024	67663	Chloroform	Chloroform	0.000E+00
0025	7440473	Chromium	Chromium	0.000E+00
0026	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0027	7440484	Cobalt	Cobalt	0.000E+00
0028	7440508	Copper	Copper	0.000E+00
0029	7439921	Lead	Lead	0.000E+00
0030	7439965	Manganese	Manganese	0.000E+00
0031	7439976	Mercury	Mercury	0.000E+00
0032	7440020	Nickel	Nickel	0.000E+00
0033	7723140	Phosphorus	Phosphorus	0.000E+00
0034	7782492	Selenium	Selenium	0.000E+00
0035	7440622	Vanadium	Vanadium (fume or dust)	0.000E+00
0036	7440666	Zinc	Zinc	0.000E+00
0037	74828	CH4	Methane	0.000E+00
0038	75150	CS2	Carbon disulfide	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0002	50000	Formaldehyde	2.10E-02	*	9.00E+00	*	5.50E+01
0003	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0004	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0005	75070	Acetaldehyde	1.00E-02	*	1.40E+02	*	4.70E+02
0006	107028	Acrolein	*	*	3.50E-01	*	2.50E+00
0007	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*

0008	110543	Hexane	*	*	7.00E+03	*	*
0009	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0010	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0011	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0012	463581	CarbonylSulfide	*	*	*	*	*
0013	74851	Ethylene	*	*	*	*	*
0014	115071	Propylene	*	*	3.00E+03	*	*
0015	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0016	7783064	H2S	*	*	1.00E+01	*	4.20E+01
0017	95636	1,2,4TriMeBenze	*	*	*	*	*
0018	110827	Cyclohexane	*	*	*	*	*
0019	108952	Phenol	*	*	2.00E+02	*	5.80E+03
0020	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0021	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0022	191242	B[g,h,i]perylen	*	*	*	*	*
0023	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0024	67663	Chloroform	1.90E-02	*	3.00E+02	*	1.50E+02
0025	7440473	Chromium	*	*	*	*	*
0026	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0027	7440484	Cobalt	*	*	*	*	*
0028	7440508	Copper	*	*	*	*	1.00E+02
0029	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0030	7439965	Manganese	*	*	9.00E-02	*	*
0031	7439976	Mercury	*	*	3.00E-02	1.60E-04	6.00E-01
0032	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0033	7723140	Phosphorus	*	*	*	*	*
0034	7782492	Selenium	*	*	2.00E+01	*	*
0035	7440622	Vanadium	*	*	*	*	3.00E+01
0036	7440666	Zinc	*	*	*	*	*
0037	74828	CH4	*	*	*	*	*
0038	75150	CS2	*	*	8.00E+02	*	6.20E+03

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=2505 DEV=1 PRO=1 STK=1 NAME=CHEVRON EL SEGUNDO REFINERY STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	3.75	0.000428
50000	Formaldehyde	1	0	27.5	0.00314
1151	PAHs-w/o	1	0	0.0707	0.00000807
91203	Naphthalene	1	0	0.259	0.0000296
75070	Acetaldehyde	1	0	1.01	0.000116
107028	Acrolein	1	0	0.236	0.0000269
100414	Ethyl Benzene	1	0	34	0.00388
110543	Hexane	1	0	0.683	0.000078
108883	Toluene	1	0	1.37	0.000156
1330207	Xylenes	1	0	0.683	0.000078
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*

7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=1 PRO=2 STK=2 NAME=CHEVRON EL SEGUNDO REFINERY STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.8918	0.0001018
463581	CarbonylSulfide	1	0	0.008261	0.000000943
74851	Ethylene	1	0	71.74	0.008189
115071	Propylene	1	0	72.52	0.008279
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=2 PRO=1 STK=3 NAME=CHEVRON EL SEGUNDO REFINERY STACK 3 EMS (lbs/yr)

SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	2.739	0.0003127
463581	CarbonylSulfide	1	0	0.02537	0.000002897
74851	Ethylene	1	0	220.3	0.02515
115071	Propylene	1	0	222.7	0.02543
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=3 PRO=1 STK=4 NAME=CHEVRON EL SEGUNDO REFINERY STACK 4 EMS (lbs/yr)

SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	6.948	0.0007931
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	2.405	0.0002746
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	6.969	0.0007955
110543	Hexane	1	0	44.53	0.005083
108883	Toluene	1	0	26.05	0.002974
1330207	Xylenes	1	0	28.74	0.003281
106990	1,3-Butadiene	1	0	4.192	0.0004785
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	447.7	0.0511
7664417	NH3	1	0	0.9675	0.0001104
7783064	H2S	1	0	5.44	0.000621

95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=4 PRO=1 STK=6 NAME=CHEVRON EL SEGUNDO REFINERY STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	21.01	0.002398
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	10.23	0.001167
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	32.2	0.003676
110543	Hexane	1	0	70.5	0.008048
108883	Toluene	1	0	134.4	0.01534
1330207	Xylenes	1	0	179.2	0.02045
106990	1,3-Butadiene	1	0	0.1482	0.00001692
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	0.612	0.00006987
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	59.3	0.00677
110827	Cyclohexane	1	0	32.67	0.003729
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*

7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=5 PRO=1 STK=7 NAME=CHEVRON EL SEGUNDO REFINERY STACK 7 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	0.1861	0.00002125
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.8743	0.0000998
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.4663	0.00005323
110543	Hexane	1	0	0.3938	0.00004496
108883	Toluene	1	0	2.974	0.0003395
1330207	Xylenes	1	0	4.809	0.0005489
106990	1,3-Butadiene	1	0	0.2944	0.00003361
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	0.2863	0.00003268
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=8 PRO=1 STK=12 NAME=CHEVRON EL SEGUNDO REFINERY STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	29.29	0.003344
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1723	0.00001967
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.5169	0.00005901
110543	Hexane	1	0	26.19	0.00299
108883	Toluene	1	0	2.24	0.0002557
1330207	Xylenes	1	0	1.723	0.0001967

106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.3446	0.00003934
110827	Cyclohexane	1	0	0.8615	0.00009834
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=8 PRO=2 STK=13 NAME=CHEVRON EL SEGUNDO REFINERY STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	19.81	0.002262
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1166	0.0000133
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.3497	0.00003991
110543	Hexane	1	0	17.72	0.002022
108883	Toluene	1	0	1.515	0.000173
1330207	Xylenes	1	0	1.166	0.000133
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.2331	0.00002661
110827	Cyclohexane	1	0	0.5828	0.00006652
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*

7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=9 PRO=1 STK=14 NAME=CHEVRON EL SEGUNDO REFINERY STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	1.529	0.0001745
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	57.55	0.00657
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	3.618	0.000413
110543	Hexane	1	0	0.049	0.000005594
108883	Toluene	1	0	7.956	0.0009083
1330207	Xylenes	1	0	24.04	0.002745
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	0.02077	0.000002371
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=10 PRO=1 STK=16 NAME=CHEVRON EL SEGUNDO REFINERY STACK 16 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	37.43	0.004273
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	3.642	0.0004157

75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	31.82	0.003632
110543	Hexane	1	0	24.91	0.002844
108883	Toluene	1	0	115.2	0.01315
1330207	Xylenes	1	0	186.4	0.02128
106990	1,3-Butadiene	1	0	0.06676	0.000007621
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	46.05	0.005256
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	0.06057	0.000006914
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=11 PRO=1 STK=18 NAME=CHEVRON EL SEGUNDO REFINERY STACK 18 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	0.05135	0.000005862
91203	Naphthalene	1	0	1.617	0.0001846
75070	Acetaldehyde	1	0	105.9	0.01209
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	39595.19	4.52
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	0.02311	0.000002638
205992	B[b]fluoranthen	1	0	0.0301	0.000003436
191242	B[g,h,i]perylen	1	0	0.07702	0.000008793

7440439	Cadmium	1	0	2.516	0.0002872
67663	Chloroform	1	0	0.006072	0.000000693
7440473	Chromium	1	0	20.09	0.002293
18540299	Cr(VI)	1	0	0.006072	0.000000693
7440484	Cobalt	1	0	1.098	0.0001253
7440508	Copper	1	0	33.57	0.003832
7439921	Lead	1	0	5.668	0.000647
7439965	Manganese	1	0	15.85	0.00181
7439976	Mercury	1	0	2.805	0.0003202
7440020	Nickel	1	0	12.84	0.001465
7723140	Phosphorus	1	0	98.2	0.01121
7782492	Selenium	1	0	5.571	0.000636
7440622	Vanadium	1	0	0.0006321	0.000000072
7440666	Zinc	1	0	147	0.01678
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=11 PRO=2 STK=19 NAME=CHEVRON EL SEGUNDO REFINERY STACK 19 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.1978	0.0002258
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	13.21	0.01508
115071	Propylene	1	0	120.8	0.01379
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	743.2	0.08484
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=1 STK=20 NAME=CHEVRON EL SEGUNDO REFINERY STACK 20 EMS (lbs/yr)

SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.3611	0.00004122
463581	CarbonylSulfide	1	0	0.003345	0.000000382
74851	Ethylene	1	0	29.05	0.003316
115071	Propylene	1	0	29.36	0.003352
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=2 STK=21 NAME=CHEVRON EL SEGUNDO REFINERY STACK 21 EMS (lbs/yr)

SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	2.027	0.0002314
50000	Formaldehyde	1	0	4.3	0.0004908
1151	PAHs-w/o	1	0	0.03496	0.000003991
91203	Naphthalene	1	0	0.1049	0.00001197
75070	Acetaldehyde	1	0	1.084	0.0001237
107028	Acrolein	1	0	0.9438	0.0001077
100414	Ethyl Benzene	1	0	2.412	0.0002753
110543	Hexane	1	0	1.608	0.0001836
108883	Toluene	1	0	9.264	0.001057
1330207	Xylenes	1	0	6.886	0.0007861
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	185.3	0.02115
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*

95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=3 STK=28 NAME=CHEVRON EL SEGUNDO REFINERY STACK 28 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	101.5	0.01159
7783064	H2S	1	0	944.8	0.1079
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*

7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=4 STK=29 NAME=CHEVRON EL SEGUNDO REFINERY STACK 29 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	3.063	0.0003497
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	2.31	0.0002637
110543	Hexane	1	0	*	*
108883	Toluene	1	0	9.695	0.001107
1330207	Xylenes	1	0	11.01	0.001257
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	11.5	0.001313
7783064	H2S	1	0	0.04711	0.000005377
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=17 PRO=1 STK=30 NAME=CHEVRON EL SEGUNDO REFINERY STACK 30 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*

106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=18 PRO=1 STK=31 NAME=CHEVRON EL SEGUNDO REFINERY STACK 31 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	86.01	0.009818
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	11.03	0.001259
115071	Propylene	1	0	7.017	0.000801
7664417	NH3	1	0	*	*
7783064	H2S	1	0	0.6115	0.0000698
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*

7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	0.01203	0.000001373

EMISSIONS FOR FACILITY FAC=2505 DEV=19 PRO=1 STK=32 NAME=CHEVRON EL SEGUNDO REFINERY STACK 32 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	20.587	0.00235
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1211	0.0000138
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.3633	0.0000415
110543	Hexane	1	0	18.4072	0.002101
108883	Toluene	1	0	1.5743	0.00018
1330207	Xylenes	1	0	1.211	0.0001383
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=21 PRO=1 STK=33 NAME=CHEVRON EL SEGUNDO REFINERY STACK 33 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	95.71	0.0109
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	10.39	0.00119

75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	70.75	0.00808
110543	Hexane	1	0	242.78	0.0277
108883	Toluene	1	0	301.87	0.0345
1330207	Xylenes	1	0	392.32	0.0448
106990	1,3-Butadiene	1	0	0.17	0.0000189
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	765.08	0.0873
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	146.99	0.0168
110827	Cyclohexane	1	0	165.98	0.0189
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=20 PRO=1 STK=34 NAME=CHEVRON EL SEGUNDO REFINERY STACK 34 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	105.55	0.012
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	11.13	0.00127
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	76.12	0.00869
110543	Hexane	1	0	270.24	0.0308
108883	Toluene	1	0	327.09	0.0373
1330207	Xylenes	1	0	421.83	0.0482
106990	1,3-Butadiene	1	0	0.19	0.0000212
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	887.69	0.101
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	157.62	0.018
110827	Cyclohexane	1	0	183.14	0.0209
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*

7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

CANCER RISK REPORT

AVERAGE CANCER RISK, RECEPTOR 990

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
UTME	UTMN														
0001	1.92E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.92E-07
0002	8.43E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.43E-10
0003	5.41E-10	1.24E-08	1.61E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E-08	1.46E-08
0004	7.06E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.06E-09
0005	3.36E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.36E-10
0006	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	2.09E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E-09
0008	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	4.39E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.39E-09
0012	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	2.67E-11	6.13E-10	7.97E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.93E-10	7.20E-10
0021	3.48E-12	7.99E-11	1.04E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.03E-11	9.37E-11
0022	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0023	1.12E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-08
0024	3.42E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.42E-14
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	9.18E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.18E-10
0027	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	7.06E-11	1.32E-10	2.22E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.54E-10	4.24E-10
0030	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	3.46E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.46E-09
0033	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0037	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0038	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

SUM   2.22E-07 1.32E-08 1.93E-09 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1.52E-08 2.38E-07
371054 3752640

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This file: C:\HARP\PROJECTS\2505aChv\2505HRA3\2505a HRA3 Sen.txt

Created by HARP Version 1.4a  Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 2/9/2010 4:23:37 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2505aChv\2505HRA3\2505HRA3.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\HARP\PROJECTS\Pathway\resident pathway.sit

Coordinate system: UTM NAD27

Screening mode is OFF

Exposure duration: 70 year (adult resident)
Analysis method:   Derived  (Adjusted) Method
Health effect:     Cancer Risk
Receptor(s):       1937
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)            0.02

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source         0.052
   Fraction of ingested exposed vegetable
     from home grown source         0.052
   Fraction of ingested protected vegetable
     from home grown source         0.052
   Fraction of ingested root vegetable
     from home grown source         0.052

PIGS, CHICKENS AND EGGS
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*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	71432	Benzene	Benzene	0.000E+00
0002	50000	Formaldehyde	Formaldehyde	0.000E+00
0003	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0004	91203	Naphthalene	Naphthalene	0.000E+00
0005	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0006	107028	Acrolein	Acrolein	0.000E+00
0007	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0008	110543	Hexane	Hexane	0.000E+00
0009	108883	Toluene	Toluene	0.000E+00
0010	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0011	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0012	463581	CarbonylSulfide	Carbonyl sulfide	0.000E+00
0013	74851	Ethylene	Ethylene	0.000E+00
0014	115071	Propylene	Propylene	0.000E+00
0015	7664417	NH3	Ammonia	0.000E+00
0016	7783064	H2S	Hydrogen sulfide	0.000E+00
0017	95636	1,2,4TriMeBenze	1,2,4-Trimethylbenzene	0.000E+00
0018	110827	Cyclohexane	Cyclohexane	0.000E+00
0019	108952	Phenol	Phenol	0.000E+00
0020	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0021	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0022	191242	B[g,h,i]perylen	Benzo[g,h,i]perylene	0.000E+00
0023	7440439	Cadmium	Cadmium	0.000E+00
0024	67663	Chloroform	Chloroform	0.000E+00
0025	7440473	Chromium	Chromium	0.000E+00
0026	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0027	7440484	Cobalt	Cobalt	0.000E+00
0028	7440508	Copper	Copper	0.000E+00
0029	7439921	Lead	Lead	0.000E+00
0030	7439965	Manganese	Manganese	0.000E+00
0031	7439976	Mercury	Mercury	0.000E+00
0032	7440020	Nickel	Nickel	0.000E+00
0033	7723140	Phosphorus	Phosphorus	0.000E+00
0034	7782492	Selenium	Selenium	0.000E+00
0035	7440622	Vanadium	Vanadium (fume or dust)	0.000E+00
0036	7440666	Zinc	Zinc	0.000E+00
0037	74828	CH4	Methane	0.000E+00
0038	75150	CS2	Carbon disulfide	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3

0001	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0002	50000	Formaldehyde	2.10E-02	*	9.00E+00	*	5.50E+01
0003	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0004	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0005	75070	Acetaldehyde	1.00E-02	*	1.40E+02	*	4.70E+02
0006	107028	Acrolein	*	*	3.50E-01	*	2.50E+00
0007	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0008	110543	Hexane	*	*	7.00E+03	*	*
0009	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0010	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0011	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0012	463581	CarbonylSulfide	*	*	*	*	*
0013	74851	Ethylene	*	*	*	*	*
0014	115071	Propylene	*	*	3.00E+03	*	*
0015	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0016	7783064	H2S	*	*	1.00E+01	*	4.20E+01
0017	95636	1,2,4TriMeBenze	*	*	*	*	*
0018	110827	Cyclohexane	*	*	*	*	*
0019	108952	Phenol	*	*	2.00E+02	*	5.80E+03
0020	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0021	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0022	191242	B[g,h,i]perylen	*	*	*	*	*
0023	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0024	67663	Chloroform	1.90E-02	*	3.00E+02	*	1.50E+02
0025	7440473	Chromium	*	*	*	*	*
0026	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0027	7440484	Cobalt	*	*	*	*	*
0028	7440508	Copper	*	*	*	*	1.00E+02
0029	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0030	7439965	Manganese	*	*	9.00E-02	*	*
0031	7439976	Mercury	*	*	3.00E-02	1.60E-04	6.00E-01
0032	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0033	7723140	Phosphorus	*	*	*	*	*
0034	7782492	Selenium	*	*	2.00E+01	*	*
0035	7440622	Vanadium	*	*	*	*	3.00E+01
0036	7440666	Zinc	*	*	*	*	*
0037	74828	CH4	*	*	*	*	*
0038	75150	CS2	*	*	8.00E+02	*	6.20E+03

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=2505 DEV=1 PRO=1 STK=1 NAME=CHEVRON EL SEGUNDO REFINERY STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	3.75	0.000428
50000	Formaldehyde	1	0	27.5	0.00314
1151	PAHs-w/o	1	0	0.0707	0.00000807
91203	Naphthalene	1	0	0.259	0.0000296
75070	Acetaldehyde	1	0	1.01	0.000116
107028	Acrolein	1	0	0.236	0.0000269
100414	Ethyl Benzene	1	0	34	0.00388
110543	Hexane	1	0	0.683	0.000078
108883	Toluene	1	0	1.37	0.000156
1330207	Xylenes	1	0	0.683	0.000078
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*

7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=1 PRO=2 STK=2 NAME=CHEVRON EL SEGUNDO REFINERY STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.8918	0.0001018
463581	CarbonylSulfide	1	0	0.008261	0.000000943
74851	Ethylene	1	0	71.74	0.008189
115071	Propylene	1	0	72.52	0.008279
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*

7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=2 PRO=1 STK=3 NAME=CHEVRON EL SEGUNDO REFINERY STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	2.739	0.0003127
463581	CarbonylSulfide	1	0	0.02537	0.000002897
74851	Ethylene	1	0	220.3	0.02515
115071	Propylene	1	0	222.7	0.02543
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=3 PRO=1 STK=4 NAME=CHEVRON EL SEGUNDO REFINERY STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	6.948	0.0007931
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	2.405	0.0002746
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	6.969	0.0007955
110543	Hexane	1	0	44.53	0.005083

108883	Toluene	1	0	26.05	0.002974
1330207	Xylenes	1	0	28.74	0.003281
106990	1,3-Butadiene	1	0	4.192	0.0004785
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	447.7	0.0511
7664417	NH3	1	0	0.9675	0.0001104
7783064	H2S	1	0	5.44	0.000621
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=4 PRO=1 STK=6 NAME=CHEVRON EL SEGUNDO REFINERY STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	21.01	0.002398
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	10.23	0.001167
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	32.2	0.003676
110543	Hexane	1	0	70.5	0.008048
108883	Toluene	1	0	134.4	0.01534
1330207	Xylenes	1	0	179.2	0.02045
106990	1,3-Butadiene	1	0	0.1482	0.00001692
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	0.612	0.00006987
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	59.3	0.00677
110827	Cyclohexane	1	0	32.67	0.003729
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*

7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=5 PRO=1 STK=7 NAME=CHEVRON EL SEGUNDO REFINERY STACK 7 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	0.1861	0.00002125
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.8743	0.0000998
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.4663	0.00005323
110543	Hexane	1	0	0.3938	0.00004496
108883	Toluene	1	0	2.974	0.0003395
1330207	Xylenes	1	0	4.809	0.0005489
106990	1,3-Butadiene	1	0	0.2944	0.00003361
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	0.2863	0.00003268
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=8 PRO=1 STK=12 NAME=CHEVRON EL SEGUNDO REFINERY STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	29.29	0.003344
50000	Formaldehyde	1	0	*	*

1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1723	0.00001967
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.5169	0.00005901
110543	Hexane	1	0	26.19	0.00299
108883	Toluene	1	0	2.24	0.0002557
1330207	Xylenes	1	0	1.723	0.0001967
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.3446	0.00003934
110827	Cyclohexane	1	0	0.8615	0.00009834
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=8 PRO=2 STK=13 NAME=CHEVRON EL SEGUNDO REFINERY STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	19.81	0.002262
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1166	0.0000133
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.3497	0.00003991
110543	Hexane	1	0	17.72	0.002022
108883	Toluene	1	0	1.515	0.000173
1330207	Xylenes	1	0	1.166	0.000133
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.2331	0.00002661
110827	Cyclohexane	1	0	0.5828	0.00006652
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*

205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=9 PRO=1 STK=14 NAME=CHEVRON EL SEGUNDO REFINERY STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	1.529	0.0001745
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	57.55	0.00657
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	3.618	0.000413
110543	Hexane	1	0	0.049	0.000005594
108883	Toluene	1	0	7.956	0.0009083
1330207	Xylenes	1	0	24.04	0.002745
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	0.02077	0.000002371
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=10 PRO=1 STK=16 NAME=CHEVRON EL SEGUNDO REFINERY STACK 16 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	37.43	0.004273
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	3.642	0.0004157
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	31.82	0.003632
110543	Hexane	1	0	24.91	0.002844
108883	Toluene	1	0	115.2	0.01315
1330207	Xylenes	1	0	186.4	0.02128
106990	1,3-Butadiene	1	0	0.06676	0.000007621
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	46.05	0.005256
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	0.06057	0.000006914
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=11 PRO=1 STK=18 NAME=CHEVRON EL SEGUNDO REFINERY STACK 18 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	0.05135	0.000005862
91203	Naphthalene	1	0	1.617	0.0001846
75070	Acetaldehyde	1	0	105.9	0.01209
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*

7664417	NH3	1	0	39595.19	4.52
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	0.02311	0.000002638
205992	B[b]fluoranthen	1	0	0.0301	0.000003436
191242	B[g,h,i]perylen	1	0	0.07702	0.000008793
7440439	Cadmium	1	0	2.516	0.0002872
67663	Chloroform	1	0	0.006072	0.000000693
7440473	Chromium	1	0	20.09	0.002293
18540299	Cr(VI)	1	0	0.006072	0.000000693
7440484	Cobalt	1	0	1.098	0.0001253
7440508	Copper	1	0	33.57	0.003832
7439921	Lead	1	0	5.668	0.000647
7439965	Manganese	1	0	15.85	0.00181
7439976	Mercury	1	0	2.805	0.0003202
7440020	Nickel	1	0	12.84	0.001465
7723140	Phosphorus	1	0	98.2	0.01121
7782492	Selenium	1	0	5.571	0.000636
7440622	Vanadium	1	0	0.0006321	0.000000072
7440666	Zinc	1	0	147	0.01678
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=11 PRO=2 STK=19 NAME=CHEVRON EL SEGUNDO REFINERY STACK 19 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.1978	0.0002258
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	13.21	0.01508
115071	Propylene	1	0	120.8	0.01379
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*

7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	743.2	0.08484
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=1 STK=20 NAME=CHEVRON EL SEGUNDO REFINERY STACK 20 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.3611	0.00004122
463581	CarbonylSulfide	1	0	0.003345	0.000000382
74851	Ethylene	1	0	29.05	0.003316
115071	Propylene	1	0	29.36	0.003352
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=2 STK=21 NAME=CHEVRON EL SEGUNDO REFINERY STACK 21 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	2.027	0.0002314
50000	Formaldehyde	1	0	4.3	0.0004908
1151	PAHs-w/o	1	0	0.03496	0.000003991
91203	Naphthalene	1	0	0.1049	0.00001197
75070	Acetaldehyde	1	0	1.084	0.0001237
107028	Acrolein	1	0	0.9438	0.0001077
100414	Ethyl Benzene	1	0	2.412	0.0002753
110543	Hexane	1	0	1.608	0.0001836

108883	Toluene	1	0	9.264	0.001057
1330207	Xylenes	1	0	6.886	0.0007861
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	185.3	0.02115
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=3 STK=28 NAME=CHEVRON EL SEGUNDO REFINERY STACK 28 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	101.5	0.01159
7783064	H2S	1	0	944.8	0.1079
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*

7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=4 STK=29 NAME=CHEVRON EL SEGUNDO REFINERY STACK 29 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	3.063	0.0003497
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	2.31	0.0002637
110543	Hexane	1	0	*	*
108883	Toluene	1	0	9.695	0.001107
1330207	Xylenes	1	0	11.01	0.001257
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	11.5	0.001313
7783064	H2S	1	0	0.04711	0.000005377
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=17 PRO=1 STK=30 NAME=CHEVRON EL SEGUNDO REFINERY STACK 30 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*

1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=18 PRO=1 STK=31 NAME=CHEVRON EL SEGUNDO REFINERY STACK 31 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	86.01	0.009818
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	11.03	0.001259
115071	Propylene	1	0	7.017	0.000801
7664417	NH3	1	0	*	*
7783064	H2S	1	0	0.6115	0.0000698
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*

205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	0.01203	0.000001373

EMISSIONS FOR FACILITY FAC=2505 DEV=19 PRO=1 STK=32 NAME=CHEVRON EL SEGUNDO REFINERY STACK 32 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	20.587	0.00235
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1211	0.0000138
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.3633	0.0000415
110543	Hexane	1	0	18.4072	0.002101
108883	Toluene	1	0	1.5743	0.00018
1330207	Xylenes	1	0	1.211	0.0001383
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=21 PRO=1 STK=33 NAME=CHEVRON EL SEGUNDO REFINERY STACK 33 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	95.71	0.0109
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	10.39	0.00119
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	70.75	0.00808
110543	Hexane	1	0	242.78	0.0277
108883	Toluene	1	0	301.87	0.0345
1330207	Xylenes	1	0	392.32	0.0448
106990	1,3-Butadiene	1	0	0.17	0.0000189
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	765.08	0.0873
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	146.99	0.0168
110827	Cyclohexane	1	0	165.98	0.0189
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=20 PRO=1 STK=34 NAME=CHEVRON EL SEGUNDO REFINERY STACK 34 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	105.55	0.012
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	11.13	0.00127
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	76.12	0.00869
110543	Hexane	1	0	270.24	0.0308
108883	Toluene	1	0	327.09	0.0373
1330207	Xylenes	1	0	421.83	0.0482
106990	1,3-Butadiene	1	0	0.19	0.0000212
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	887.69	0.101

7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	157.62	0.018
110827	Cyclohexane	1	0	183.14	0.0209
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

CANCER RISK REPORT

DOMINANT PATHWAYS, Receptor 1937

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG
0001	A	-	-	-	-	-	-	-	-	-	-	-
0002	A	-	-	-	-	-	-	-	-	-	-	-
0003	-	YES	-	-	-	-	YES	-	-	-	-	-
0004	A	-	-	-	-	-	-	-	-	-	-	-
0005	A	-	-	-	-	-	-	-	-	-	-	-
0006	-	-	-	-	-	-	-	-	-	-	-	-
0007	A	-	-	-	-	-	-	-	-	-	-	-
0008	-	-	-	-	-	-	-	-	-	-	-	-
0009	-	-	-	-	-	-	-	-	-	-	-	-
0010	-	-	-	-	-	-	-	-	-	-	-	-
0011	A	-	-	-	-	-	-	-	-	-	-	-
0012	-	-	-	-	-	-	-	-	-	-	-	-
0013	-	-	-	-	-	-	-	-	-	-	-	-
0014	-	-	-	-	-	-	-	-	-	-	-	-
0015	-	-	-	-	-	-	-	-	-	-	-	-
0016	-	-	-	-	-	-	-	-	-	-	-	-
0017	-	-	-	-	-	-	-	-	-	-	-	-
0018	-	-	-	-	-	-	-	-	-	-	-	-
0019	-	-	-	-	-	-	-	-	-	-	-	-
0020	-	YES	-	-	-	-	YES	-	-	-	-	-
0021	-	YES	-	-	-	-	YES	-	-	-	-	-
0022	-	-	-	-	-	-	-	-	-	-	-	-
0023	A	-	-	-	-	-	-	-	-	-	-	-
0024	A	-	-	-	-	-	-	-	-	-	-	-
0025	-	-	-	-	-	-	-	-	-	-	-	-
0026	A	-	-	-	-	-	-	-	-	-	-	-
0027	-	-	-	-	-	-	-	-	-	-	-	-
0028	-	-	-	-	-	-	-	-	-	-	-	-
0029	-	-	YES	-	-	-	YES	-	-	-	-	-
0030	-	-	-	-	-	-	-	-	-	-	-	-
0031	-	-	-	-	-	-	-	-	-	-	-	-

0032	A	-	-	-	-	-	-	-	-	-	-	-
0033	-	-	-	-	-	-	-	-	-	-	-	-
0034	-	-	-	-	-	-	-	-	-	-	-	-
0035	-	-	-	-	-	-	-	-	-	-	-	-
0036	-	-	-	-	-	-	-	-	-	-	-	-
0037	-	-	-	-	-	-	-	-	-	-	-	-
0038	-	-	-	-	-	-	-	-	-	-	-	-

DERIVED CANCER RISK, RECEPTOR 1937

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL
UTME	UTMN														
0001	7.99E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.99E-08
0002	1.01E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-09
0003	5.71E-10	7.59E-09	1.14E-09	0.00E+00	0.00E+00	0.00E+00	9.63E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-08	1.89E-08
0004	3.60E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.60E-08
0005	3.69E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.69E-10
0006	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0007	5.33E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.33E-09
0008	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0011	2.95E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-08
0012	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0013	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0014	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0016	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0017	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0018	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0019	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0020	2.62E-11	3.48E-10	5.21E-11	0.00E+00	0.00E+00	0.00E+00	4.41E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.41E-10	8.67E-10
0021	3.41E-12	4.53E-11	6.78E-12	0.00E+00	0.00E+00	0.00E+00	5.75E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-10	1.13E-10
0022	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0023	1.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-08
0024	3.73E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.73E-14
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0026	1.00E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E-09
0027	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0029	6.91E-11	4.41E-12	1.45E-10	0.00E+00	0.00E+00	0.00E+00	1.04E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.53E-10	3.22E-10
0030	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0031	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0032	3.78E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.78E-09
0033	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0034	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0036	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0037	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0038	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SUM	1.70E-07	7.99E-09	1.34E-09	0.00E+00	0.00E+00	0.00E+00	1.02E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-08	1.89E-07
369950	3753775														

```
This file: C:\HARP\PROJECTS\2505aChv\2505HRA3\2505a HRA3 MCHI.txt

Created by HARP Version 1.4a  Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 2/9/2010 3:20:22 PM


EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2505aChv\2505HRA3\2505HRA3.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\HARP\PROJECTS\Pathway\resident pathway.sit

Coordinate system: UTM NAD27

Screening mode is OFF

Exposure duration: resident
Analysis method:   Derived (OEHHA) Method
Health effect:     Chronic HI
Receptor(s):       890
Sources(s):        All
Chemicals(s):      All

SITE PARAMETERS

DEPOSITION

   Deposition rate (m/s)            0.02

DRINKING WATER

*** Pathway disabled ***

FISH

*** Pathway disabled ***

PASTURE

*** Pathway disabled ***

HOME GROWN PRODUCE

   HUMAN INGESTION
   Fraction of ingested leafy vegetable
     from home grown source         0.052
   Fraction of ingested exposed vegetable
     from home grown source         0.052
   Fraction of ingested protected vegetable
     from home grown source         0.052
   Fraction of ingested root vegetable
     from home grown source         0.052

PIGS, CHICKENS AND EGGS
```

*** Pathway disabled ***

DERMAL ABSORPTION

*** Pathway enabled ***

SOIL INGESTION

*** Pathway enabled ***

MOTHER'S MILK

*** Pathway enabled ***

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	71432	Benzene	Benzene	0.000E+00
0002	50000	Formaldehyde	Formaldehyde	0.000E+00
0003	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0004	91203	Naphthalene	Naphthalene	0.000E+00
0005	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0006	107028	Acrolein	Acrolein	0.000E+00
0007	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0008	110543	Hexane	Hexane	0.000E+00
0009	108883	Toluene	Toluene	0.000E+00
0010	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0011	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0012	463581	CarbonylSulfide	Carbonyl sulfide	0.000E+00
0013	74851	Ethylene	Ethylene	0.000E+00
0014	115071	Propylene	Propylene	0.000E+00
0015	7664417	NH3	Ammonia	0.000E+00
0016	7783064	H2S	Hydrogen sulfide	0.000E+00
0017	95636	1,2,4TriMeBenze	1,2,4-Trimethylbenzene	0.000E+00
0018	110827	Cyclohexane	Cyclohexane	0.000E+00
0019	108952	Phenol	Phenol	0.000E+00
0020	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0021	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0022	191242	B[g,h,i]perylen	Benzo[g,h,i]perylene	0.000E+00
0023	7440439	Cadmium	Cadmium	0.000E+00
0024	67663	Chloroform	Chloroform	0.000E+00
0025	7440473	Chromium	Chromium	0.000E+00
0026	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0027	7440484	Cobalt	Cobalt	0.000E+00
0028	7440508	Copper	Copper	0.000E+00
0029	7439921	Lead	Lead	0.000E+00
0030	7439965	Manganese	Manganese	0.000E+00
0031	7439976	Mercury	Mercury	0.000E+00
0032	7440020	Nickel	Nickel	0.000E+00
0033	7723140	Phosphorus	Phosphorus	0.000E+00
0034	7782492	Selenium	Selenium	0.000E+00
0035	7440622	Vanadium	Vanadium (fume or dust)	0.000E+00
0036	7440666	Zinc	Zinc	0.000E+00
0037	74828	CH4	Methane	0.000E+00
0038	75150	CS2	Carbon disulfide	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3

0001	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0002	50000	Formaldehyde	2.10E-02	*	9.00E+00	*	5.50E+01
0003	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0004	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0005	75070	Acetaldehyde	1.00E-02	*	1.40E+02	*	4.70E+02
0006	107028	Acrolein	*	*	3.50E-01	*	2.50E+00
0007	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0008	110543	Hexane	*	*	7.00E+03	*	*
0009	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0010	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0011	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0012	463581	CarbonylSulfide	*	*	*	*	*
0013	74851	Ethylene	*	*	*	*	*
0014	115071	Propylene	*	*	3.00E+03	*	*
0015	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0016	7783064	H2S	*	*	1.00E+01	*	4.20E+01
0017	95636	1,2,4TriMeBenze	*	*	*	*	*
0018	110827	Cyclohexane	*	*	*	*	*
0019	108952	Phenol	*	*	2.00E+02	*	5.80E+03
0020	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0021	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0022	191242	B[g,h,i]perylen	*	*	*	*	*
0023	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0024	67663	Chloroform	1.90E-02	*	3.00E+02	*	1.50E+02
0025	7440473	Chromium	*	*	*	*	*
0026	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0027	7440484	Cobalt	*	*	*	*	*
0028	7440508	Copper	*	*	*	*	1.00E+02
0029	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0030	7439965	Manganese	*	*	9.00E-02	*	*
0031	7439976	Mercury	*	*	3.00E-02	1.60E-04	6.00E-01
0032	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0033	7723140	Phosphorus	*	*	*	*	*
0034	7782492	Selenium	*	*	2.00E+01	*	*
0035	7440622	Vanadium	*	*	*	*	3.00E+01
0036	7440666	Zinc	*	*	*	*	*
0037	74828	CH4	*	*	*	*	*
0038	75150	CS2	*	*	8.00E+02	*	6.20E+03

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=2505 DEV=1 PRO=1 STK=1 NAME=CHEVRON EL SEGUNDO REFINERY STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	3.75	0.000428
50000	Formaldehyde	1	0	27.5	0.00314
1151	PAHs-w/o	1	0	0.0707	0.00000807
91203	Naphthalene	1	0	0.259	0.0000296
75070	Acetaldehyde	1	0	1.01	0.000116
107028	Acrolein	1	0	0.236	0.0000269
100414	Ethyl Benzene	1	0	34	0.00388
110543	Hexane	1	0	0.683	0.000078
108883	Toluene	1	0	1.37	0.000156
1330207	Xylenes	1	0	0.683	0.000078
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*

7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=1 PRO=2 STK=2 NAME=CHEVRON EL SEGUNDO REFINERY STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.8918	0.0001018
463581	CarbonylSulfide	1	0	0.008261	0.000000943
74851	Ethylene	1	0	71.74	0.008189
115071	Propylene	1	0	72.52	0.008279
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*

7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=2 PRO=1 STK=3 NAME=CHEVRON EL SEGUNDO REFINERY STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	2.739	0.0003127
463581	CarbonylSulfide	1	0	0.02537	0.000002897
74851	Ethylene	1	0	220.3	0.02515
115071	Propylene	1	0	222.7	0.02543
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=3 PRO=1 STK=4 NAME=CHEVRON EL SEGUNDO REFINERY STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	6.948	0.0007931
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	2.405	0.0002746
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	6.969	0.0007955
110543	Hexane	1	0	44.53	0.005083

108883	Toluene	1	0	26.05	0.002974
1330207	Xylenes	1	0	28.74	0.003281
106990	1,3-Butadiene	1	0	4.192	0.0004785
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	447.7	0.0511
7664417	NH3	1	0	0.9675	0.0001104
7783064	H2S	1	0	5.44	0.000621
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=4 PRO=1 STK=6 NAME=CHEVRON EL SEGUNDO REFINERY STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	21.01	0.002398
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	10.23	0.001167
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	32.2	0.003676
110543	Hexane	1	0	70.5	0.008048
108883	Toluene	1	0	134.4	0.01534
1330207	Xylenes	1	0	179.2	0.02045
106990	1,3-Butadiene	1	0	0.1482	0.00001692
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	0.612	0.00006987
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	59.3	0.00677
110827	Cyclohexane	1	0	32.67	0.003729
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*

7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=5 PRO=1 STK=7 NAME=CHEVRON EL SEGUNDO REFINERY STACK 7 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	0.1861	0.00002125
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.8743	0.0000998
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.4663	0.00005323
110543	Hexane	1	0	0.3938	0.00004496
108883	Toluene	1	0	2.974	0.0003395
1330207	Xylenes	1	0	4.809	0.0005489
106990	1,3-Butadiene	1	0	0.2944	0.00003361
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	0.2863	0.00003268
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=8 PRO=1 STK=12 NAME=CHEVRON EL SEGUNDO REFINERY STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	29.29	0.003344
50000	Formaldehyde	1	0	*	*

1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1723	0.00001967
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.5169	0.00005901
110543	Hexane	1	0	26.19	0.00299
108883	Toluene	1	0	2.24	0.0002557
1330207	Xylenes	1	0	1.723	0.0001967
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.3446	0.00003934
110827	Cyclohexane	1	0	0.8615	0.00009834
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=8 PRO=2 STK=13 NAME=CHEVRON EL SEGUNDO REFINERY STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	19.81	0.002262
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1166	0.0000133
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.3497	0.00003991
110543	Hexane	1	0	17.72	0.002022
108883	Toluene	1	0	1.515	0.000173
1330207	Xylenes	1	0	1.166	0.000133
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.2331	0.00002661
110827	Cyclohexane	1	0	0.5828	0.00006652
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*

205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=9 PRO=1 STK=14 NAME=CHEVRON EL SEGUNDO REFINERY STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	1.529	0.0001745
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	57.55	0.00657
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	3.618	0.000413
110543	Hexane	1	0	0.049	0.000005594
108883	Toluene	1	0	7.956	0.0009083
1330207	Xylenes	1	0	24.04	0.002745
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	0.02077	0.000002371
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=10 PRO=1 STK=16 NAME=CHEVRON EL SEGUNDO REFINERY STACK 16 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	37.43	0.004273
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	3.642	0.0004157
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	31.82	0.003632
110543	Hexane	1	0	24.91	0.002844
108883	Toluene	1	0	115.2	0.01315
1330207	Xylenes	1	0	186.4	0.02128
106990	1,3-Butadiene	1	0	0.06676	0.000007621
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	46.05	0.005256
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	0.06057	0.000006914
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=11 PRO=1 STK=18 NAME=CHEVRON EL SEGUNDO REFINERY STACK 18 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	0.05135	0.000005862
91203	Naphthalene	1	0	1.617	0.0001846
75070	Acetaldehyde	1	0	105.9	0.01209
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*

7664417	NH3	1	0	39595.19	4.52
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	0.02311	0.000002638
205992	B[b]fluoranthen	1	0	0.0301	0.000003436
191242	B[g,h,i]perylen	1	0	0.07702	0.000008793
7440439	Cadmium	1	0	2.516	0.0002872
67663	Chloroform	1	0	0.006072	0.000000693
7440473	Chromium	1	0	20.09	0.002293
18540299	Cr(VI)	1	0	0.006072	0.000000693
7440484	Cobalt	1	0	1.098	0.0001253
7440508	Copper	1	0	33.57	0.003832
7439921	Lead	1	0	5.668	0.000647
7439965	Manganese	1	0	15.85	0.00181
7439976	Mercury	1	0	2.805	0.0003202
7440020	Nickel	1	0	12.84	0.001465
7723140	Phosphorus	1	0	98.2	0.01121
7782492	Selenium	1	0	5.571	0.000636
7440622	Vanadium	1	0	0.0006321	0.000000072
7440666	Zinc	1	0	147	0.01678
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=11 PRO=2 STK=19 NAME=CHEVRON EL SEGUNDO REFINERY STACK 19 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.1978	0.0002258
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	13.21	0.01508
115071	Propylene	1	0	120.8	0.01379
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*

7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	743.2	0.08484
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=1 STK=20 NAME=CHEVRON EL SEGUNDO REFINERY STACK 20 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.3611	0.00004122
463581	CarbonylSulfide	1	0	0.003345	0.000000382
74851	Ethylene	1	0	29.05	0.003316
115071	Propylene	1	0	29.36	0.003352
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=2 STK=21 NAME=CHEVRON EL SEGUNDO REFINERY STACK 21 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	2.027	0.0002314
50000	Formaldehyde	1	0	4.3	0.0004908
1151	PAHs-w/o	1	0	0.03496	0.000003991
91203	Naphthalene	1	0	0.1049	0.00001197
75070	Acetaldehyde	1	0	1.084	0.0001237
107028	Acrolein	1	0	0.9438	0.0001077
100414	Ethyl Benzene	1	0	2.412	0.0002753
110543	Hexane	1	0	1.608	0.0001836

108883	Toluene	1	0	9.264	0.001057
1330207	Xylenes	1	0	6.886	0.0007861
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	185.3	0.02115
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=3 STK=28 NAME=CHEVRON EL SEGUNDO REFINERY STACK 28 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	101.5	0.01159
7783064	H2S	1	0	944.8	0.1079
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*

7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=4 STK=29 NAME=CHEVRON EL SEGUNDO REFINERY STACK 29 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	3.063	0.0003497
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	2.31	0.0002637
110543	Hexane	1	0	*	*
108883	Toluene	1	0	9.695	0.001107
1330207	Xylenes	1	0	11.01	0.001257
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	11.5	0.001313
7783064	H2S	1	0	0.04711	0.000005377
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=17 PRO=1 STK=30 NAME=CHEVRON EL SEGUNDO REFINERY STACK 30 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*

1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=18 PRO=1 STK=31 NAME=CHEVRON EL SEGUNDO REFINERY STACK 31 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	86.01	0.009818
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	11.03	0.001259
115071	Propylene	1	0	7.017	0.000801
7664417	NH3	1	0	*	*
7783064	H2S	1	0	0.6115	0.0000698
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*

205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	0.01203	0.000001373

EMISSIONS FOR FACILITY FAC=2505 DEV=19 PRO=1 STK=32 NAME=CHEVRON EL SEGUNDO REFINERY STACK 32 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	20.587	0.00235
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1211	0.0000138
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.3633	0.0000415
110543	Hexane	1	0	18.4072	0.002101
108883	Toluene	1	0	1.5743	0.00018
1330207	Xylenes	1	0	1.211	0.0001383
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=21 PRO=1 STK=33 NAME=CHEVRON EL SEGUNDO REFINERY STACK 33 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	95.71	0.0109
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	10.39	0.00119
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	70.75	0.00808
110543	Hexane	1	0	242.78	0.0277
108883	Toluene	1	0	301.87	0.0345
1330207	Xylenes	1	0	392.32	0.0448
106990	1,3-Butadiene	1	0	0.17	0.0000189
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	765.08	0.0873
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	146.99	0.0168
110827	Cyclohexane	1	0	165.98	0.0189
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=20 PRO=1 STK=34 NAME=CHEVRON EL SEGUNDO REFINERY STACK 34 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	105.55	0.012
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	11.13	0.00127
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	76.12	0.00869
110543	Hexane	1	0	270.24	0.0308
108883	Toluene	1	0	327.09	0.0373
1330207	Xylenes	1	0	421.83	0.0482
106990	1,3-Butadiene	1	0	0.19	0.0000212
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	887.69	0.101

7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	157.62	0.018
110827	Cyclohexane	1	0	183.14	0.0209
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

CHRONIC HI REPORT

DOMINANT PATHWAYS, Receptor 890

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG
0001	YES	-	-	-	-	-	-	-	-	-	-	-
0002	YES	-	-	-	-	-	-	-	-	-	-	-
0003	YES	YES	-	-	-	-	YES	-	-	-	-	-
0004	YES	-	-	-	-	-	-	-	-	-	-	-
0005	YES	-	-	-	-	-	-	-	-	-	-	-
0006	YES	-	-	-	-	-	-	-	-	-	-	-
0007	YES	-	-	-	-	-	-	-	-	-	-	-
0008	YES	-	-	-	-	-	-	-	-	-	-	-
0009	YES	-	-	-	-	-	-	-	-	-	-	-
0010	YES	-	-	-	-	-	-	-	-	-	-	-
0011	YES	-	-	-	-	-	-	-	-	-	-	-
0012	YES	-	-	-	-	-	-	-	-	-	-	-
0013	YES	-	-	-	-	-	-	-	-	-	-	-
0014	YES	-	-	-	-	-	-	-	-	-	-	-
0015	YES	-	-	-	-	-	-	-	-	-	-	-
0016	YES	-	-	-	-	-	-	-	-	-	-	-
0017	YES	-	-	-	-	-	-	-	-	-	-	-
0018	YES	-	-	-	-	-	-	-	-	-	-	-
0019	YES	-	-	-	-	-	-	-	-	-	-	-
0020	YES	YES	-	-	-	-	YES	-	-	-	-	-
0021	YES	YES	-	-	-	-	YES	-	-	-	-	-
0022	YES	-	-	-	-	-	-	-	-	-	-	-
0023	YES	-	YES	-	-	-	YES	-	-	-	-	-
0024	YES	-	-	-	-	-	-	-	-	-	-	-
0025	YES	-	-	-	-	-	-	-	-	-	-	-
0026	YES	-	YES	-	-	-	YES	-	-	-	-	-
0027	YES	-	-	-	-	-	-	-	-	-	-	-
0028	YES	-	-	-	-	-	-	-	-	-	-	-
0029	YES	-	YES	-	-	-	YES	-	-	-	-	-
0030	YES	-	-	-	-	-	-	-	-	-	-	-
0031	YES	YES	-	-	-	-	YES	-	-	-	-	-

0032	YES	YES	-	-	-	-	YES	-	-	-	-	-	
0033	YES	-	-	-	-	-	-	-	-	-	-	-	
0034	YES	-	-	-	-	-	-	-	-	-	-	-	
0035	YES	-	-	-	-	-	-	-	-	-	-	-	
0036	YES	-	-	-	-	-	-	-	-	-	-	-	
0037	-	-	-	-	-	-	-	-	-	-	-	-	
0038	YES	-	-	-	-	-	-	-	-	-	-	-	

DERIVED CHRONIC HI, RECEPTOR 890

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX	UTME	UTMN
0001	0.00E+00	1.90E-04	0.00E+00	1.90E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E-04	1.90E-04		
0002	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.90E-05	0.00E+00	0.00E+00	7.90E-05		
0003	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0004	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.11E-04	0.00E+00	0.00E+00	1.11E-04		
0005	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.41E-06	0.00E+00	0.00E+00	5.41E-06		
0006	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.12E-05	0.00E+00	0.00E+00	5.12E-05		
0007	0.00E+00	0.00E+00	0.00E+00	1.83E-06	1.83E-06	0.00E+00	1.83E-06	0.00E+00	1.83E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-06		
0008	0.00E+00	2.27E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.27E-06		
0009	0.00E+00	3.86E-05	0.00E+00	3.86E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.86E-05	0.00E+00	0.00E+00	3.86E-05		
0010	0.00E+00	2.22E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.22E-05	0.00E+00	0.00E+00	2.22E-05		
0011	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.30E-06	0.00E+00	0.00E+00	8.30E-06		
0012	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0013	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0014	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-05	0.00E+00	0.00E+00	1.15E-05		
0015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-03	0.00E+00	0.00E+00	1.36E-03		
0016	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.71E-03	0.00E+00	0.00E+00	2.71E-03		
0017	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0018	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0019	7.05E-09	7.05E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.05E-09	0.00E+00	7.05E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.05E-09		
0020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0021	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0022	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0023	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-03	0.00E+00	8.55E-04	0.00E+00	0.00E+00	1.28E-03		
0024	0.00E+00	0.00E+00	0.00E+00	1.38E-10	0.00E+00	0.00E+00	1.38E-10	0.00E+00	1.38E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-10		
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0026	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E-07	0.00E+00	9.75E-09	2.06E-07		
0027	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0029	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0030	0.00E+00	1.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-03		
0031	0.00E+00	4.23E-03	0.00E+00	4.23E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.23E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.23E-03		
0032	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E-05	0.00E+00	0.00E+00	0.00E+00	1.75E-03	0.00E+00	1.75E-03	1.75E-03		
0033	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0034	1.89E-06	1.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-06		
0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0036	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0037	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0038	0.00E+00	3.12E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E-10	0.00E+00	0.00E+00	0.00E+00	3.12E-10		
SUM	1.90E-06	5.68E-03	0.00E+00	4.46E-03	1.83E-06	0.00E+00	2.56E-05	0.00E+00	5.51E-03	8.30E-06	6.99E-03	0.00E+00	1.94E-03	6.99E-03	371054	3752840

This file: C:\HARP\PROJECTS\2505aChv\2505HRA3\2505a HRA3 MAHI.txt

Created by HARP Version 1.4a Build 23.07.00
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 2/9/2010 3:20:05 PM

EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2505aChv\2505HRA3\2505HRA3.SRC
   Averaging period adjustment factors file: not applicable
   Emission rates file: database
   Site parameters file: C:\HARP\PROJECTS\Pathway\resident pathway.sit

Coordinate system: UTM NAD27

Screening mode is OFF

Analysis method: Point Estimate
Health effect: Acute HI Simple (Concurrent Max.)
Receptor(s):   1899
Sources(s):   All
Chemicals(s):   All

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	71432	Benzene	Benzene	0.000E+00
0002	50000	Formaldehyde	Formaldehyde	0.000E+00
0003	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0004	91203	Naphthalene	Naphthalene	0.000E+00
0005	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0006	107028	Acrolein	Acrolein	0.000E+00
0007	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0008	110543	Hexane	Hexane	0.000E+00
0009	108883	Toluene	Toluene	0.000E+00
0010	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0011	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0012	463581	CarbonylSulfide	Carbonyl sulfide	0.000E+00
0013	74851	Ethylene	Ethylene	0.000E+00
0014	115071	Propylene	Propylene	0.000E+00
0015	7664417	NH3	Ammonia	0.000E+00
0016	7783064	H2S	Hydrogen sulfide	0.000E+00
0017	95636	1,2,4TriMeBenze	1,2,4-Trimethylbenzene	0.000E+00
0018	110827	Cyclohexane	Cyclohexane	0.000E+00
0019	108952	Phenol	Phenol	0.000E+00
0020	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0021	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0022	191242	B[g,h,i]perylen	Benzo[g,h,i]perylene	0.000E+00
0023	7440439	Cadmium	Cadmium	0.000E+00
0024	67663	Chloroform	Chloroform	0.000E+00
0025	7440473	Chromium	Chromium	0.000E+00
0026	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0027	7440484	Cobalt	Cobalt	0.000E+00
0028	7440508	Copper	Copper	0.000E+00
0029	7439921	Lead	Lead	0.000E+00
0030	7439965	Manganese	Manganese	0.000E+00
0031	7439976	Mercury	Mercury	0.000E+00

0032	7440020	Nickel	Nickel	0.000E+00
0033	7723140	Phosphorus	Phosphorus	0.000E+00
0034	7782492	Selenium	Selenium	0.000E+00
0035	7440622	Vanadium	Vanadium (fume or dust)	0.000E+00
0036	7440666	Zinc	Zinc	0.000E+00
0037	74828	CH4	Methane	0.000E+00
0038	75150	CS2	Carbon disulfide	0.000E+00

CHEMICAL HEALTH VALUES

CHEM	CAS	ABBREVIATION	CancerPF(Inh) (mg/kg-d)^-1	CancerPF(Oral) (mg/kg-d)^-1	ChronicREL(Inh) ug/m^3	ChronicREL(Oral) mg/kg-d	AcuteREL ug/m^3
0001	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0002	50000	Formaldehyde	2.10E-02	*	9.00E+00	*	5.50E+01
0003	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0004	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0005	75070	Acetaldehyde	1.00E-02	*	1.40E+02	*	4.70E+02
0006	107028	Acrolein	*	*	3.50E-01	*	2.50E+00
0007	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0008	110543	Hexane	*	*	7.00E+03	*	*
0009	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0010	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0011	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0012	463581	CarbonylSulfide	*	*	*	*	*
0013	74851	Ethylene	*	*	*	*	*
0014	115071	Propylene	*	*	3.00E+03	*	*
0015	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0016	7783064	H2S	*	*	1.00E+01	*	4.20E+01
0017	95636	1,2,4TriMeBenze	*	*	*	*	*
0018	110827	Cyclohexane	*	*	*	*	*
0019	108952	Phenol	*	*	2.00E+02	*	5.80E+03
0020	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0021	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0022	191242	B[g,h,i]perylen	*	*	*	*	*
0023	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0024	67663	Chloroform	1.90E-02	*	3.00E+02	*	1.50E+02
0025	7440473	Chromium	*	*	*	*	*
0026	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0027	7440484	Cobalt	*	*	*	*	*
0028	7440508	Copper	*	*	*	*	1.00E+02
0029	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0030	7439965	Manganese	*	*	9.00E-02	*	*
0031	7439976	Mercury	*	*	3.00E-02	1.60E-04	6.00E-01
0032	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0033	7723140	Phosphorus	*	*	*	*	*
0034	7782492	Selenium	*	*	2.00E+01	*	*
0035	7440622	Vanadium	*	*	*	*	3.00E+01
0036	7440666	Zinc	*	*	*	*	*
0037	74828	CH4	*	*	*	*	*
0038	75150	CS2	*	*	8.00E+02	*	6.20E+03

EMISSIONS DATA SOURCE: Emission rates loaded from database
CHEMICALS ADDED OR DELETED: none

EMISSIONS FOR FACILITY FAC=2505 DEV=1 PRO=1 STK=1 NAME=CHEVRON EL SEGUNDO REFINERY STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	3.75	0.000428
50000	Formaldehyde	1	0	27.5	0.00314
1151	PAHs-w/o	1	0	0.0707	0.00000807

91203	Naphthalene	1	0	0.259	0.0000296
75070	Acetaldehyde	1	0	1.01	0.000116
107028	Acrolein	1	0	0.236	0.0000269
100414	Ethyl Benzene	1	0	34	0.00388
110543	Hexane	1	0	0.683	0.000078
108883	Toluene	1	0	1.37	0.000156
1330207	Xylenes	1	0	0.683	0.000078
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=1 PRO=2 STK=2 NAME=CHEVRON EL SEGUNDO REFINERY STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.8918	0.0001018
463581	CarbonylSulfide	1	0	0.008261	0.000000943
74851	Ethylene	1	0	71.74	0.008189
115071	Propylene	1	0	72.52	0.008279
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*

191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=2 PRO=1 STK=3 NAME=CHEVRON EL SEGUNDO REFINERY STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	2.739	0.0003127
463581	CarbonylSulfide	1	0	0.02537	0.000002897
74851	Ethylene	1	0	220.3	0.02515
115071	Propylene	1	0	222.7	0.02543
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=3 PRO=1 STK=4 NAME=CHEVRON EL SEGUNDO REFINERY STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	6.948	0.0007931
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	2.405	0.0002746
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	6.969	0.0007955
110543	Hexane	1	0	44.53	0.005083
108883	Toluene	1	0	26.05	0.002974
1330207	Xylenes	1	0	28.74	0.003281
106990	1,3-Butadiene	1	0	4.192	0.0004785
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	447.7	0.0511
7664417	NH3	1	0	0.9675	0.0001104
7783064	H2S	1	0	5.44	0.000621
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=4 PRO=1 STK=6 NAME=CHEVRON EL SEGUNDO REFINERY STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	21.01	0.002398
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	10.23	0.001167
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	32.2	0.003676
110543	Hexane	1	0	70.5	0.008048
108883	Toluene	1	0	134.4	0.01534
1330207	Xylenes	1	0	179.2	0.02045
106990	1,3-Butadiene	1	0	0.1482	0.00001692
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	0.612	0.00006987
7664417	NH3	1	0	*	*

7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	59.3	0.00677
110827	Cyclohexane	1	0	32.67	0.003729
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=5 PRO=1 STK=7 NAME=CHEVRON EL SEGUNDO REFINERY STACK 7 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	0.1861	0.00002125
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.8743	0.0000998
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.4663	0.00005323
110543	Hexane	1	0	0.3938	0.00004496
108883	Toluene	1	0	2.974	0.0003395
1330207	Xylenes	1	0	4.809	0.0005489
106990	1,3-Butadiene	1	0	0.2944	0.00003361
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	0.2863	0.00003268
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*

7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=8 PRO=1 STK=12 NAME=CHEVRON EL SEGUNDO REFINERY STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	29.29	0.003344
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1723	0.00001967
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.5169	0.00005901
110543	Hexane	1	0	26.19	0.00299
108883	Toluene	1	0	2.24	0.0002557
1330207	Xylenes	1	0	1.723	0.0001967
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.3446	0.00003934
110827	Cyclohexane	1	0	0.8615	0.00009834
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=8 PRO=2 STK=13 NAME=CHEVRON EL SEGUNDO REFINERY STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	19.81	0.002262
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1166	0.0000133
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.3497	0.00003991
110543	Hexane	1	0	17.72	0.002022
108883	Toluene	1	0	1.515	0.000173

1330207	Xylenes	1	0	1.166	0.000133
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.2331	0.00002661
110827	Cyclohexane	1	0	0.5828	0.00006652
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=9 PRO=1 STK=14 NAME=CHEVRON EL SEGUNDO REFINERY STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	1.529	0.0001745
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	57.55	0.00657
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	3.618	0.000413
110543	Hexane	1	0	0.049	0.000005594
108883	Toluene	1	0	7.956	0.0009083
1330207	Xylenes	1	0	24.04	0.002745
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	0.02077	0.000002371
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*

7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=10 PRO=1 STK=16 NAME=CHEVRON EL SEGUNDO REFINERY STACK 16 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	37.43	0.004273
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	3.642	0.0004157
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	31.82	0.003632
110543	Hexane	1	0	24.91	0.002844
108883	Toluene	1	0	115.2	0.01315
1330207	Xylenes	1	0	186.4	0.02128
106990	1,3-Butadiene	1	0	0.06676	0.000007621
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	46.05	0.005256
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	0.06057	0.000006914
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=11 PRO=1 STK=18 NAME=CHEVRON EL SEGUNDO REFINERY STACK 18 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	0.05135	0.000005862

91203	Naphthalene	1	0	1.617	0.0001846
75070	Acetaldehyde	1	0	105.9	0.01209
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	39595.19	4.52
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	0.02311	0.000002638
205992	B[b]fluoranthen	1	0	0.0301	0.000003436
191242	B[g,h,i]perylen	1	0	0.07702	0.000008793
7440439	Cadmium	1	0	2.516	0.0002872
67663	Chloroform	1	0	0.006072	0.000000693
7440473	Chromium	1	0	20.09	0.002293
18540299	Cr(VI)	1	0	0.006072	0.000000693
7440484	Cobalt	1	0	1.098	0.0001253
7440508	Copper	1	0	33.57	0.003832
7439921	Lead	1	0	5.668	0.000647
7439965	Manganese	1	0	15.85	0.00181
7439976	Mercury	1	0	2.805	0.0003202
7440020	Nickel	1	0	12.84	0.001465
7723140	Phosphorus	1	0	98.2	0.01121
7782492	Selenium	1	0	5.571	0.000636
7440622	Vanadium	1	0	0.0006321	0.000000072
7440666	Zinc	1	0	147	0.01678
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=11 PRO=2 STK=19 NAME=CHEVRON EL SEGUNDO REFINERY STACK 19 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.1978	0.0002258
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	13.21	0.01508
115071	Propylene	1	0	120.8	0.01379
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*

191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	743.2	0.08484
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=1 STK=20 NAME=CHEVRON EL SEGUNDO REFINERY STACK 20 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	0.3611	0.00004122
463581	CarbonylSulfide	1	0	0.003345	0.000000382
74851	Ethylene	1	0	29.05	0.003316
115071	Propylene	1	0	29.36	0.003352
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=2 STK=21 NAME=CHEVRON EL SEGUNDO REFINERY STACK 21 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	2.027	0.0002314
50000	Formaldehyde	1	0	4.3	0.0004908
1151	PAHs-w/o	1	0	0.03496	0.000003991
91203	Naphthalene	1	0	0.1049	0.00001197
75070	Acetaldehyde	1	0	1.084	0.0001237
107028	Acrolein	1	0	0.9438	0.0001077
100414	Ethyl Benzene	1	0	2.412	0.0002753
110543	Hexane	1	0	1.608	0.0001836
108883	Toluene	1	0	9.264	0.001057
1330207	Xylenes	1	0	6.886	0.0007861
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	185.3	0.02115
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=3 STK=28 NAME=CHEVRON EL SEGUNDO REFINERY STACK 28 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	101.5	0.01159

7783064	H2S	1	0	944.8	0.1079
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=12 PRO=4 STK=29 NAME=CHEVRON EL SEGUNDO REFINERY STACK 29 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	3.063	0.0003497
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	2.31	0.0002637
110543	Hexane	1	0	*	*
108883	Toluene	1	0	9.695	0.001107
1330207	Xylenes	1	0	11.01	0.001257
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	11.5	0.001313
7783064	H2S	1	0	0.04711	0.000005377
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*

7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=17 PRO=1 STK=30 NAME=CHEVRON EL SEGUNDO REFINERY STACK 30 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=18 PRO=1 STK=31 NAME=CHEVRON EL SEGUNDO REFINERY STACK 31 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	*	*
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
110543	Hexane	1	0	86.01	0.009818
108883	Toluene	1	0	*	*

1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	11.03	0.001259
115071	Propylene	1	0	7.017	0.000801
7664417	NH3	1	0	*	*
7783064	H2S	1	0	0.6115	0.0000698
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	0.01203	0.000001373

EMISSIONS FOR FACILITY FAC=2505 DEV=19 PRO=1 STK=32 NAME=CHEVRON EL SEGUNDO REFINERY STACK 32 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	20.587	0.00235
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	0.1211	0.0000138
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	0.3633	0.0000415
110543	Hexane	1	0	18.4072	0.002101
108883	Toluene	1	0	1.5743	0.00018
1330207	Xylenes	1	0	1.211	0.0001383
106990	1,3-Butadiene	1	0	*	*
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
110827	Cyclohexane	1	0	*	*
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*

7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=21 PRO=1 STK=33 NAME=CHEVRON EL SEGUNDO REFINERY STACK 33 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	95.71	0.0109
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*
91203	Naphthalene	1	0	10.39	0.00119
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	70.75	0.00808
110543	Hexane	1	0	242.78	0.0277
108883	Toluene	1	0	301.87	0.0345
1330207	Xylenes	1	0	392.32	0.0448
106990	1,3-Butadiene	1	0	0.17	0.0000189
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	765.08	0.0873
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	146.99	0.0168
110827	Cyclohexane	1	0	165.98	0.0189
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

EMISSIONS FOR FACILITY FAC=2505 DEV=20 PRO=1 STK=34 NAME=CHEVRON EL SEGUNDO REFINERY STACK 34 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
71432	Benzene	1	0	105.55	0.012
50000	Formaldehyde	1	0	*	*
1151	PAHs-w/o	1	0	*	*

91203	Naphthalene	1	0	11.13	0.00127
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
100414	Ethyl Benzene	1	0	76.12	0.00869
110543	Hexane	1	0	270.24	0.0308
108883	Toluene	1	0	327.09	0.0373
1330207	Xylenes	1	0	421.83	0.0482
106990	1,3-Butadiene	1	0	0.19	0.0000212
463581	CarbonylSulfide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	887.69	0.101
7664417	NH3	1	0	*	*
7783064	H2S	1	0	*	*
95636	1,2,4TriMeBenze	1	0	157.62	0.018
110827	Cyclohexane	1	0	183.14	0.0209
108952	Phenol	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
191242	B[g,h,i]perylen	1	0	*	*
7440439	Cadmium	1	0	*	*
67663	Chloroform	1	0	*	*
7440473	Chromium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440484	Cobalt	1	0	*	*
7440508	Copper	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7439976	Mercury	1	0	*	*
7440020	Nickel	1	0	*	*
7723140	Phosphorus	1	0	*	*
7782492	Selenium	1	0	*	*
7440622	Vanadium	1	0	*	*
7440666	Zinc	1	0	*	*
74828	CH4	1	0	*	*
75150	CS2	1	0	*	*

ACUTE HI REPORT

ACUTE HI, RECEPTOR 1899

CHEM UTMN	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX	UTME
0001	0.00E+00	0.00E+00	0.00E+00	1.93E-04	0.00E+00	0.00E+00	0.00E+00	1.93E-04	0.00E+00	1.93E-04	0.00E+00	0.00E+00	1.93E-04	1.93E-04	
0002	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.05E-04	
0003	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0004	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0005	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-05	0.00E+00	0.00E+00	3.00E-05	
0006	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-04	0.00E+00	0.00E+00	2.26E-04	
0007	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0008	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0009	0.00E+00	1.88E-05	0.00E+00	1.88E-05	0.00E+00	1.88E-05	0.00E+00	0.00E+00	0.00E+00	1.88E-05	1.88E-05	0.00E+00	0.00E+00	1.88E-05	
0010	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.30E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.30E-05	0.00E+00	0.00E+00	4.30E-05	
0011	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0012	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0013	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0014	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0015	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-03	0.00E+00	0.00E+00	1.55E-03	
0016	0.00E+00	3.07E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.07E-02	
0017	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0018	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0019	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-08	0.00E+00	0.00E+00	1.19E-08	

0020	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0021	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0022	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0023	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0024	0.00E+00	4.92E-09	0.00E+00	4.92E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.92E-09	0.00E+00	0.00E+00	0.00E+00	4.92E-09	
0025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0026	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0027	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0028	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.08E-05	0.00E+00	0.00E+00	4.08E-05	
0029	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0030	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0031	0.00E+00	5.68E-04	0.00E+00	5.68E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.68E-04	
0032	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.60E-04	0.00E+00	0.00E+00	2.60E-04	0.00E+00	0.00E+00	2.60E-04	
0033	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0034	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0035	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-09	0.00E+00	0.00E+00	2.56E-09	
0036	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0037	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0038	0.00E+00	1.12E-09	0.00E+00	1.12E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-09	0.00E+00	0.00E+00	0.00E+00	1.12E-09	
SUM	0.00E+00	3.13E-02	0.00E+00	7.80E-04	0.00E+00	2.28E-03	0.00E+00	4.53E-04	0.00E+00	2.12E-04	2.17E-03	0.00E+00	1.93E-04	3.13E-02	369843

3753533