April 2009 SCH No. 2008021099

TESORO REFINING AND MARKETING COMPANY LOS ANGELES REFINERY

RELIABILITY IMPROVEMENT AND REGULATORY COMPLIANCE PROJECT

FINAL ENVIRONMENTAL IMPACT REPORT

Volume II: Final Health Risk Assessment

Executive Officer
Barry Wallerstein, D. Env.

Deputy Executive Officer
Planning, Rule Development, and Area Sources
Elaine Chang, DrPH

Assistant Deputy Executive Officer
Laki Tisopulos, Ph.D, P.E.

Planning and Rules Manager, CEQA Section
Planning, Rule Development, and Area Sources
Susan Nakamura

Submitted to:
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Prepared by:
ENVIRONMENTAL AUDIT, INC.

Reviewed by: Barbara Radlein – Air Quality Specialist
Steve Smith, Ph.D. – Program Supervisor
Sawsan Andrawis – Air Quality Engineer II
Jeri Voge – Senior Deputy District Counsel

TABLE OF CONTENTS

TESORO RELIABILITY IMPROVEMENT AND REGULATORY COMPLIANCE PROJECT

~~*DRAFT*~~ FINAL HEALTH RISK ASSESSMENT

VOLUME II **Page No.**

VOLUME II **Page No.**

TABLES:

VOLUME II **Page No**.

FIGURES:

APPENDICES:

M:\MC\2550 Tesoro\HRA\2550 TOC(rev3).doc

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

This Health Risk Assessment (HRA) has been prepared to evaluate the toxic air contaminant impacts of the proposed Tesoro Reliability Improvement and Regulatory Compliance Project.

1.2 PROJECT LOCATION AND SCAQMD ID NUMBER

The proposed project will occur at Tesoro's Refinery and at a separate site where Tesoro operates their SRP. Tesoro is the owner and operator of both facilities operating at two locations: (1) the main refinery operations are located in Wilmington; and (2) the SRP is located in Carson.

The Tesoro Refinery is located at 2101 East Pacific Coast Highway in the Wilmington district of the City of Los Angeles. The Refinery, SCAQMD ID No. 800436, occupies about 300 acres of land, with the larger portion located within the jurisdiction of the City of Los Angeles and the smaller portion located within the City of Carson. The Refinery is bounded to the north by Sepulveda Boulevard, to the west by Alameda Street, to the south by the Southern Pacific Railroad tracks, and to the east by the Dominguez Channel. The Refinery is bisected by Pacific Coast Highway, with the larger portion of the Refinery to the north of Pacific Coast Highway and the smaller portion to the south.

The SRP, SCAQMD ID No. 151798, is located at 23208 South Alameda Street in the City of Carson, north of the Refinery. Adjacent areas to the SRP are heavy industrial and include other refineries, a hydrogen plant, undeveloped lots, and container storage areas.

1.3 LAND USE AND ZONING

Implementation of the proposed modifications at Tesoro Refinery will occur within existing property boundaries. The Refinery is zoned for heavy industrial uses (M3-1). The land use in the vicinity of the Refinery includes oil production facilities, refineries, hydrogen plants, coke handling facilities, automobile wrecking/dismantling facilities, and other industrial facilities. The nearest residential areas to the Refinery include a residential area in the City of Long Beach, about one-half mile east of the Refinery and residential areas of Wilmington about 0.17 mile west of the southern portion of the Refinery and about 0.25 mile west of the Refinery. The Alameda Corridor, a major port access arterial, is located west of the Refinery. Other industrial uses west of the Refinery include wrecking yards, storage tanks farms and container storage areas. Industrial facilities north of the Refinery include the BP Coke Barn, other refining activities, and storage tanks farms, and an intermodal container transfer facility (ICTF). Land to the east of the Refinery includes a rail yard, the Terminal Island Freeway, a residential neighborhood and light manufacturing facilities. Land uses south of the Refinery are predominately heavy industrial with wrecking yards, a truck terminal and storage tank facilities. No schools are located within 0.25 mile of the Refinery.

A portion of the Refinery's tank farm and the SRP are located in the City of Carson. The SRP is located north of the Refinery at 23208 South Alameda Street in the City of Carson. The SRP is zoned for heavy manufacturing uses (MH) by the City of Carson's Land Use element of its General Plan. Adjacent land uses to the SRP also are heavy industrial and include other refineries, a hydrogen plant, undeveloped lots, and container storage areas. The closest residential area is about 0.5 mile east of the SRP in the City of Long Beach. No schools are located within 0.25 mile of the SRP.

1.4 DESCRIPTION OF FACILITY AND PROCESSES

The Tesoro Refinery and SRP processes crude oil into marketable products including gasoline, diesel fuel, jet fuel, and other products. Emission sources at the Refinery include combustion sources (heaters, boilers, and internal combustion engines), fugitive components (pumps, valves, flanges, compressors, drains, etc.), cooling towers, storage tanks, flares, petroleum coke handling, and loading/unloading facilities.

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.

The SRP recovers sulfur from gas streams. Emission sources at the SRP include the SRP Claus Units 600 and 700, combustion sources (heaters, flares, and boilers), fugitive components (pumps, valves, flanges, compressors, drains, etc.), storage tanks, and loading/unloading facilities. No changes in toxic emissions are expected due to the proposed project modifications at the SRP. Since no increases in toxic emissions are expected, no increase in health risk is expected and, therefore, the SRP was excluded from the HRA.

1.5 SUMMARY OF RESULTS

This document contains the HRA prepared for the Tesoro Reliability Improvement and Regulatory Compliance Project. The results of the project HRA are summarized herein.

The HRA has been prepared in accordance with the August 2003 Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments and the October 2003 Air Resources Board Recommended Interim Risk Management Policy for Inhalation-based Residential Cancer Risk memo. This HRA includes a comprehensive analysis of the dispersion of certain AB2588-listed compounds into the environment, the potential for human exposure, and a quantitative assessment of individual health risks associated with the predicted levels of exposure.

Table 1 summarizes the results of this HRA. The Refinery emissions associated with implementation of the proposed project are estimated to result in an increased cancer risk to the maximum exposed individual worker (MEIW) of 3.13 per one million, an increased cancer risk to the maximum exposed individual resident (MEIR) of 6.76 per one million, and an increased cancer risk to the maximum exposed sensitive receptor of 6.76 per one million. The maximum

acute hazard index for the proposed project is estimated to be 0.508 and the maximum chronic hazard index is estimated to be 0.085. The total Cancer Burden for the project is 0.091.

Based on the HRA results, the MEIW is located approximately 650 feet east of the Refinery and MEIR is located approximately 2,625 feet east of the Refinery. The proposed project cancer risk at the MEIW and the MEIR are below the 10×10^{-6} or 10 per one million risk threshold. The non-cancer acute and chronic health impacts for the proposed project are below the hazard index of 1.0.

TABLE 1
SUMMARY OF TESORO REFINERY
PROPOSED PROJECT HRA RESULTS

	Risk Value		
Risk Factor	**New/Modified Equipment**	**Replaced Equipment(1)**	**Proposed Project**
Excess Cancer Risk (per million) to the Maximum Exposed Individual Worker	3.18×10^{-06}	-4.00×10^{-08}	3.14×10^{-06}
Excess Cancer Risk to the Maximum Exposed Individual Resident (per million)	6.92×10^{-06}	-1.60×10^{-07}	6.76×10^{-06}
Excess Cancer Risk to the Maximum Exposed Sensitive Receptor (per million)	6.92×10^{-06}	-1.60×10^{-07}	6.76×10^{-06}
Maximum Acute Hazard Index	0.5080	--	0.5080
Maximum Chronic Hazard Index	0.0846	--	0.0846
Cancer Burden	0.0914	--	0.0914

(1) Risk Value based on previous AB2588 HRA.

2.0 PROPOSED PROJECT DESCRIPTION

The proposed Refinery modifications are summarized in this section. The locations of the proposed new and modified units at the Refinery are shown in Figures 2. The new units are replacements for existing units and are located in the same vicinity as the unit that is being replaced. Several components of the proposed project are related to replacement of existing equipment, while the balance is being proposed for modification or replacement to reduce emissions, comply with regulatory requirements, and improve process safety and reliability.

2.1 Cogeneration Units

Tesoro currently operates a cogeneration system that supplies a portion of electricity and steam used by the process equipment at the Refinery. Tesoro supplements onsite generation by

purchasing electricity from the Los Angeles Department of Water and Power (LADWP) to meet remaining demands for the refining operation. The existing cogeneration system is a major source of NOx emissions at the Refinery. To reduce NOx emissions and remain within Tesoro's annual RECLAIM NOx allocations, Tesoro is proposing to replace the two existing 30 MW cogeneration units (Cogens A and B) and their associated SCR units with one new 61.02 MW cogeneration system (Cogen C), consisting of a gas turbine, a steam turbine, a heat recovery steam generator, and the associated air pollution control equipment (including NOx and CO control technology such as a SCR unit and catalyst, respectively). A new emergency diesel-powered internal combustion *(I.C.)* engine will also be installed to supply power to the instruments and auxiliary equipment in the gas turbine, which will allow the boilers to continue to operate and provide sufficient steam as necessary, and maintain*-sing* a safe shutdown and start up of the Refinery during a power outage. *The new emergency I.C. engine will only be constructed as part of the installment of Cogen C.*

The proposed new cogeneration system would increase the maximum electrical generating capacity at the Refinery by about one megawatt while reducing NOx emissions. The increased electrical generation capacity will allow the Refinery to rely mainly on onsite power generation under normal operating conditions as part of an effort to reduce the risk of process upset due to interruption of power supplied by any outside provider.

2.2 Steam Boilers

Currently, the existing four steam boilers (Boilers 7, 8, 9, and 10) also generate steam for multiple processes at the Refinery. The total combined permitted heat input for the four boilers at the Refinery is 734.16 mmBtu/hr. Similar to the existing gas turbines, these existing steam boilers are major sources of NOx emissions at the Refinery. As part of the strategy to reduce existing NOx emissions to comply with the annual reductions to Tesoro's RECLAIM NOx Annual Allocation, Tesoro will replace the four existing boilers (Boilers 7, 8, 9, and 10) with two new boilers (Boilers 11 and 12), each with total heat input rating of no more than 400 mmBtu/hr. The new boilers will burn refinery fuel gas or natural gas and will be equipped with new SCR units to reduce NOx emissions.

2.3 Fuel Gas Treatment Unit

A new fuel gas treatment unit will be installed to remove sulfur in fuel gas to allow Tesoro to meet future regulatory requirements (BACT requirements for sulfur in fuel gas). The fuel gas treatment unit will be a custom design using hydrotreating technology to treat high sulfur fuel gas streams at the Refinery. Under this process, the fuel gas is compressed, heated and catalytically reacted with hydrogen in a bed of hydrotreater catalyst to convert sulfur compounds into H_2S. The carbonyl sulfide (COS) formed during the reaction will be hydrolyzed to H_2S in an additional downstream reactor. The gas will be cooled and the H_2S removed using amine scrubbing.

2.4 Ammonia Storage

Ammonia is an integral part of the SCR process for NOx control. The proposed project includes a total of three new SCR Units, one for the new cogeneration system, and one for each of the two new boilers. The existing SCR Units at the existing cogeneration units use anhydrous ammonia. The new SCR Units for the cogeneration unit and the boilers will use aqueous ammonia. The proposed project includes a new 12,000 gallon storage tank to provide an adequate supply of aqueous ammonia for the proposed new SCR Units and removing the connection to the existing anhydrous ammonia storage tank.

2.5 Liquefied Petroleum Gas (LPG) Recovery

Tesoro is planning to recover liquid products from light petroleum gases and replace older equipment at the DCU, the HCU and the FCCU as outlined in the following subsections.

2.5.1 Delayed Coking Unit (DCU) Modification

The DCU converts atmospheric residuum and heavy crude fraction into gases, light liquids, naphtha, distillate oils, and petroleum coke. The feed to the DCU is heated to a high temperature causing the light materials to boil off leaving behind solid materials called petroleum coke. Tesoro is proposing to remove water and recover more liquid products (i.e., LPG) from process gas in the DCU and existing equipment by: 1) replacing three existing fractionator overhead accumulators with three larger vessels, 2) adding a new fractionator overhead wash water system; and 3) adding new pumps and piping as necessary. In addition, Tesoro plans to replace the deethanizer and depropanizer columns that are old and need to be replaced with identical columns.

2.5.2 Hydrocracking Unit (HCU) Modification

The HCU converts gas oil in the presence of hydrogen into gases, light liquids, light naphtha, heavy naphtha, and diesel streams. The HCU consists of a reaction section and a fractionation section. The proposed modifications will be made to the fractionation section and will include: 1) adding an amine scrubber feed knockout drum; and 2) adding booster pumps and piping. The purpose of the proposed modifications is to increase the amount of liquid recovered, reduce process gas by improving liquid/vapor separation, and reduce the potential for entrained liquids moving into the amine system.

2.5.3 Fluid Catalytic Cracking Unit (FCCU) Modification

The FCCU converts heavy oil into lighter hydrocarbon compounds. The FCCU produces a large quantity of gasoline blending components and feedstocks for the alkylation process. As part of an effort to recover more liquid fuel and reduce process gas generation, two heat exchangers in the FCCU Recovery section will be removed and replaced with more efficient heat exchangers to allow better heat transfer and better recovery of liquid fuel from process gas.

2.6 Coke Handling, Screening and Loading System

Petroleum coke generated at the DCU is transferred via conveyor belts to the coke storage and loading area for distribution to offsite facilities by either trucks or rail cars. The existing coke barn is scheduled for replacement as part of the proposed project. The existing coke storage facility will be replaced with a new coke storage facility. In addition to the new coke storage facility, Tesoro is proposing to build new coke loading facilities and make modifications to the associated coke transfer equipment as necessary.

2.7 Compliance with Revised CARB Phase III - Hydrotreating Unit (HTU) Modification

The proposed modifications to the HTU-2 are designed to increase throughput to desulfurize more naphtha in order to meet sulfur specifications for blending into revised CARB Phase III compliant gasoline products. In order to make cleaner gasoline meeting the revised CARB gasoline specifications, the proposed project will be completed solely by modifying existing heat exchangers or adding new heat exchangers. As a result of the modifications, the proposed HTU maximum capacity is expected to increase from 23,000 BPSD to 27,000 BPSD, which allows removal of sulfur from more of the existing product streams.

2.8 Amine/Sour Water Reliability Upgrades

~~The proposed modifications to the HTU-2 are designed to increase throughput to desulfurize more naphtha in order to meet sulfur specifications for blending into revised CARB Phase III compliant gasoline products. In order to make cleaner gasoline meeting the revised CARB gasoline specifications, the proposed project will be completed solely by modifying existing heat exchangers or adding new heat exchangers. As a result of the modifications, the proposed HTU maximum capacity is expected to increase from 23,000 BPSD to 27,000 BPSD, which allows removal of sulfur from more of the existing product streams.~~

The proposed reliability upgrades include the installation of a new larger amine flash drum to allow for the proper residence time of the amine solution to enhance removal of hydrocarbons and prevent the hydrocarbons from being inadvertently routed to the sulfur plants. Excess hydrocarbons in the sulfur plants can increase the operating temperatures, causing the plant to shut down and release exhaust gas with high sulfur concentrations to the atmosphere, potentially creating odors and nuisance situations. The existing flash drum will be modified for use primarily as a sour water flash drum and as a back up to the new amine flash drum. The existing vapor recovery heat exchanger and knock out drum will also be replaced with a larger system to increase reliability of the amine system.

2.9 Recover/Treatment of Sour Gas from the Spent Acid Storage Tank and the LPG Sulfur Extraction Unit

Sour gas from the spent acid storage tank and the LPG Sulfur Extraction Unit at the Alkylation Unit will be modified to improve recovery and treatment. This proposed modification will

reduce the sulfur emissions from a vent gas stream and help the Refinery improve compliance with the U.S. EPA MACT Standards for Petroleum Refineries (40 CFR Part 63, Subpart CC).

2.10 Connecting Atmospheric Pressure Relief Devices to Flare

Tesoro has a company policy to minimize the potential for atmospheric releases from PRDs associated with refinery equipment and will connect PRDs to the flare gas recovery system whenever feasible. Therefore, as part of the proposed project, Tesoro is proposing to connect all of the PRDs in the FCCU to the flare gas recovery system, except for the PRDs on the main fractionator due to design constraints. This modification will also assist Tesoro in complying with SCAQMD Rule 1173 - Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants.

2.11 Delayed Coker Unit (DCU) Modifications

The DCU converts residual oil into light hydrocarbons (i.e., propane and butane), naphthas, gas oils, and petroleum coke. The DCU thermally cracks the long chain hydrocarbon molecules in the residual oil into shorter chain molecules.

2.11.1 Coke Drum Blowdown System Modifications

The coke drum blowdown system processes steam and hydrocarbons from coke drum decoking (i.e., removing the built-up coke) and warm-up. This system recovers water, oil, and any non-condensable gas. The proposed modifications to this system include: 1) removing and replacing the blowdown contactor and blowdown accumulator with larger vessels; and 2) adding a new heat exchanger and condensers. These proposed modifications will allow better oil and water separation while reducing the amount of heavy hydrocarbons being carried over to the slop oil storage tank.

2.11.2 DCU Heater H-101 Modification

Heater H-101 is proposed to be modified to improve heat transfer efficiency by enlarging the fire box to increase the heat transfer area. Additionally, new low NOx burners will be installed to reduce NOx emissions.

2.12 Crude Oil Storage Tank

The proposed project includes the construction of one new 500,000 barrel crude oil storage tank in order to provide additional crude oil storage capacity and to provide operational flexibility.

2.13 Sulfur Recovery Plant (SRP) Claus Units 600/700 Modification

One objective of the proposed project is to increase sulfur removal capacity of the SRP Claus Units 600 and 700 by adding oxygen to the inlet air. Liquid oxygen will be purchased from a local production facility and delivered by truck to the SRP where it will be stored in a new pressurized oxygen tank. The proposed project also includes the removal and replacement of the

existing reaction furnace burners, modification of the existing Safety Instrumented System, and upgrades to modernize the Waste Heat Boilers, and installation of one new oxygen tank (at least 4,500 cubic-foot capacity).

3.0 HAZARD IDENTIFICATION

The operation of the Refinery generates various air contaminants. Some of these chemical compounds are potentially carcinogenic, toxic, or hazardous, depending on concentration or duration of exposure. Numerous federal, state, and local regulatory agencies have developed lists of TACs. The list of potentially-emitted substances considered in the preparation of the HRA for the proposed project is identified in Appendix A-I of the CARB AB2588 guidelines report. The AB2588 TACs emitted from the proposed project are shown in Table2. Some of these pollutants were consolidated into one category, e.g., polycyclic aromatic hydrocarbons (PAHs). Health effects data are not available for all compounds. Therefore, a total of 36 TACs were included in the air dispersion modeling (see Table 2). For carcinogens, slope factors were used to compute cancer risk through inhalation. If the carcinogen is a multi-pathway pollutant, a potency slope was used to estimate the risk from non-inhalation pathways. For non-cancer health effects, reference exposure levels (REL) and acceptable oral doses (for multi-pathway pollutants) were used. The non-carcinogenic hazard indices were computed for chronic and acute exposures with their respective toxicological endpoints shown.

4.0 EXPOSURE ASSESSMENT

The exposure assessment estimates the extent of public exposure to each TAC emitted by the Refinery and determines the groundlevel concentrations of each compound through air quality modeling.

4.1 EMISSION SOURCES

There are a number of emission sources at the Refinery. These include aboveground tanks, heaters/boilers, flares, cogeneration facilities, pumps, valves, flanges, drains, process equipment, and other miscellaneous sources of emissions. The proposed project will modify emissions from sources (i.e., valves, flanges, pumps, and compressors) in various locations throughout the Refinery.

The existing Refinery includes multiple types of sources including point sources and areas sources. A total of 20 sources at the Refinery were modeled as part of the proposed project. A point source is a source with emissions released from a single point with a velocity and vertical direction. An example of a point source is a flare or an exhaust for a fired source. An area source is a source with fugitive emissions throughout a specific location. An example would be a process unit that has various valves, flanges, pumps, compressors, and drains located throughout the unit. Emissions are assumed to be emitted continuously throughout "the area" of the process unit.

Table 3 summarizes the sources that were modeled for the proposed project HRA. The emissions reduction associated with the replaced Cogen A and B and boilers were previously included in the SCAQMD-approved AB2588 HRA for the facility. The health risks from the AB2588 HRA are used to identify the health risk decreases from the replaced equipment. The combination of the proposed project increases and the decreases from the replaced equipment provides the overall proposed project TAC impacts.

4.2 EMISSION ESTIMATES

Emission rates for the proposed project are shown in Table 2. The emission rates for each source are provided in Appendix A of Volume II. Emission rates are based on operating 24 hours per day and 365 days per year, except the Cogen ~~Backup Generator~~ *C* and *emergency I.C. engine*, which are based on 8,736 hours (24 hours of shutdown) and 200 hours of annual operation, respectively. No change in TAC emissions are expected at the SRP as a result of the proposed project because the proposed modifications include piping for oxygen and no increase in fuel combustion.

VOC emission factors for fugitive components installed in conjunction with the proposed project were based on the SCAQMD's latest 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. Fugitive emissions from the Crude Tank were calculated using the TANKS 4.09d model.

4.3 AIR QUALITY MODELING

4.3.1 Modeling Scenarios

Air quality modeling was conducted for all emission sources from the proposed project. A total of 20 sources were modeled. The California Air Resources Board (CARB) Hotspots Analysis Reporting Program (HARP) model is the most appropriate model for determining the air quality impact from proposed project. The HARP model is well suited for refinery modeling since it can accommodate multiple sources and receptors. The HARP model (CARB, 2008) combines the US Environmental Protection Agency (EPA) Industrial Source Complex dispersion model (ISCST3) 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 estimation portion of the HARP model is discussed in Section 5**.**

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 release parameters for each source are shown in Table 3.

The maximum groundlevel concentrations based on the results of air quality modeling for each toxic air contaminant at the location of the facility MEIW and MEIR are provided in Tables 4 and 5, respectively. Maximum impact receptor location results from HARP are in Appendix A. A complete set of the input and output files have been submitted electronically and are available from the SCAQMD.

4.3.2 Meteorological Data

The SCAQMD-provided meteorological data for Long Beach was used for wind and surface data. The Long Beach data is the closest location for which meteorological data is available in the HARP model and is the same data set used for previous HRA's for the Tesoro Refinery.

4.3.3 Modeled Receptor Networks

The receptors used in the HARP model included fenceline, fine, and sensitive receptors. The terrain surrounding the facility is relatively constant, however, terrain variations were included for the receptor networks identified below. Figure 3 shows all modeled source locations and receptors.

4.3.4 Fenceline Receptors

The fenceline receptors (maximal spacing every 100 meters(m)) were used to determine the maximum concentrations at the property line of the Refinery facility.

4.3.5 Fine Receptor Grid

A fine receptor grid (100 m x 100 m spacing) was used to identify maximum impact locations. The grid extends 2,000 meters west, 1,500 meters east, 3,000 meters north, and 2,000 meters south from the intersection of Pacific Coast Highway and the facility.

4.3.6 Sensitive Receptors

Discrete receptors for sensitive endpoints were modeled to determine the health risk for schools, parks, medical centers, etc. Table 6 shows the sensitive receptors that were used and the associated location and risk.

4.3.7 Census Block

A discrete receptor grid for census blocks within 5000 meters of the project was modeled to determine the cancer burden in the area surrounding the Project. Since the maximum carcinogenic risk associated with the proposed project is above one per one million, a one per one million isopleth has been generated form the grid. The census blocks were modeled separately from the rest of the receptors and details can be found in Appendix B.

4.3.8 Coordinate System

All source and receptor locations were modeled with a Universal Transverse Mercator (UTM) type coordinate system. The terrain surrounding the Refinery is relatively flat, therefore, the terrain elevations were not included with the source receptors.

5.0 HEALTH RISK ASSESSMENT MODEL

5.1 CARCINOGENIC HEALTH IMPACTS

The HRA modeling was performed using the HARP model. The HARP model is designed for AB2588 risk assessments. It incorporates the algorithms and recommendations found in the Air Toxics Hot Spots Program Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk (OEHHA, 2003), and the California Air Resources Board (CARB) Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk Memo (CARB/OEHHA, 2003).

The HARP model requires data to be input, such as, identification codes of modeled pollutants, receptor coordinates, population data, and peak 1-hour and annual emission rates. The model then generates ambient air concentrations and cancer risk estimates. In addition, the model also computes excess cancer burden for carcinogens and hazard indices (acute and chronic) for non-carcinogens.

The HRA provides worst-case estimates of potential public exposure to each TAC for which cancer risk is to be quantified or for which chronic and acute non-cancer effects are to be evaluated. Exposure may occur by single or multiple routes and the duration may vary. Table 7 shows the chemicals emitted from the proposed project and their potential health impacts (carcinogens, and chemicals with acute and chronic health concerns).

The OEHHA Guidelines suggest that pathways such as inhalation, dermal absorption, crop ingestion, fish ingestion, soil ingestion, and mother's milk, be included in a risk assessment, as

appropriate. Additionally, the OEHHA Guidelines provide algorithms for use in estimating exposures attributable to various pathways. The following pathways were included in this HRA for residential exposure: (1) inhalation; (2) dermal absorption; (3) home grown produce; (4) soil ingestion; and (5) mother's milk. The potential for animal product ingestion was not included because animal and dairy farms are beyond the Refinery's area of influence. Furthermore, no commercial agricultural areas or basins for the storage of drinking water were found in the vicinity of the proposed project.

Receptor exposures are based on two likely exposure scenarios including living and working at a location impacted by toxic air emissions. These are the residential and worker receptor scenarios. Risk assessment modeling for the residential exposure assumes a continuous lifetime exposure of 70 years duration. The underlying assumption is that the residential population remains at one point for 24 hours per day, seven days per week, 50 weeks per year, for 70 years. These assumptions are defined as the "Derived (Adjusted) Cancer Risk" method for multi-pathway exposure in HARP. This is considered conservative because most people change places of residence during their lifetime and do not remain at home all day, almost every day for a continuous 70-year period.

Workers are assumed to be exposed for eight hours per day, five days per week, 49 weeks per year, for 40 years. The same pathways were included in this HRA for worker exposure as for residential exposure except ingestion of homegrown produce, which is not a valid route of exposure for occupational receptors.

Multi-pathway exposure was evaluated for the contaminant per the OEHHA Guidelines. Inhalation and oral slope factors, and RELs values that were used in the HRA were from the Heath Database included in the HARP modeling software. The updated database can be found at http://www.arb.ca.gov/toxics/harp/downloads.htm. Tables 7 and 8 provide the health data used in the HRA for the facility.

The toxicity of polycyclic aromatic compounds (PACs), also known as PAHs, was based on the OEHHA potency equivalency factor weighting scheme. The carcinogenic PAHs are the sum of the Group 2A and 2B PACs (see page 106 of Part II Technical Support Document Describing Available Cancer Potency Factors, OEHHA, April 1999). Benzo(a)pyrene is the index compound for relative potency and for potency equivalency factors (PEFs) for PAHs and related derivatives. Under the OEHHA scheme, benzo(a)pyrene is assigned a PEF of 1. Most other PAHs of concern in this risk assessment (e.g., benz(a)anthracene, benzo(b)fluoranthene, and benzo(k)fluoranthene have a PEF of 0.1. Chrysene has a PEF of 0.01.

Exposed population risk (i.e., cancer burden) is usually limited to the one per million impact zone by census block. Since the maximum impact from the proposed project is expected to be greater than one per million, census blocks were also modeled.

5.2 NON-CARCINOGENIC HEALTH IMPACTS

In the analyses of non-carcinogenic health effects, it is generally assumed that a threshold exists below which no health impacts are expected. The substances evaluated in this risk assessment

can produce health effects due to acute or chronic exposures, although the concentration required to produce such effects may vary greatly depending on the compound. The concept of a threshold is based on studies, which indicate that the body can tolerate exposure to some chemicals at low levels of exposures.

The types of non-cancer health effects resulting from exposure to compounds vary according to the substance, the magnitude of exposure, and the period of exposure. These health effects generally can be classified into acute exposures (short-term exposures) and chronic exposures (long-term exposures, generally years).

The potential for acute/chronic health effects is evaluated herein by comparing the Reference Exposure Levels (RELs) with ground level concentration or dosage values developed by the HARP model. Ground level concentration values are used for the inhalation pathway, and dosage values are used for the oral pathway. The RELs represent the threshold for health effects. Exposure to contaminants at ground level concentrations or doses below the RELs is not expected to result in health effects. The acute/chronic RELs have been compared to the ground level concentration and dosage at the maximum impact point for each pollutant.

Little data is available on the interaction of mixtures of compounds, their fate in the environment, and the overall effect on the human body. The cumulative effects of chemicals in the body can be synergistic, additive, or antagonistic. It is not possible to evaluate chemical mixtures for synergistic or antagonistic health effects because the data available are very limited.

The use of a hazard index approach has been applied as a guideline for reviewing the cumulative non-carcinogenic health impacts of a mixture of compounds. The hazard index approach assumes that the health effects of chemical mixtures are additive. It is calculated by dividing the estimated exposure (ground level concentration for inhalation or dose for oral) to a given substance by the REL for that substance, and adding the results for each chemical evaluated as shown.

$$\text{Hazard Index}_{(\text{endpoint})} = \text{Sum of} \quad \frac{\text{Exposure}_i}{\text{Health Standard}_i}$$

Where: i = the number of pollutants reviewed

The calculated hazard index is for that combination of substances that exert their effect on the same target organs (endpoint). Therefore, a multi-pathway hazard index is calculated using all applicable exposure pathways (both inhalation and oral) and RELs for each endpoint. A hazard index is calculated for both acute and chronic health effects. The acute hazard index is based on the maximum 1-hour emissions and modeling results. The chronic hazard index is based on the annual average concentration and related air quality modeling results.

6.0 RISK CHARACTERIZATION

The health risk impacts associated with the proposed project emissions~~s~~ *increases excluding emission reductions from replaced equipment* are evaluated in this section.

6.1 CANCER RISK ESTIMATES

6.1.1 Maximum Exposed Individual Worker (MEIW)

The cancer risk estimates for the new/modified equipment are shown in Table 9. Based on the air quality modeling and related assumptions, the proposed project cancer risk to the MEIW is 3.18×10^{-6} or about 3.18 per one million for all sources. The MEIW is based on a 40-year exposure period. The ingestion of homegrown produce pathway is not valid for occupational exposures and is excluded from the calculated cancer risk. The MEIW location (Receptor No. 1245: UTM coordinates 386133, 3739290) is graphically shown in Figure 4.

About 45 percent of the cancer risk at the MEIW is attributed to emissions from Source No. 19 (new ~~Backup Generator~~ *emergency I.C. engine* combustion emissions) (see Table 10). Other sources that contribute to the MEIW cancer risk include about 34.6 percent from Source No. 11 (new Fuel Gas Hydrotreater Fugitive emissions) and 14.0 percent from Source No. 20 (new ~~Backup Generator~~ *emergency I.C. engine* Fugitive emissions). Emissions of diesel exhaust particulate matter and 1,3-butadiene are responsible for about 40.6 percent and 40.3 percent of the MEIW risk, respectively (See Table 11). Exposure via the inhalation pathway accounts for approximately 82 percent of the cancer risk (See Table 9)**.**

The net proposed project cancer risk for the MEIW is 3.14×10^{-6} (Table 1).

6.1.2 Maximum Exposed Individual Resident (MEIR)

Based on the air quality modeling and related assumptions the new/modified equipment cancer risk to the MEIR is 6.92×10^{-6} or about 6.92 per one million for all sources. The MEIR risk was selected from the fine receptor grid that was zoned as residential or sensitive receptors. The MEIR is located at Bethune Mary School, which is a sensitive receptor location. The MEIR location (Receptor No. 2191: UTM coordinates 386830, 3739496) is indicated graphically in Figure 4.

About 76.2 percent of the cancer risk at the MEIR is attributed to emissions from Source No. 19, (new Backup Generator combustion emissions), (see Table 12). Emissions from Source No. 11 (new Fuel Gas Hydrotreater Fugitive emissions) contributed about eight percent. Emissions of diesel exhaust particulate matter are responsible for about 67.8 percent of the MEIR risk, followed by PAHs (12.5 percent), and 1,3-butadiene (11.1 percent) (see Table 13). Exposure via the inhalation pathway accounted for approximately 80 percent of the cancer risk (see Table 9).

The net proposed project cancer risk for the MEIR is 6.76×10^{-6} (Table 1).

6.2 SENSITIVE RECEPTORS

The peak cancer risk and chronic index for a sensitive receptor occurs at Bethune Mary School approximately 2,265 feet east of the Refinery. The peak acute index for a sensitive receptor occurs at the Apostolic Faith Center and the Wilmington Park Preschool. The new/modified equipment cancer risk, chronic index, and acute index are 6.92×10^{-6} or about 6.92 in one million, 0.015, and 0.0723, respectively (see Table 6).

The net proposed project cancer risk for as sensitive is 6.76×10^{-6} (Table 1).

6.3 CANCER BURDEN

6.3.1 Isopleths

Modeling was performed by using all census blocks within 5,000 meters from the proposed project. The cancer risk used to define the one per one million area of influence (isopleth) for the Refinery is shown in Figure 4. The risk calculations for the isopleth assume a 70-year multipathway exposure.

6.3.2 Cancer Burden

Using the one per one million isopleth from the census block grid as a study area, cancer risk levels at the census blocks with their respective populations contained within the one per one million isopleth were developed. Residential population data included in the analysis is based on the 2000 census data incorporated in HARP.

The excess cancer burden for each census block was calculated by multiplying the predicted 70-year lifetime risk at each census block with its population. The total excess cancer burden is computed as the sum of cancer burden for each census block (Appendix B). The total excess cancer burden within the area of influence was predicted to be 0.091 (see Table 1).

6.4 NON-CARCINOGENIC HEALTH EFFECTS

6.4.1 Acute Health Effects

The proposed project emits pollutants which may have acute health effects. Therefore, the total hazard indices for acute health effects were estimated. As shown in Table 14, the maximum hazard index is the central nervous system (CNS) toxicological endpoint with a hazard index of 0.508. The acute hazard index is caused by exposure to hydrogen sulfide (100 percent). The maximum acute hazard index location (Receptor No. 1903: UTM coordinates 385794, 3739524) is shown in Figure 4.

6.4.2 Chronic Health Effects

The proposed project emits pollutants which may have chronic health effects. As shown in Table 15, the respiratory system (RESP) has been predicted as the maximum toxicological

endpoint for chronic exposure with a hazard index of 0.0846. Most of the chronic hazard index is due to exposure to hydrogen sulfide (92.2 percent). The maximum chronic hazard index location (Receptor No. 1245: UTM coordinates 386133, 3739290) is shown in Figure 4.

7.0 REFERENCES

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

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.

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 1.4 Build 23.06.09) and resources, http://www.arb.ca.gov/toxics/harp/downloads.htm.

City of Los Angeles, 1999. *Wilmington Community Plan, A Part of the General Plan*, March, 1999.

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

M:\MC\2550 Tesoro\HRA\2550 HRA(rev3) Doc

TABLES

TABLE 1

SUMMARY OF TESORO
PROPOSED PROJECT HRA RESULTS

Risk Factor	Risk Value		
	New/Modified Equipment	Replaced Equipment	Proposed Project
Excess Cancer Risk (per million) to the Maximum Exposed Individual Worker	3.18E-06	-4.00E-08	3.14E-06
Excess Cancer Risk to the Maximum Exposed Individual Resident (per million)	6.92E-06	-1.60E-07	6.76E-06
Excess Cancer Risk to the Maximum Exposed Sensitive Receptor (per million)	6.92E-06	-1.60E-07	6.76E-06
Maximum Acute Hazard Index(1)	0.5080	--	0.5080
Maximum Chronic Hazard Index(1)	0.0846	--	0.0846
Cancer Burden(1)	0.0914	--	0.0914

(1) Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

TABLE 2

EMISSIONS OF INDIVIDUAL CHEMICALS FOR TESORO

CHEMICAL	Proposed Project[1]	
	Emissions (lbs/hr)	Emissions (lbs/yr)
1,2,4-Trimethylbenzene [2]	1.69E-03	1.48E+01
1,3-Butadiene	2.75E-02	1.03E+02
Acetaldehyde	7.71E-02	1.77E+02
Acrolein	6.11E-03	3.19E+01
Ammonia	5.34E+00	1.76E+04
Arsenic	1.19E-04	2.38E-02
Benz[a]anthracene	9.99E-15	8.75E-11
Benzene	2.13E-02	6.80E+01
Benzo[a]pyrene	1.51E-11	1.33E-07
Benzo[b]fluoranthene	4.00E-05	3.51E-01
Cadmium	1.12E-04	2.29E-02
Chromium (VI)	7.43E-06	1.49E-03
Chrysene	2.42E-05	2.12E-01
Copper	3.05E-04	6.09E-02
Cumene	2.88E-04	2.52E+00
Cyclohexane	1.82E-03	1.60E+01
Dibenzo[a,h]pyrene	4.55E-19	3.98E-15
Diesel Exhaust Particulate Matter	2.49E+00	4.98E+02
Ethyl Benzene	2.05E-02	1.72E+02
Ethylene	5.25E-01	4.60E+03
Formaldehyde	4.53E-01	2.86E+03
Hexane	2.60E-02	2.28E+02
Hydrogen Chloride	1.38E-02	2.77E+00
Hydrogen Sulfide	2.04E-01	1.79E+03
Indeno[1,2,3-cd]pyrene	3.43E-04	3.01E+00
Lead	6.17E-04	1.23E-01
Manganese	2.30E-04	4.61E-02
Mercury	1.49E-04	2.97E-02
Naphthalene	2.43E-03	8.74E+00
Nickel	2.90E-04	5.80E-02
PAHs	3.17E-03	4.69E+00
Phenol	4.23E-03	3.71E+01
Propylene	3.77E-01	3.30E+03
Propylene Oxide	1.32E-02	1.15E+02
Selenium	1.64E-04	3.27E-02
Toluene	7.76E-02	6.12E+02
Xylenes (mixed)	4.16E-02	3.37E+02

(1) Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

(2) No health effects data available; therefore, not modeled.

TABLE 3

LIST OF REFINERY SOURCES FOR TESORO

Source Number	Description	Type	UTME	UTMN	Release Height (ft)	Width (ft)	Length (ft)	Angle (degree)	Velocity (ft/min)	Diameter (ft)	Temp. (F)
1	New Boiler 11	Point	385660	3739333	120				2993	6.5	302
2	New Boiler 12	Point	385670	3739358	120				2993	6.5	302
3	New Cogen	Point	385677	3739433	120				5107	10.5	346
4	New Cogen Fugitives	Area	385676	3739350	20	100	100	0			
5	New Boiler 11 Fugitives	Area	385676	3739350	6	100	100	0			
6	New Boiler 12 Fugitives	Area	385676	3739350	6	100	100	0			
7	LPG - HCU Fugitives	Area	385728	3739910	6	100	100	0			
8	New Crude Tank	Area	386329	3740955	6	266	266	0			
9	LPG - FCCU Fugitives	Area	385647	3738968	64	100	100	0			
10	LPG - DCU Fugitives	Area	386092	3739759	6	100	100	0			
11	New Fuel Gas Hydrotreater Fugitives	Area	385764	3739293	6	160	160	17			
12	Amine Drum Fugitives	Area	385968	3739870	6	100	100	0			
13	Coker Blowdown Fugitives	Area	386092	3739759	6	100	100	0			
14	DCU Asset Fugitives	Area	386092	3739759	6	100	100	0			
15	Merichem Fugitives	Area	385607	3739358	6	160	160	17			
16	HTU2 Fugitives	Area	385832	3739943	6	100	100	0			
17	H101 Fugitives	Area	386092	3739759	6	100	100	0			
18	Ammonia Tank Fugitives	Area	385676	3739350	6	100	100	0			
19	New Generator	Point	385663	3739386	6	100	100		24006.00	0.67	967.00
20	New Generator Fugitives	Area	385676	3739350	6	100	100	0			

TABLE 4

GROUND LEVEL CONCENTRATIONS
MAXIMUM EXPOSED INDIVIDUAL WORKER (MEIW)

CHEMICAL	Maximum 1-hr GLC (ug/m3)	Annual Average GLC (ug/m3)
1,2,4-Trimethylbenzene	2.80E-02	7.47E-04
1,3-Butadiene	5.45E-01	3.73E-02
Acetaldehyde	2.79E-01	5.22E-04
Acrolein	1.25E-02	4.00E-05
Ammonia	3.24E+00	1.63E-01
Arsenic	5.66E-04	9.82E-07
Benz[a]anthracene	2.94E-14	1.01E-15
Benzene	7.12E-02	2.40E-04
Benzo[a]pyrene	4.44E-11	1.54E-12
Benzo[b]fluoranthene	1.25E-03	7.68E-05
Cadmium	5.30E-04	9.46E-07
Chromium (VI)	6.65E-04	2.81E-05
Chrysene	1.45E-03	2.52E-06
Copper	3.53E-05	6.14E-08
Cumene	4.22E-03	7.83E-05
Cyclohexane	1.73E-02	2.97E-04
Dibenzo[a,h]pyrene	1.34E-18	4.61E-20
Diesel Exhaust Particulate Matter	1.18E+01	2.06E-02
Ethyl Benzene	5.40E-02	7.64E-04
Ethylene	1.74E+01	1.12E+00
Formaldehyde	6.39E-01	1.55E-03
Hexane	5.35E-01	2.75E-02
Hydrogen Chloride	6.58E-02	1.14E-04
Hydrogen Sulfide	9.30E+00	7.80E-01
Indeno[1,2,3-cd]pyrene	1.08E-02	6.58E-04
Lead	2.93E-03	5.09E-06
Manganese	1.10E-03	1.90E-06
Mercury	7.07E-04	1.23E-06
Naphthalene	1.25E-02	3.45E-04
Nickel	1.38E-03	2.39E-06
PAHs	1.29E-02	2.46E-05
Phenol	8.90E-02	3.71E-03
Propylene	1.33E+01	9.29E-01
Propylene Oxide	1.15E-03	1.72E-05
Selenium	7.78E-04	1.35E-06
Toluene	9.80E-02	1.07E-03
Xylenes (mixed)	8.33E-02	1.29E-03

Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

TABLE 5

GROUND LEVEL CONCENTRATIONS
MAXIMUM EXPOSED INDIVIDUAL RESIDENT (MEIR)

CHEMICAL	Maximum 1-hr GLC (ug/m3)	Annual Average GLC (ug/m3)
1,2,4-Trimethylbenzene	1.25E-02	3.09E-04
1,3-Butadiene	1.48E-01	4.41E-03
Acetaldehyde	2.28E-01	6.62E-04
Acrolein	1.05E-02	8.93E-05
Ammonia	2.29E+00	1.16E-01
Arsenic	4.59E-04	7.03E-07
Benz[a]anthracene	3.34E-14	5.30E-16
Benzene	5.79E-02	2.81E-04
Benzo[a]pyrene	5.05E-11	8.05E-13
Benzo[b]fluoranthene	2.76E-04	1.63E-05
Cadmium	4.30E-04	6.77E-07
Chromium (VI)	3.08E-04	7.43E-06
Chrysene	1.18E-03	1.80E-06
Copper	2.87E-05	4.40E-08
Cumene	2.12E-03	4.46E-05
Cyclohexane	1.05E-02	1.96E-04
Dibenzo[a,h]pyrene	1.52E-18	2.41E-20
Diesel Exhaust Particulate Matter	9.60E+00	1.47E-02
Ethyl Benzene	3.17E-02	8.04E-04
Ethylene	3.92E+00	2.05E-01
Formaldehyde	5.49E-01	5.94E-03
Hexane	1.66E-01	6.75E-03
Hydrogen Chloride	5.34E-02	8.19E-05
Hydrogen Sulfide	1.59E+00	7.80E-02
Indeno[1,2,3-cd]pyrene	2.37E-03	1.40E-04
Lead	2.38E-03	3.65E-06
Manganese	8.88E-04	1.36E-06
Mercury	5.73E-04	8.79E-07
Naphthalene	7.07E-03	9.74E-05
Nickel	1.12E-03	1.71E-06
PAHs	1.05E-02	2.56E-05
Phenol	3.41E-02	1.22E-03
Propylene	2.94E+00	1.34E-01
Propylene Oxide	2.17E-03	2.07E-04
Selenium	6.31E-04	9.67E-07
Toluene	7.16E-02	1.81E-03
Xylenes (mixed)	5.20E-02	1.36E-03

Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

TABLE 6

LIST OF MODELED SENSITIVE RECEPTOR

Receptor No.	Receptor Name	UTME	UTMN	Cancer Risk	Chronic Index	Acute Index
SR001	Wilmington Park Elementary	384735	3738943	2.10E-06	3.88E-03	7.12E-02
SR002	Wilmington Park Preschool	384682	3739039	1.92E-06	3.55E-03	7.23E-02
SR003	Holy Family School	384410	3739224	1.44E-06	2.76E-03	6.38E-02
SR004	Bethune Mary School	386830	3739496	6.92E-06	1.50E-02	6.22E-02
SR005	Long Beach Japanese School	387330	3739294	5.12E-06	1.27E-02	4.81E-02
SR006	West Child Development	387523	3740014	1.02E-06	2.70E-03	4.29E-02
SR007	Cabrillo High School	387032	3740093	8.91E-07	2.19E-03	5.15E-02
SR008	Long Beach Child Development	387330	3740208	7.20E-07	1.90E-03	4.47E-02
SR009	Hudson (K-8)	386988	3740269	6.41E-07	1.53E-03	5.04E-02
SR010	Garfield Elementary	387838	3740252	6.24E-07	1.80E-03	3.72E-02
SR011	St. Lucy School	387531	3740392	5.70E-07	1.55E-03	4.08E-02
SR012	Webster Elementary	387374	3742281	1.45E-07	4.29E-04	2.66E-02
SR013	Stephens Middle School	387338	3741385	2.10E-07	5.85E-04	3.47E-02
SR014	Apostolic Faith Center	384610	3739224	1.78E-06	3.30E-03	7.23E-02

Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

TABLE 7

CHEMICALS EMITTED AND ASSOCIATED HEALTH EFFECTS

CHEMICAL	CAS NO.	Carcinogens	Noncarcinogens Chronic	Noncarcinogens Acute
1,2,4-Trimethylbenzene	95636			
1,3-Butadiene	106990	X	X	
Acetaldehyde	75070	X	X	
Acrolein	107028		X	X
Ammonia	7664417		X	X
Arsenic	7440382	X	X	X
Benz[a]anthracene	56553	X		
Benzene	71432	X	X	X
Benzo[a]pyrene	50328	X		
Benzo[b]fluoranthene	205992	X		
Cadmium	7440439	X	X	
Chromium (VI)	218019	X	X	
Chrysene	7440508	X		
Copper	18540299			X
Cumene	98828			
Cyclohexane	110827			
Dibenzo[a,h]pyrene	189640	X		
Diesel Exhaust Particulate Matter	9901	X	X	
Ethyl Benzene	100414	X	X	
Ethylene	74851			
Formaldehyde	50000	X	X	X
Hexane	110543		X	
Hydrogen Chloride	7647010		X	X
Hydrogen Sulfide	7783064		X	X
Indeno[1,2,3-cd]pyrene	193395	X		
Lead	7439921	X		
Manganese	7439965		X	
Mercury	7439976		X	X
Naphthalene	91203	X	X	
Nickel	7440020	X	X	X
PAHs	1151	X		
Phenol	108952		X	X
Propylene	115071		X	
Propylene Oxide	75569	X	X	X
Selenium	7782492		X	
Toluene	108883		X	X
Xylenes (mixed)	1330207		X	X

TABLE 8

HEALTH DATA

CHEMICAL	Cancer Potency $(mg/kg\text{-}day)^{-1}$	Chronic RELs (ug/m^3)	Acute RELs (ug/m^3)
1,2,4-Trimethylbenzene	--	--	--
1,3-Butadiene	6.00E-01	2.00E+01	--
Acetaldehyde	1.00E-02	9.00E+00	--
Acrolein	--	6.00E-02	1.90E-01
Ammonia	--	2.00E+02	3.20E+03
Arsenic	1.20E+01	3.00E-02	1.90E-01
Benz[a]anthracene	3.90E-01	--	--
Benzene	1.00E-01	6.00E+01	1.30E+03
Benzo[a]pyrene	3.90E+00	--	--
Benzo[b]fluoranthene	3.90E-01	--	--
Cadmium	1.50E+01	2.00E-02	--
Chromium (VI)	5.10E+02	2.00E-01	--
Chrysene	3.90E-02	--	--
Copper	--	--	1.00E+02
Cumene	--	--	--
Cyclohexane	--	--	--
Dibenzo[a,h]pyrene	3.90E+01	--	--
Diesel Exhaust Particulate Matter	1.10E+00	5.00E+00	--
Ethyl Benzene	8.70E-03	2.00E+03	--
Ethylene	--	--	--
Formaldehyde	2.10E-02	3.00E+00	9.40E+01
Hexane	--	7.00E+03	--
Hydrogen Chloride	--	9.00E+00	2.10E+03
Hydrogen Sulfide	--	1.00E+01	4.20E+01
Indeno[1,2,3-cd]pyrene	3.90E-01	--	--
Lead	4.20E-02	--	--
Manganese	--	2.00E-01	--
Mercury	--	9.00E-02	1.80E+00
Naphthalene	1.20E-01	9.00E+00	*
Nickel	9.10E-01	5.00E-02	6.00E+00
PAHs	3.90E+00	--	--
Phenol	--	2.00E+02	5.80E+03
Propylene	--	3.00E+03	--
Propylene Oxide	1.30E-02	3.00E+01	3.10E+03
Selenium	--	2.00E+01	--
Toluene	--	3.00E+02	3.70E+04
Xylenes (mixed)	--	7.00E+02	2.20E+04

Source: Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values, updated June 25, 2008

TABLE 9

SUMMARY OF CANCER RISK

EXPOSURE PATHWAY	Maximum Exposed Individual Resident	Maximum Exposed Individual Worker
Inhalation	5.56E-06	2.60E-06
Dermal	5.62E-07	5.07E-07
Soil Ingestion	8.63E-08	6.68E-08
Ingestion of Home Grown Produce	7.06E-07	0.00E+00
Ingestion of Animal Products	0.00E+00	0.00E+00
Ingestion of Mother's Milk	0.00E+00	0.00E+00
Cancer Risk From New/Modfied Equipment	**6.92E-06**	**3.18E-06**
Cancer Risk from Replaced Equipment	**-1.60E-07**	**-4.00E-08**
Cancer Risk for the Proposed Project	**6.76E-06**	**3.14E-06**

TABLE 10

CONTRIBUTION TO CANCER RISK BY EMISSION SOURCE FOR MEIW

Source No.	Source Name	Cancer Risk	% of Cancer Risk
19	New Generator	1.44E-06	45.28%
11	New Fuel Gas Hydrotreater Fugitives	1.10E-06	34.59%
20	New Generator Fugitives	4.44E-07	13.96%
4	New Cogen Fugitives	8.95E-08	2.81%
5	New Boiler 11 Fugitives	4.02E-08	1.26%
6	New Boiler 12 Fugitives	4.02E-08	1.26%
17	H101 Fugitives	8.65E-09	0.27%
1	New Boiler 11	6.27E-09	0.20%
2	New Boiler 12	5.35E-09	0.17%
3	New Cogen	3.87E-09	0.12%
14	DCU Asset Fugitives	9.22E-10	0.03%
13	Coker Blowdown Fugitives	7.58E-10	0.02%
16	HTU2 Fugitives	5.67E-10	0.02%
8	New Crude Tank	1.96E-10	0.01%
7	LPG - HCU Fugitives	0.00E+00	0.00%
9	LPG - FCCU Fugitives	0.00E+00	0.00%
10	LPG - DCU Fugitives	0.00E+00	0.00%
12	Amine Drum Fugitives	0.00E+00	0.00%
15	Merichem Fugitives	0.00E+00	0.00%
18	Ammonia Tank Fugitives	0.00E+00	0.00%
Total		3.18E-06	100.00%

Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

TABLE 11

CONTRIBUTION TO CANCER RISK BY CHEMICAL FOR MEIW

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL	Contribution to MEIW
Acetaldehyde	2.98E-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	2.98E-10	0.01%
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
NH3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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	1.37E-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	1.37E-09	0.04%
Ethyl Benzene	3.80E-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	3.80E-10	0.01%
Formaldehyde	1.86E-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	1.86E-09	0.06%
Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Naphthalene	2.37E-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	2.37E-09	0.07%
PAHs-w/o	5.49E-09	1.26E-07	1.64E-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	1.42E-07	1.48E-07	4.66%
Toluene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Xylenes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
1,3-Butadiene	1.28E-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	0.00E+00	0.00E+00	1.28E-06	40.32%
Propylene Oxide	1.28E-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	0.00E+00	0.00E+00	0.00E+00	1.28E-11	0.00%
Ethylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Propylene Oxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
1,2,4TriMeBenze	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
B[a]anthracene	2.26E-20	5.19E-19	6.74E-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.86E-19	6.09E-19	0.00%
B[a]P	3.43E-16	7.88E-15	1.02E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.91E-15	9.25E-15	0.00%
B[b]fluoranthen	1.71E-09	3.93E-08	5.10E-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	4.44E-08	4.61E-08	1.45%
Chrysene	6.26E-11	1.44E-09	1.87E-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	1.62E-09	1.69E-09	0.05%
Cumene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Cyclohexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
D[a,h]pyrene	1.03E-22	2.36E-21	3.07E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-21	2.77E-21	0.00%
In[1,2,3-cd]pyr	1.47E-08	3.37E-07	4.38E-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	3.81E-07	3.95E-07	12.44%
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Phenol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
H2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
DieselExhPM	1.29E-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	0.00E+00	0.00E+00	1.29E-06	40.63%
Arsenic	6.74E-10	3.10E-09	1.31E-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	4.41E-09	5.09E-09	0.16%
Cadmium	8.11E-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	8.11E-10	0.03%
Cr(VI)	1.79E-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	1.79E-09	0.06%
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
HCl	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Lead	1.22E-11	2.28E-11	3.85E-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	6.13E-11	7.35E-11	0.00%
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Nickel	1.24E-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	1.24E-10	0.00%
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Sum	2.60E-06	5.07E-07	6.68E-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	5.73E-07	3.18E-06	100.00%

Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

TABLE 12

CONTRIBUTION TO CANCER RISK BY EMISSION SOURCE FOR MEIR

Source No.	Source Name	Cancer Risk	% of Cancer Risk
19	New Generator	5.27E-06	76.20%
11	New Fuel Gas Hydrotreater Fugitives	5.55E-07	8.02%
20	New Generator Fugitives	5.26E-07	7.61%
3	New Cogen	2.57E-07	3.72%
4	New Cogen Fugitives	9.61E-08	1.39%
2	New Boiler 12	5.55E-08	0.80%
1	New Boiler 11	5.33E-08	0.77%
6	New Boiler 12 Fugitives	4.31E-08	0.62%
5	New Boiler 11 Fugitives	4.31E-08	0.62%
17	H101 Fugitives	1.16E-08	0.17%
16	HTU2 Fugitives	2.19E-09	0.03%
14	DCU Asset Fugitives	1.36E-09	0.02%
13	Coker Blowdown Fugitives	1.12E-09	0.02%
8	New Crude Tank	5.18E-10	0.01%
18	Ammonia Tank Fugitives	0.00E+00	0.00%
15	Merichem Fugitives	0.00E+00	0.00%
12	Amine Drum Fugitives	0.00E+00	0.00%
10	LPG - DCU Fugitives	0.00E+00	0.00%
9	LPG - FCCU Fugitives	0.00E+00	0.00%
7	LPG - HCU Fugitives	0.00E+00	0.00%
Total		6.92E-06	100.00%

Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

TABLE 13

CONTRIBUTION TO CANCER RISK BY CHEMICAL FOR MEIR

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL	Contribution to MEIR
Acetaldehyde	1.92E-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	1.92E-09	0.03%
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
NH3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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	8.13E-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	8.13E-09	0.12%
Ethyl Benzene	2.02E-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	2.02E-09	0.03%
Formaldehyde	3.61E-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	3.61E-08	0.52%
Hexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Naphthalene	3.39E-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	3.39E-09	0.05%
PAHs-w/o	2.60E-08	3.45E-07	5.17E-08	0.00E+00	0.00E+00	0.00E+00	4.38E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.35E-07	8.61E-07	12.45%
Toluene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Xylenes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
1,3-Butadiene	7.66E-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	7.66E-07	11.07%
Propylene Oxide	7.79E-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	7.79E-10	0.01%
Ethylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Propylene Oxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
1,2,4TriMeBenze	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
B[a]anthracene	5.37E-20	7.14E-19	1.07E-19	0.00E+00	0.00E+00	0.00E+00	9.05E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-18	1.78E-18	0.00%
B[a]P	8.16E-16	1.09E-14	1.63E-15	0.00E+00	0.00E+00	0.00E+00	1.38E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.62E-14	2.71E-14	0.00%
B[b]fluoranthen	1.65E-09	2.19E-08	3.28E-09	0.00E+00	0.00E+00	0.00E+00	2.78E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E-08	5.47E-08	0.79%
Chrysene	7.53E-11	1.00E-09	1.50E-10	0.00E+00	0.00E+00	0.00E+00	1.27E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-09	2.49E-09	0.04%
Cumene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Cyclohexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
D[a,h]pyrene	2.44E-22	3.25E-21	4.86E-22	0.00E+00	0.00E+00	0.00E+00	4.12E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.85E-21	8.10E-21	0.00%
In[1,2,3-cd]pyr	1.41E-08	1.88E-07	2.82E-08	0.00E+00	0.00E+00	0.00E+00	2.38E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.55E-07	4.69E-07	6.78%
Mercury	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Phenol	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
H2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
DieselExhPM	4.69E-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	0.00E+00	0.00E+00	4.69E-06	67.80%
Arsenic	2.44E-09	5.85E-09	2.85E-09	0.00E+00	0.00E+00	0.00E+00	5.23E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.22E-09	1.17E-08	0.17%
Cadmium	2.94E-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	2.94E-09	0.04%
Cr(VI)	6.49E-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	6.49E-09	0.09%
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
HCl	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Lead	3.98E-11	2.54E-12	8.37E-11	0.00E+00	0.00E+00	0.00E+00	5.97E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-10	1.86E-10	0.00%
Manganese	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Nickel	4.52E-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	4.52E-10	0.01%
Selenium	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Sum	5.56E-06	5.62E-07	8.63E-08	0.00E+00	0.00E+00	0.00E+00	7.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-06	6.92E-06	100.00%

Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

TABLE 14

MAXIMUM ACUTE HAZARD INDEX BY POLLUTANT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	Contribution to MAHI
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	0.00E+00	0.00E+00	0.00E+00	0.00%
Acrolein	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	7.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.40E-02	0.00E+00	0.00E+00	0.00%
NH3	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	2.74E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-03	0.00E+00	0.00E+00	0.00%
Benzene	0.00E+00	**0.00E+00**	0.00E+00	5.02E-05	0.00E+00	0.00E+00	0.00E+00	5.02E-05	0.00E+00	5.02E-05	0.00E+00	0.00E+00	5.02E-05	0.00%
Ethyl Benzene	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Formaldehyde	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	7.55E-03	0.00E+00	7.55E-03	0.00E+00	0.00E+00	7.55E-03	0.00E+00	0.00E+00	0.00%
Hexane	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
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	0.00E+00	0.00E+00	0.00E+00	0.00%
PAHs-w/o	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Toluene	0.00E+00	**4.58E-06**	0.00E+00	4.58E-06	0.00E+00	4.58E-06	0.00E+00	0.00E+00	0.00E+00	4.58E-06	4.58E-06	0.00E+00	0.00E+00	0.00%
Xylenes	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	8.05E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.05E-06	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Propylene Oxide	0.00E+00	**0.00E+00**	0.00E+00	8.68E-09	0.00E+00	8.68E-09	0.00E+00	0.00E+00	0.00E+00	8.68E-09	8.68E-09	0.00E+00	0.00E+00	0.00%
Ethylene	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
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	0.00E+00	0.00E+00	0.00E+00	0.00%
1,2,4TriMeBenze	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
B[a]anthracene	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
B[a]P	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
B[b]fluoranthen	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Chrysene	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Cumene	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Cyclohexane	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
D[a,h]pyrene	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
In[1,2,3-cd]pyr	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Mercury	0.00E+00	**0.00E+00**	0.00E+00	4.56E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.56E-04	0.00E+00	0.00E+00	0.00E+00	0.00%
Phenol	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	4.96E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.96E-05	0.00E+00	0.00E+00	0.00%
H2S	0.00E+00	**5.08E-01**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	100.00%
DieselExhPM	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Arsenic	0.00E+00	**0.00E+00**	0.00E+00	2.63E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-03	0.00E+00	0.00E+00	0.00E+00	0.00%
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Cr(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	0.00E+00	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	1.68E-05	0.00E+00	0.00E+00	0.00%
HCl	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	3.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.64E-05	0.00E+00	0.00E+00	0.00%
Lead	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Manganese	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Nickel	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-04	0.00E+00	0.00E+00	2.67E-04	0.00E+00	0.00E+00	0.00%
Selenium	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00%
Sum	0.00E+00	**5.08E-01**	0.00E+00	3.14E-03	0.00E+00	8.44E-02	0.00E+00	7.87E-03	0.00E+00	3.14E-03	8.47E-02	0.00E+00	5.02E-05	100.00%

Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

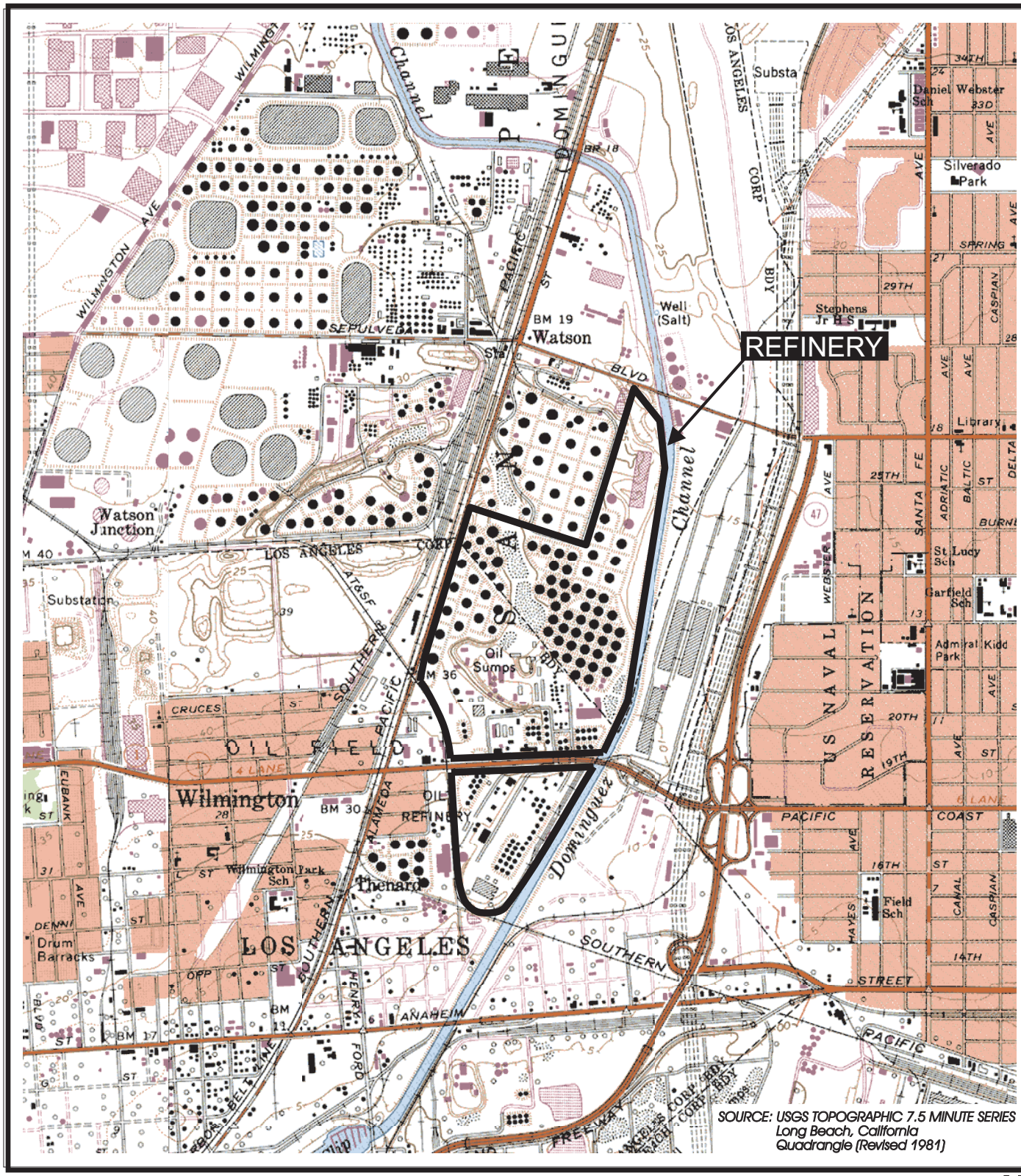
TABLE 15

MAXIMUM CHRONIC HAZARD INDEX BY POLLUTANT

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	Contribution to MCHI
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	**5.80E-05**	0.00E+00	0.00E+00	0.07%
Acrolein	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.66E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**6.66E-04**	0.00E+00	0.00E+00	0.79%
NH3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**8.14E-04**	0.00E+00	0.00E+00	0.96%
Benzene	0.00E+00	4.00E-06	0.00E+00	4.00E-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	4.00E-06	0.00%
Ethyl Benzene	0.00E+00	0.00E+00	0.00E+00	3.82E-07	3.82E-07	0.00E+00	3.82E-07	0.00E+00	3.82E-07	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.16E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**5.16E-04**	0.00E+00	0.00E+00	0.61%
Hexane	0.00E+00	3.93E-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%
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	**3.83E-05**	0.00E+00	0.00E+00	0.05%
PAHs-w/o	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Toluene	0.00E+00	3.57E-06	0.00E+00	3.57E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**3.57E-06**	0.00E+00	0.00E+00	0.00%
Xylenes	0.00E+00	1.85E-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	**1.85E-06**	0.00E+00	0.00E+00	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	1.86E-03	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Propylene Oxide	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**5.74E-07**	0.00E+00	0.00E+00	0.00%
Ethylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
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	**3.10E-04**	0.00E+00	0.00E+00	0.37%
1,2,4TriMeBenze	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
B[a]anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
B[a]P	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
B[b]fluoranthen	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Chrysene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Cumene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Cyclohexane	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
D[a,h]pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
In[1,2,3-cd]pyr	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Mercury	0.00E+00	1.36E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-04	1.23E-04	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Phenol	1.85E-05	1.85E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-05	0.00E+00	1.85E-05	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
H2S	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**7.80E-02**	0.00E+00	0.00E+00	92.17%
DieselExhPM	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**4.11E-03**	0.00E+00	0.00E+00	4.86%
Arsenic	6.26E-05	3.27E-05	0.00E+00	3.27E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	2.98E-05	0.00E+00	0.00%
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	7.06E-05	0.00E+00	**4.73E-05**	0.00E+00	0.00E+00	0.06%
Cr(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	**3.07E-07**	0.00E+00	1.45E-08	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	**0.00E+00**	0.00E+00	0.00E+00	0.00%
HCl	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**1.27E-05**	0.00E+00	0.00E+00	0.02%
Lead	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
Manganese	0.00E+00	9.51E-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%
Nickel	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.00E-07	0.00E+00	0.00E+00	0.00E+00	**4.79E-05**	0.00E+00	4.79E-05	0.06%
Selenium	6.75E-08	6.75E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.75E-08	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**	0.00E+00	0.00E+00	0.00%
SUM	8.12E-05	8.77E-05	0.00E+00	4.07E-05	3.82E-07	1.18E-03	1.95E-05	1.23E-04	2.12E-04	1.86E-03	**8.46E-02**	2.98E-05	5.19E-05	100.00%

Results reflect New/Modified emission increases only (i.e., do not include reductions from Replacement Equipment).

FIGURES



Environmental Audit, Inc.

0 2,000'

N

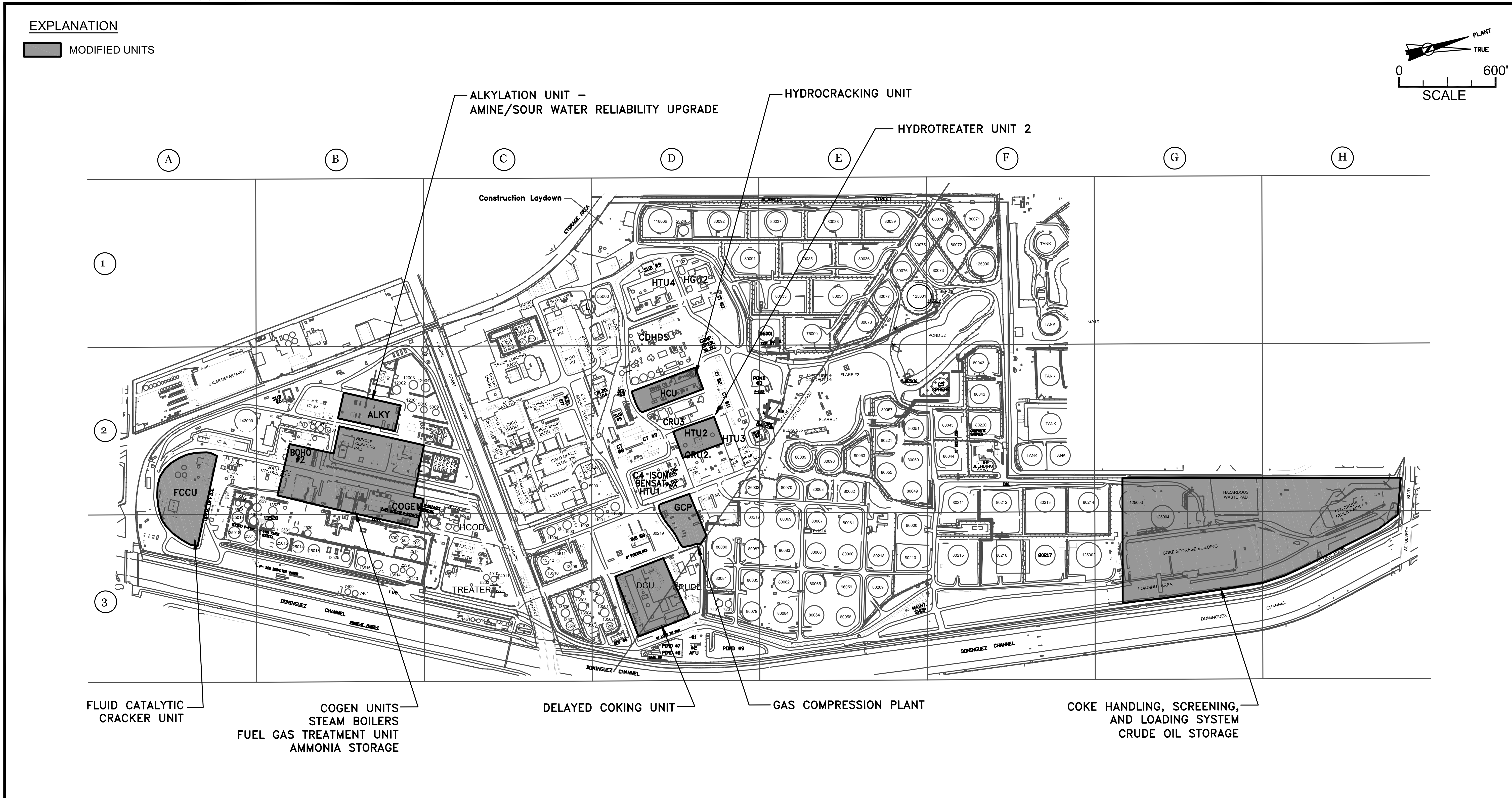
SITE LOCATION MAP
TESORO LOS ANGELES REFINERY

Project No. 2550

Figure 1

N:\2550\HRA\SiteLocMap(rev.3).cdr

I:\2550\HRA\Refinery Plot Plan (rev.9, Figure 2) **(Created)** 02/03/04 **(Drawn By)** M.B. **(Check By)** M.R.B. **(Last Rev.)** 12/04/08

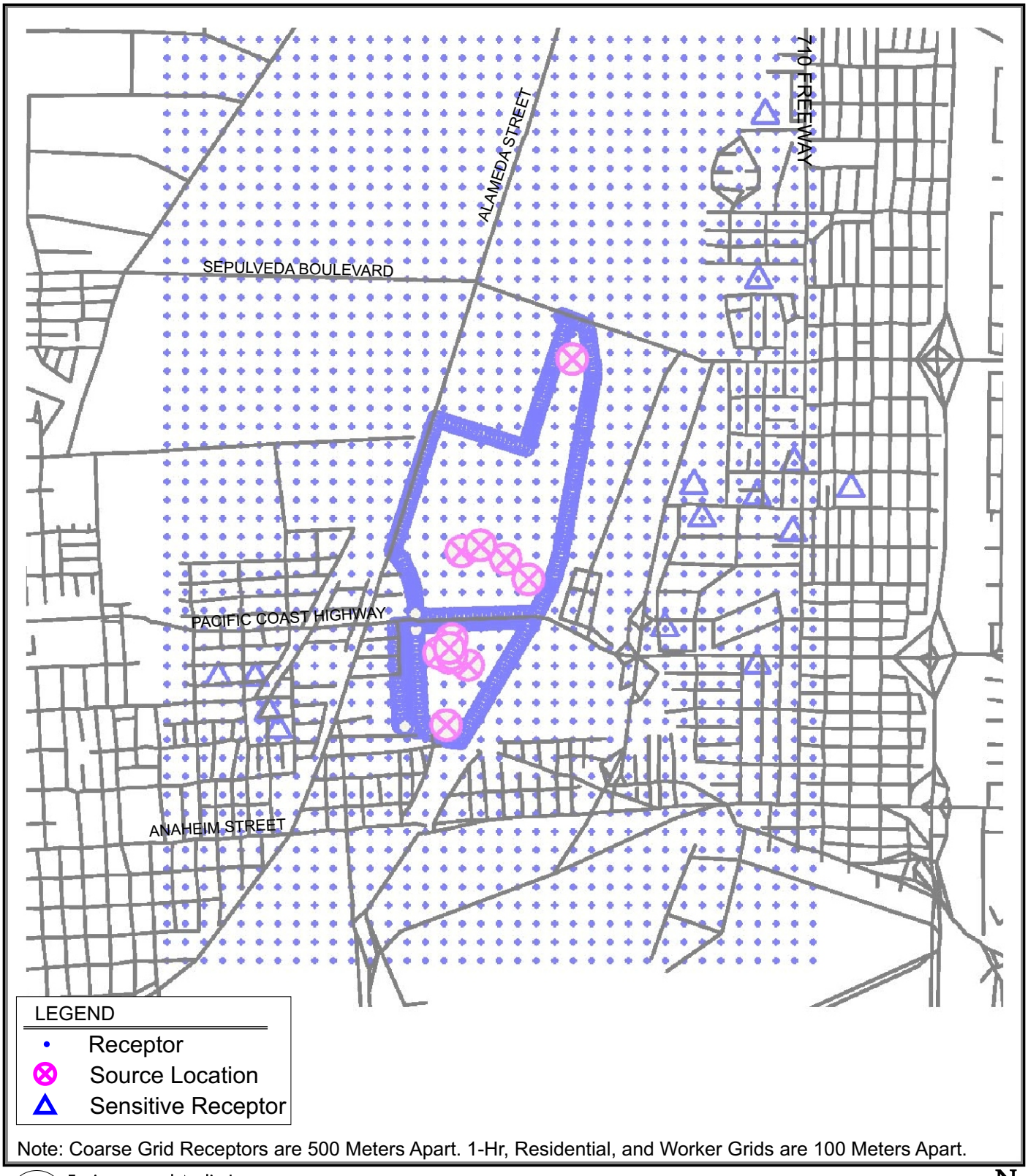


Environmental Audit, Inc.

REFINERY PLOT PLAN
TESORO REFINERY

Project No. 2550

Figure 2



Note: Coarse Grid Receptors are 500 Meters Apart. 1-Hr, Residential, and Worker Grids are 100 Meters Apart.

Environmental Audit, Inc.

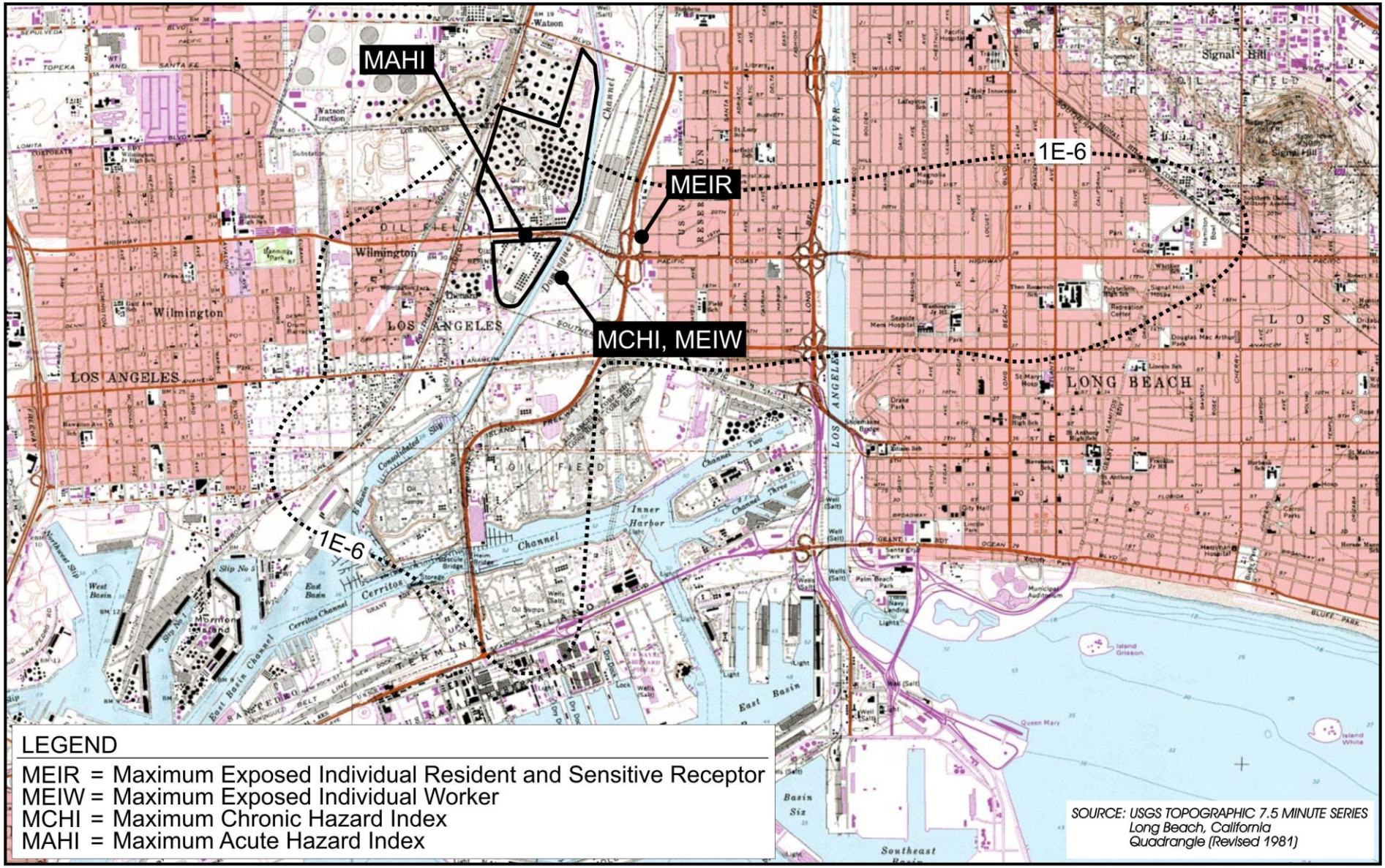
N

SOURCE AND MODELED RECEPTOR GRID LOCATIONS
TESORO LOS ANGELES REFINERY

Project No. 2550

Figure 3

N:\2550\HRA\Receptor - Source Locations.cdr



ENVIRONMENTAL AUDIT, INC.®

ONE IN A MILLION ISOPLETH & MAXIMUM IMPACT POINTS

TESORO RELIABILITY IMPROVEMENT AND REGULATORY COMPLIANCE PROJECT
HEALTH RISK ASSESSMENT

Project No. 2550

Figure 4

N:\2550\HRA\Radius of Influence (ver.3, Figure 4).cdr

ATTACHMENT A

HARP Results for Maximum Impact Locations

This file: C:\HARP\PROJECTS\2550teso\HRA\2550 HRA MEIW.txt

Created by HARP Version 1.4 Build 23.06.09
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 7/18/2008 4:02:55 PM

EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2550teso\HRA\2550HRA.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):   1245
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	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0002	107028	Acrolein	Acrolein	0.000E+00
0003	7664417	NH3	Ammonia	0.000E+00
0004	71432	Benzene	Benzene	0.000E+00
0005	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0006	50000	Formaldehyde	Formaldehyde	0.000E+00
0007	110543	Hexane	Hexane	0.000E+00
0008	91203	Naphthalene	Naphthalene	0.000E+00
0009	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0010	108883	Toluene	Toluene	0.000E+00
0011	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0012	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0013	75569	Propylene Oxide	Propylene oxide	0.000E+00
0014	74851	Ethylene	Ethylene	0.000E+00
0015	115071	Propylene	Propylene	0.000E+00
0016	95636	1,2,4TriMeBenze	1,2,4-Trimethylbenzene	0.000E+00
0017	56553	B[a]anthracene	Benz[a]anthracene	0.000E+00
0018	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0019	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0020	218019	Chrysene	Chrysene	0.000E+00
0021	98828	Cumene	Cumene	0.000E+00
0022	110827	Cyclohexane	Cyclohexane	0.000E+00
0023	189640	D[a,h]pyrene	Dibenzo[a,h]pyrene	0.000E+00
0024	193395	In[1,2,3-cd]pyr	Indeno[1,2,3-cd]pyrene	0.000E+00
0025	7439976	Mercury	Mercury	0.000E+00
0026	108952	Phenol	Phenol	0.000E+00
0027	7783064	H2S	Hydrogen sulfide	0.000E+00
0028	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00
0029	7440382	Arsenic	Arsenic	0.000E+00
0030	7440439	Cadmium	Cadmium	0.000E+00
0031	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0032	7440508	Copper	Copper	0.000E+00
0033	7647010	HCl	Hydrochloric acid	0.000E+00
0034	7439921	Lead	Lead	0.000E+00
0035	7439965	Manganese	Manganese	0.000E+00
0036	7440020	Nickel	Nickel	0.000E+00
0037	7782492	Selenium	Selenium	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	75070	Acetaldehyde	1.00E-02	*	9.00E+00	*	*
0002	107028	Acrolein	*	*	6.00E-02	*	1.90E-01
0003	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0004	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0005	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0006	50000	Formaldehyde	2.10E-02	*	3.00E+00	*	9.40E+01
0007	110543	Hexane	*	*	7.00E+03	*	*
0008	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*

0009	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0010	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0011	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0012	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0013	75569	Propylene Oxide	1.30E-02	*	3.00E+01	*	3.10E+03
0014	74851	Ethylene	*	*	*	*	*
0015	115071	Propylene	*	*	3.00E+03	*	*
0016	95636	1,2,4TriMeBenze	*	*	*	*	*
0017	56553	B[a]anthracene	3.90E-01	1.20E+00	*	*	*
0018	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0019	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0020	218019	Chrysene	3.90E-02	1.20E-01	*	*	*
0021	98828	Cumene	*	*	*	*	*
0022	110827	Cyclohexane	*	*	*	*	*
0023	189640	D[a,h]pyrene	3.90E+01	1.20E+02	*	*	*
0024	193395	In[1,2,3-cd]pyr	3.90E-01	1.20E+00	*	*	*
0025	7439976	Mercury	*	*	9.00E-02	3.00E-04	1.80E+00
0026	108952	Phenol	*	*	2.00E+02	*	5.80E+03
0027	7783064	H2S	*	*	1.00E+01	*	4.20E+01
0028	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*
0029	7440382	Arsenic	1.20E+01	1.50E+00	3.00E-02	3.00E-04	1.90E-01
0030	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0031	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0032	7440508	Copper	*	*	*	*	1.00E+02
0033	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0034	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0035	7439965	Manganese	*	*	2.00E-01	*	*
0036	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0037	7782492	Selenium	*	*	2.00E+01	*	*

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

EMISSIONS FOR FACILITY FAC=2449 DEV=1 PRO=1 STK=1 NAME=TESORO STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	2.31	0.000264
107028	Acrolein	1	0	2.06	0.000235
7664417	NH3	1	0	6930	0.791
71432	Benzene	1	0	4.37	0.000499
100414	Ethyl Benzene	1	0	5.14	0.000587
50000	Formaldehyde	1	0	9.25	0.00106
110543	Hexane	1	0	3.34	0.000381
91203	Naphthalene	1	0	0.771	0.000088
1151	PAHs-w/o	1	0	0.257	0.0000293
108883	Toluene	1	0	20	0.00229
1330207	Xylenes	1	0	14.9	0.0017
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*

7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=2 PRO=1 STK=2 NAME=TESORO STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	2.31	0.000264
107028	Acrolein	1	0	2.06	0.000235
7664417	NH3	1	0	6930	0.791
71432	Benzene	1	0	4.37	0.000499
100414	Ethyl Benzene	1	0	5.14	0.000587
50000	Formaldehyde	1	0	9.25	0.00106
110543	Hexane	1	0	3.34	0.000381
91203	Naphthalene	1	0	0.771	0.000088
1151	PAHs-w/o	1	0	0.257	0.0000293
108883	Toluene	1	0	20	0.00229
1330207	Xylenes	1	0	14.9	0.0017
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=3 PRO=1 STK=3 NAME=TESORO STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	161	0.0184
107028	Acrolein	1	0	27.3	0.00312

7664417	NH3	1	0	3180	3.64
71432	Benzene	1	0	51.5	0.00589
100414	Ethyl Benzene	1	0	132	0.0151
50000	Formaldehyde	1	0	2820	0.323
110543	Hexane	1	0	3.21	0.000368
91203	Naphthalene	1	0	5.38	0.000616
1151	PAHs-w/o	1	0	3.64	0.000417
108883	Toluene	1	0	536	0.0613
1330207	Xylenes	1	0	268	0.0306
106990	1,3-Butadiene	1	0	1.71	0.000195
75569	Propylene Oxide	1	0	115	0.0132
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=3 PRO=2 STK=4 NAME=TESORO STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	58.51182	0.006679
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	11.93059	0.001362
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	1823.564	0.208169
115071	Propylene	1	0	654.4673	0.074711
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*

110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=1 PRO=2 STK=5 NAME=TESORO STACK 5 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	26.27155	0.002999
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	5.356782	0.000612
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	818.772	0.093467
115071	Propylene	1	0	293.8529	0.033545
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=2 PRO=2 STK=6 NAME=TESORO STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	26.27155	0.002999
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	5.356782	0.000612
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	818.772	0.093467
115071	Propylene	1	0	293.8529	0.033545
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=1 STK=8 NAME=TESORO STACK 8 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	56.56	0.006456
115071	Propylene	1	0	249.5	0.02848
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*

205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=14 PRO=1 STK=20 NAME=TESORO STACK 20 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	2.93	0.000334
100414	Ethyl Benzene	1	0	0.257	0.0000293
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	41.6	0.00475
91203	Naphthalene	1	0	0.00134	0.000000153
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	2.04	0.000233
1330207	Xylenes	1	0	1.24	0.000141
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.0766	0.00000874
56553	B[a]anthracene	1	0	0.000000000087	9.99E-15
50328	B[a]P	1	0	0.000000133	0.000000000015
205992	B[b]fluoranthen	1	0	0.000000000000	7.07E-18
218019	Chrysene	1	0	0.000000000272	0.000000000000
98828	Cumene	1	0	0.0685	0.00000782
110827	Cyclohexane	1	0	6.71	0.000766
189640	D[a,h]pyrene	1	0	3.98E-15	4.55E-19
193395	In[1,2,3-cd]pyr	1	0	0.000000000000	7.35E-17
7439976	Mercury	1	0	0.00000373	0.000000000426
108952	Phenol	1	0	0.00056	0.000000064
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=2 STK=9 NAME=TESORO STACK 9 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	22.28	0.002543
115071	Propylene	1	0	98.28	0.01122
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=3 STK=10 NAME=TESORO STACK 10 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	48.58	0.005546
115071	Propylene	1	0	214.3	0.02446

95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=5 PRO=1 STK=11 NAME=TESORO STACK 11 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	73.15	0.00835
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	720.2	0.08221
115071	Propylene	1	0	1391	0.1588
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	1783	0.2035
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*

7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=6 PRO=1 STK=12 NAME=TESORO STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	44.96	0.005133
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	19.78	0.002258
7783064	H2S	1	0	3.597	0.0004106
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=7 PRO=1 STK=13 NAME=TESORO STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*

75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	0.09537	0.00001089
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=8 PRO=1 STK=14 NAME=TESORO STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	0.116	0.00001326
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*

7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=9 PRO=1 STK=15 NAME=TESORO STACK 15 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	38.48	0.004392
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	16.93	0.001933
7783064	H2S	1	0	3.078	0.0003514
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=10 PRO=1 STK=16 NAME=TESORO STACK 16 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	1.996	0.0002278
100414	Ethyl Benzene	1	0	29.27	0.003341
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	54.81	0.006257
91203	Naphthalene	1	0	0.03326	0.000003797
1151	PAHs-w/o	1	0	*	*

108883	Toluene	1	0	31.93	0.003645
1330207	Xylenes	1	0	36.25	0.004138
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	12.57	0.001435
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	2.328	0.0002658
110827	Cyclohexane	1	0	9.146	0.001044
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=11 PRO=1 STK=17 NAME=TESORO STACK 17 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	9.343	0.001067
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	1.905	0.0002175
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	291.2	0.03324
115071	Propylene	1	0	104.5	0.01193
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*

7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=12 PRO=1 STK=18 NAME=TESORO STACK 18 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	470.25	0.05368
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=13 PRO=1 STK=19 NAME=TESORO STACK 19 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	11.64	0.0582
107028	Acrolein	1	0	0.5038	0.002519
7664417	NH3	1	0	11.89	0.05944
71432	Benzene	1	0	2.768	0.01384
100414	Ethyl Benzene	1	0	0.162	0.0008099
50000	Formaldehyde	1	0	25.65	0.1282

110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	0.2927	0.001464
1151	PAHs-w/o	1	0	0.5379	0.00269
108883	Toluene	1	0	1.566	0.007831
1330207	Xylenes	1	0	0.6301	0.00315
106990	1,3-Butadiene	1	0	3.231	0.01615
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	0.02972	0.0001486
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	497.8	2.489
7440382	Arsenic	1	0	0.02378	0.0001189
7440439	Cadmium	1	0	0.0229	0.0001115
18540299	Cr(VI)	1	0	0.001486	0.00000743
7440508	Copper	1	0	0.06093	0.0003046
7647010	HCl	1	0	2.768	0.01384
7439921	Lead	1	0	0.1233	0.0006167
7439965	Manganese	1	0	0.04607	0.0002303
7440020	Nickel	1	0	0.05795	0.0002898
7782492	Selenium	1	0	0.03269	0.0001635

EMISSIONS FOR FACILITY FAC=2449 DEV=13 PRO=2 STK=21 NAME=TESORO STACK 21 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	0.0414	0.00000472
100414	Ethyl Benzene	1	0	0.29	0.0000331
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	1.45	0.000165
91203	Naphthalene	1	0	1.49	0.00017
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	0.303	0.0000346
1330207	Xylenes	1	0	1.46	0.000167
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	2.17	0.000247
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	0.351	0.00004
218019	Chrysene	1	0	0.000521	0.000000059
98828	Cumene	1	0	0.124	0.0000142
110827	Cyclohexane	1	0	0.0965	0.000011
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	3.01	0.000343
7439976	Mercury	1	0	*	*

108952	Phenol	1	0	0.37	0.0000423
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

CANCER RISK REPORT

AVERAGE CANCER RISK, RECEPTOR 1245

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL	UTME	UTMN
0001	2.98E-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	2.98E-10		
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
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	0.00E+00		
0004	1.37E-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	1.37E-09		
0005	3.80E-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	3.80E-10		
0006	1.86E-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	1.86E-09		
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	0.00E+00		
0008	2.37E-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	2.37E-09		
0009	5.49E-09	1.26E-07	1.64E-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	1.42E-07	1.48E-07		
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	1.28E-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	0.00E+00	0.00E+00	1.28E-06		
0013	1.28E-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	0.00E+00	0.00E+00	0.00E+00	1.28E-11		
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	2.26E-20	5.19E-19	6.74E-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.86E-19	6.09E-19		
0018	3.43E-16	7.88E-15	1.02E-15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.91E-15	9.25E-15		
0019	1.71E-09	3.93E-08	5.10E-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	4.44E-08	4.61E-08		
0020	6.26E-11	1.44E-09	1.87E-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	1.62E-09	1.69E-09		
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	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	0.00E+00		
0023	1.03E-22	2.36E-21	3.07E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.67E-21	2.77E-21		
0024	1.47E-08	3.37E-07	4.38E-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	3.81E-07	3.95E-07		
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00		
0028	1.29E-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	0.00E+00	0.00E+00	1.29E-06		
0029	6.74E-10	3.10E-09	1.31E-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	4.41E-09	5.09E-09		
0030	8.11E-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	8.11E-10		
0031	1.79E-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	1.79E-09		
0032	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
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	1.22E-11	2.28E-11	3.85E-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	6.13E-11	7.35E-11		
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	1.24E-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	1.24E-10		
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		
SUM	2.60E-06	5.07E-07	6.68E-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	5.73E-07	3.18E-06	386133	3739290

This file: C:\HARP\PROJECTS\2550teso\HRA\2550 HRA MEIR.txt

Created by HARP Version 1.4 Build 23.06.09
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 7/18/2008 3:59:19 PM

EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2550teso\HRA\2550HRA.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):   2191
Sources(s):   All
Chemicals(s):   All

SITE PARAMETERS

18

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	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0002	107028	Acrolein	Acrolein	0.000E+00
0003	7664417	NH3	Ammonia	0.000E+00
0004	71432	Benzene	Benzene	0.000E+00
0005	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0006	50000	Formaldehyde	Formaldehyde	0.000E+00
0007	110543	Hexane	Hexane	0.000E+00
0008	91203	Naphthalene	Naphthalene	0.000E+00
0009	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0010	108883	Toluene	Toluene	0.000E+00
0011	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0012	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0013	75569	Propylene Oxide	Propylene oxide	0.000E+00
0014	74851	Ethylene	Ethylene	0.000E+00
0015	115071	Propylene	Propylene	0.000E+00
0016	95636	1,2,4TriMeBenze	1,2,4-Trimethylbenzene	0.000E+00
0017	56553	B[a]anthracene	Benz[a]anthracene	0.000E+00
0018	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0019	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0020	218019	Chrysene	Chrysene	0.000E+00
0021	98828	Cumene	Cumene	0.000E+00
0022	110827	Cyclohexane	Cyclohexane	0.000E+00
0023	189640	D[a,h]pyrene	Dibenzo[a,h]pyrene	0.000E+00
0024	193395	In[1,2,3-cd]pyr	Indeno[1,2,3-cd]pyrene	0.000E+00
0025	7439976	Mercury	Mercury	0.000E+00
0026	108952	Phenol	Phenol	0.000E+00
0027	7783064	H2S	Hydrogen sulfide	0.000E+00
0028	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00
0029	7440382	Arsenic	Arsenic	0.000E+00
0030	7440439	Cadmium	Cadmium	0.000E+00
0031	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0032	7440508	Copper	Copper	0.000E+00
0033	7647010	HCl	Hydrochloric acid	0.000E+00
0034	7439921	Lead	Lead	0.000E+00
0035	7439965	Manganese	Manganese	0.000E+00
0036	7440020	Nickel	Nickel	0.000E+00
0037	7782492	Selenium	Selenium	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	75070	Acetaldehyde	1.00E-02	*	9.00E+00	*	*
0002	107028	Acrolein	*	*	6.00E-02	*	1.90E-01
0003	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0004	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0005	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0006	50000	Formaldehyde	2.10E-02	*	3.00E+00	*	9.40E+01
0007	110543	Hexane	*	*	7.00E+03	*	*
0008	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0009	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0010	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0011	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0012	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0013	75569	Propylene Oxide	1.30E-02	*	3.00E+01	*	3.10E+03
0014	74851	Ethylene	*	*	*	*	*
0015	115071	Propylene	*	*	3.00E+03	*	*
0016	95636	1,2,4TriMeBenze	*	*	*	*	*
0017	56553	B[a]anthracene	3.90E-01	1.20E+00	*	*	*
0018	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0019	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0020	218019	Chrysene	3.90E-02	1.20E-01	*	*	*
0021	98828	Cumene	*	*	*	*	*
0022	110827	Cyclohexane	*	*	*	*	*
0023	189640	D[a,h]pyrene	3.90E+01	1.20E+02	*	*	*
0024	193395	In[1,2,3-cd]pyr	3.90E-01	1.20E+00	*	*	*
0025	7439976	Mercury	*	*	9.00E-02	3.00E-04	1.80E+00
0026	108952	Phenol	*	*	2.00E+02	*	5.80E+03
0027	7783064	H2S	*	*	1.00E+01	*	4.20E+01
0028	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*
0029	7440382	Arsenic	1.20E+01	1.50E+00	3.00E-02	3.00E-04	1.90E-01
0030	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0031	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0032	7440508	Copper	*	*	*	*	1.00E+02
0033	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0034	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0035	7439965	Manganese	*	*	2.00E-01	*	*
0036	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0037	7782492	Selenium	*	*	2.00E+01	*	*

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

EMISSIONS FOR FACILITY FAC=2449 DEV=1 PRO=1 STK=1 NAME=TESORO STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	2.31	0.000264
107028	Acrolein	1	0	2.06	0.000235
7664417	NH3	1	0	6930	0.791
71432	Benzene	1	0	4.37	0.000499
100414	Ethyl Benzene	1	0	5.14	0.000587
50000	Formaldehyde	1	0	9.25	0.00106
110543	Hexane	1	0	3.34	0.000381
91203	Naphthalene	1	0	0.771	0.000088
1151	PAHs-w/o	1	0	0.257	0.0000293
108883	Toluene	1	0	20	0.00229
1330207	Xylenes	1	0	14.9	0.0017
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*

56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=2 PRO=1 STK=2 NAME=TESORO STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	2.31	0.000264
107028	Acrolein	1	0	2.06	0.000235
7664417	NH3	1	0	6930	0.791
71432	Benzene	1	0	4.37	0.000499
100414	Ethyl Benzene	1	0	5.14	0.000587
50000	Formaldehyde	1	0	9.25	0.00106
110543	Hexane	1	0	3.34	0.000381
91203	Naphthalene	1	0	0.771	0.000088
1151	PAHs-w/o	1	0	0.257	0.0000293
108883	Toluene	1	0	20	0.00229
1330207	Xylenes	1	0	14.9	0.0017
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*

7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=3 PRO=1 STK=3 NAME=TESORO STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	161	0.0184
107028	Acrolein	1	0	27.3	0.00312
7664417	NH3	1	0	3180	3.64
71432	Benzene	1	0	51.5	0.00589
100414	Ethyl Benzene	1	0	132	0.0151
50000	Formaldehyde	1	0	2820	0.323
110543	Hexane	1	0	3.21	0.000368
91203	Naphthalene	1	0	5.38	0.000616
1151	PAHs-w/o	1	0	3.64	0.000417
108883	Toluene	1	0	536	0.0613
1330207	Xylenes	1	0	268	0.0306
106990	1,3-Butadiene	1	0	1.71	0.000195
75569	Propylene Oxide	1	0	115	0.0132
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=3 PRO=2 STK=4 NAME=TESORO STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	58.51182	0.006679
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	11.93059	0.001362
75569	Propylene Oxide	1	0	*	*

74851	Ethylene	1	0	1823.564	0.208169
115071	Propylene	1	0	654.4673	0.074711
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=1 PRO=2 STK=5 NAME=TESORO STACK 5 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	26.27155	0.002999
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	5.356782	0.000612
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	818.772	0.093467
115071	Propylene	1	0	293.8529	0.033545
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*

7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=2 PRO=2 STK=6 NAME=TESORO STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	26.27155	0.002999
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	5.356782	0.000612
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	818.772	0.093467
115071	Propylene	1	0	293.8529	0.033545
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=1 STK=8 NAME=TESORO STACK 8 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*

1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	56.56	0.006456
115071	Propylene	1	0	249.5	0.02848
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=14 PRO=1 STK=20 NAME=TESORO STACK 20 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	2.93	0.000334
100414	Ethyl Benzene	1	0	0.257	0.0000293
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	41.6	0.00475
91203	Naphthalene	1	0	0.00134	0.000000153
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	2.04	0.000233
1330207	Xylenes	1	0	1.24	0.000141
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.0766	0.00000874
56553	B[a]anthracene	1	0	0.000000000087	9.99E-15
50328	B[a]P	1	0	0.000000133	0.000000000015
205992	B[b]fluoranthen	1	0	0.000000000000	7.07E-18
218019	Chrysene	1	0	0.000000000272	0.000000000000
98828	Cumene	1	0	0.0685	0.00000782
110827	Cyclohexane	1	0	6.71	0.000766
189640	D[a,h]pyrene	1	0	3.98E-15	4.55E-19
193395	In[1,2,3-cd]pyr	1	0	0.000000000000	7.35E-17
7439976	Mercury	1	0	0.00000373	0.000000000426
108952	Phenol	1	0	0.00056	0.000000064
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*

7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=2 STK=9 NAME=TESORO STACK 9 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	22.28	0.002543
115071	Propylene	1	0	98.28	0.01122
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=3 STK=10 NAME=TESORO STACK 10 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*

91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	48.58	0.005546
115071	Propylene	1	0	214.3	0.02446
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

27

EMISSIONS FOR FACILITY FAC=2449 DEV=5 PRO=1 STK=11 NAME=TESORO STACK 11 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	73.15	0.00835
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	720.2	0.08221
115071	Propylene	1	0	1391	0.1588
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*

7783064	H2S	1	0	1783	0.2035
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=6 PRO=1 STK=12 NAME=TESORO STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	44.96	0.005133
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	19.78	0.002258
7783064	H2S	1	0	3.597	0.0004106
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=7 PRO=1 STK=13 NAME=TESORO STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*

100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	0.09537	0.00001089
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=8 PRO=1 STK=14 NAME=TESORO STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	0.116	0.00001326
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*

193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=9 PRO=1 STK=15 NAME=TESORO STACK 15 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	38.48	0.004392
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	16.93	0.001933
7783064	H2S	1	0	3.078	0.0003514
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=10 PRO=1 STK=16 NAME=TESORO STACK 16 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*

107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	1.996	0.0002278
100414	Ethyl Benzene	1	0	29.27	0.003341
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	54.81	0.006257
91203	Naphthalene	1	0	0.03326	0.000003797
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	31.93	0.003645
1330207	Xylenes	1	0	36.25	0.004138
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	12.57	0.001435
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	2.328	0.0002658
110827	Cyclohexane	1	0	9.146	0.001044
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=11 PRO=1 STK=17 NAME=TESORO STACK 17 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	9.343	0.001067
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	1.905	0.0002175
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	291.2	0.03324
115071	Propylene	1	0	104.5	0.01193
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*

98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=12 PRO=1 STK=18 NAME=TESORO STACK 18 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	470.25	0.05368
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=13 PRO=1 STK=19 NAME=TESORO STACK 19 EMS (lbs/yr)

SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	11.64	0.0582
107028	Acrolein	1	0	0.5038	0.002519
7664417	NH3	1	0	11.89	0.05944
71432	Benzene	1	0	2.768	0.01384
100414	Ethyl Benzene	1	0	0.162	0.0008099
50000	Formaldehyde	1	0	25.65	0.1282
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	0.2927	0.001464
1151	PAHs-w/o	1	0	0.5379	0.00269
108883	Toluene	1	0	1.566	0.007831
1330207	Xylenes	1	0	0.6301	0.00315
106990	1,3-Butadiene	1	0	3.231	0.01615
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	0.02972	0.0001486
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	497.8	2.489
7440382	Arsenic	1	0	0.02378	0.0001189
7440439	Cadmium	1	0	0.0229	0.0001115
18540299	Cr(VI)	1	0	0.001486	0.00000743
7440508	Copper	1	0	0.06093	0.0003046
7647010	HCl	1	0	2.768	0.01384
7439921	Lead	1	0	0.1233	0.0006167
7439965	Manganese	1	0	0.04607	0.0002303
7440020	Nickel	1	0	0.05795	0.0002898
7782492	Selenium	1	0	0.03269	0.0001635

EMISSIONS FOR FACILITY FAC=2449 DEV=13 PRO=2 STK=21 NAME=TESORO STACK 21 EMS (lbs/yr)

SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	0.0414	0.00000472
100414	Ethyl Benzene	1	0	0.29	0.0000331
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	1.45	0.000165
91203	Naphthalene	1	0	1.49	0.00017
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	0.303	0.0000346
1330207	Xylenes	1	0	1.46	0.000167
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	2.17	0.000247
56553	B[a]anthracene	1	0	*	*

50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	0.351	0.00004
218019	Chrysene	1	0	0.000521	0.000000059
98828	Cumene	1	0	0.124	0.0000142
110827	Cyclohexane	1	0	0.0965	0.000011
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	3.01	0.000343
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	0.37	0.0000423
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

CANCER RISK REPORT

DOMINANT PATHWAYS, Receptor 2191

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG
0001	A	-	-	-	-	-	-	-	-	-	-	-
0002	-	-	-	-	-	-	-	-	-	-	-	-
0003	-	-	-	-	-	-	-	-	-	-	-	-
0004	A	-	-	-	-	-	-	-	-	-	-	-
0005	A	-	-	-	-	-	-	-	-	-	-	-
0006	A	-	-	-	-	-	-	-	-	-	-	-
0007	-	-	-	-	-	-	-	-	-	-	-	-
0008	A	-	-	-	-	-	-	-	-	-	-	-
0009	-	YES	-	-	-	-	YES	-	-	-	-	-
0010	-	-	-	-	-	-	-	-	-	-	-	-
0011	-	-	-	-	-	-	-	-	-	-	-	-
0012	A	-	-	-	-	-	-	-	-	-	-	-
0013	A	-	-	-	-	-	-	-	-	-	-	-
0014	-	-	-	-	-	-	-	-	-	-	-	-
0015	-	-	-	-	-	-	-	-	-	-	-	-
0016	-	-	-	-	-	-	-	-	-	-	-	-
0017	-	YES	-	-	-	-	YES	-	-	-	-	-
0018	-	YES	-	-	-	-	YES	-	-	-	-	-
0019	-	YES	-	-	-	-	YES	-	-	-	-	-
0020	-	YES	-	-	-	-	YES	-	-	-	-	-
0021	-	-	-	-	-	-	-	-	-	-	-	-
0022	-	-	-	-	-	-	-	-	-	-	-	-
0023	-	YES	-	-	-	-	YES	-	-	-	-	-
0024	-	YES	-	-	-	-	YES	-	-	-	-	-
0025	-	-	-	-	-	-	-	-	-	-	-	-
0026	-	-	-	-	-	-	-	-	-	-	-	-
0027	-	-	-	-	-	-	-	-	-	-	-	-
0028	A	-	-	-	-	-	-	-	-	-	-	-
0029	A	YES	-	-	-	-	-	-	-	-	-	-
0030	A	-	-	-	-	-	-	-	-	-	-	-
0031	A	-	-	-	-	-	-	-	-	-	-	-
0032	-	-	-	-	-	-	-	-	-	-	-	-
0033	-	-	-	-	-	-	-	-	-	-	-	-
0034	-	-	YES	-	-	-	YES	-	-	-	-	-
0035	-	-	-	-	-	-	-	-	-	-	-	-

0036 A - - - - - - - - - - -
0037 - - - - - - - - - - - -

DERIVED CANCER RISK, RECEPTOR 2191

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG	MEAT	ORAL	TOTAL	UTME
UTMN																
0001	1.92E-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	1.92E-09	
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
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	0.00E+00	
0004	8.13E-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	8.13E-09	
0005	2.02E-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	2.02E-09	
0006	3.61E-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	3.61E-08	
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	0.00E+00	
0008	3.39E-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	3.39E-09	
0009	2.60E-08	3.45E-07	5.17E-08	0.00E+00	0.00E+00	0.00E+00	4.38E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.35E-07	8.61E-07	
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	7.66E-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	7.66E-07	
0013	7.79E-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	7.79E-10	
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	5.37E-20	7.14E-19	1.07E-19	0.00E+00	0.00E+00	0.00E+00	9.05E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.73E-18	1.78E-18	
0018	8.16E-16	1.09E-14	1.63E-15	0.00E+00	0.00E+00	0.00E+00	1.38E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.62E-14	2.71E-14	
0019	1.65E-09	2.19E-08	3.28E-09	0.00E+00	0.00E+00	0.00E+00	2.78E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.30E-08	5.47E-08	
0020	7.53E-11	1.00E-09	1.50E-10	0.00E+00	0.00E+00	0.00E+00	1.27E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.42E-09	2.49E-09	
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	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	0.00E+00	
0023	2.44E-22	3.25E-21	4.86E-22	0.00E+00	0.00E+00	0.00E+00	4.12E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.85E-21	8.10E-21	
0024	1.41E-08	1.88E-07	2.82E-08	0.00E+00	0.00E+00	0.00E+00	2.38E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.55E-07	4.69E-07	
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	
0028	4.69E-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	0.00E+00	0.00E+00	4.69E-06	
0029	2.44E-09	5.85E-09	2.85E-09	0.00E+00	0.00E+00	0.00E+00	5.23E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.22E-09	1.17E-08	
0030	2.94E-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	2.94E-09	
0031	6.49E-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	6.49E-09	
0032	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
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	3.98E-11	2.54E-12	8.37E-11	0.00E+00	0.00E+00	0.00E+00	5.97E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-10	1.86E-10	
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	4.52E-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	4.52E-10	
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	
SUM	5.56E-06	5.62E-07	8.62E-08	0.00E+00	0.00E+00	0.00E+00	7.06E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-06	6.92E-06	386830
3739496																

This file: C:\HARP\PROJECTS\2550teso\HRA\2550 HRA MAHI.txt

Created by HARP Version 1.4 Build 23.06.09
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 7/18/2008 3:54:13 PM

EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2550teso\HRA\2550HRA.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):   1903
Sources(s):   All
Chemicals(s):   All

CHEMICAL CROSS-REFERENCE TABLE AND BACKGROUND CONCENTRATIONS

CHEM	CAS	ABBREVIATION	POLLUTANT NAME	BACKGROUND (ug/m^3)
0001	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0002	107028	Acrolein	Acrolein	0.000E+00
0003	7664417	NH3	Ammonia	0.000E+00
0004	71432	Benzene	Benzene	0.000E+00
0005	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0006	50000	Formaldehyde	Formaldehyde	0.000E+00
0007	110543	Hexane	Hexane	0.000E+00
0008	91203	Naphthalene	Naphthalene	0.000E+00
0009	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0010	108883	Toluene	Toluene	0.000E+00
0011	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0012	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0013	75569	Propylene Oxide	Propylene oxide	0.000E+00
0014	74851	Ethylene	Ethylene	0.000E+00
0015	115071	Propylene	Propylene	0.000E+00
0016	95636	1,2,4TriMeBenze	1,2,4-Trimethylbenzene	0.000E+00
0017	56553	B[a]anthracene	Benz[a]anthracene	0.000E+00
0018	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0019	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0020	218019	Chrysene	Chrysene	0.000E+00
0021	98828	Cumene	Cumene	0.000E+00
0022	110827	Cyclohexane	Cyclohexane	0.000E+00
0023	189640	D[a,h]pyrene	Dibenzo[a,h]pyrene	0.000E+00
0024	193395	In[1,2,3-cd]pyr	Indeno[1,2,3-cd]pyrene	0.000E+00
0025	7439976	Mercury	Mercury	0.000E+00
0026	108952	Phenol	Phenol	0.000E+00
0027	7783064	H2S	Hydrogen sulfide	0.000E+00
0028	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00
0029	7440382	Arsenic	Arsenic	0.000E+00
0030	7440439	Cadmium	Cadmium	0.000E+00
0031	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00

0032	7440508	Copper	Copper	0.000E+00
0033	7647010	HCl	Hydrochloric acid	0.000E+00
0034	7439921	Lead	Lead	0.000E+00
0035	7439965	Manganese	Manganese	0.000E+00
0036	7440020	Nickel	Nickel	0.000E+00
0037	7782492	Selenium	Selenium	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	75070	Acetaldehyde	1.00E-02	*	9.00E+00	*	*
0002	107028	Acrolein	*	*	6.00E-02	*	1.90E-01
0003	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0004	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0005	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0006	50000	Formaldehyde	2.10E-02	*	3.00E+00	*	9.40E+01
0007	110543	Hexane	*	*	7.00E+03	*	*
0008	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0009	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0010	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0011	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0012	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0013	75569	Propylene Oxide	1.30E-02	*	3.00E+01	*	3.10E+03
0014	74851	Ethylene	*	*	*	*	*
0015	115071	Propylene	*	*	3.00E+03	*	*
0016	95636	1,2,4TriMeBenze	*	*	*	*	*
0017	56553	B[a]anthracene	3.90E-01	1.20E+00	*	*	*
0018	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0019	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0020	218019	Chrysene	3.90E-02	1.20E-01	*	*	*
0021	98828	Cumene	*	*	*	*	*
0022	110827	Cyclohexane	*	*	*	*	*
0023	189640	D[a,h]pyrene	3.90E+01	1.20E+02	*	*	*
0024	193395	In[1,2,3-cd]pyr	3.90E-01	1.20E+00	*	*	*
0025	7439976	Mercury	*	*	9.00E-02	3.00E-04	1.80E+00
0026	108952	Phenol	*	*	2.00E+02	*	5.80E+03
0027	7783064	H2S	*	*	1.00E+01	*	4.20E+01
0028	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*
0029	7440382	Arsenic	1.20E+01	1.50E+00	3.00E-02	3.00E-04	1.90E-01
0030	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0031	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0032	7440508	Copper	*	*	*	*	1.00E+02
0033	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0034	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0035	7439965	Manganese	*	*	2.00E-01	*	*
0036	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0037	7782492	Selenium	*	*	2.00E+01	*	*

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

EMISSIONS FOR FACILITY FAC=2449 DEV=1 PRO=1 STK=1 NAME=TESORO STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	2.31	0.000264
107028	Acrolein	1	0	2.06	0.000235
7664417	NH3	1	0	6930	0.791
71432	Benzene	1	0	4.37	0.000499
100414	Ethyl Benzene	1	0	5.14	0.000587

50000	Formaldehyde	1	0	9.25	0.00106
110543	Hexane	1	0	3.34	0.000381
91203	Naphthalene	1	0	0.771	0.000088
1151	PAHs-w/o	1	0	0.257	0.0000293
108883	Toluene	1	0	20	0.00229
1330207	Xylenes	1	0	14.9	0.0017
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=2 PRO=1 STK=2 NAME=TESORO STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	2.31	0.000264
107028	Acrolein	1	0	2.06	0.000235
7664417	NH3	1	0	6930	0.791
71432	Benzene	1	0	4.37	0.000499
100414	Ethyl Benzene	1	0	5.14	0.000587
50000	Formaldehyde	1	0	9.25	0.00106
110543	Hexane	1	0	3.34	0.000381
91203	Naphthalene	1	0	0.771	0.000088
1151	PAHs-w/o	1	0	0.257	0.0000293
108883	Toluene	1	0	20	0.00229
1330207	Xylenes	1	0	14.9	0.0017
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*

7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=3 PRO=1 STK=3 NAME=TESORO STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	161	0.0184
107028	Acrolein	1	0	27.3	0.00312
7664417	NH3	1	0	3180	3.64
71432	Benzene	1	0	51.5	0.00589
100414	Ethyl Benzene	1	0	132	0.0151
50000	Formaldehyde	1	0	2820	0.323
110543	Hexane	1	0	3.21	0.000368
91203	Naphthalene	1	0	5.38	0.000616
1151	PAHs-w/o	1	0	3.64	0.000417
108883	Toluene	1	0	536	0.0613
1330207	Xylenes	1	0	268	0.0306
106990	1,3-Butadiene	1	0	1.71	0.000195
75569	Propylene Oxide	1	0	115	0.0132
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=3 PRO=2 STK=4 NAME=TESORO STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*

7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	58.51182	0.006679
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	11.93059	0.001362
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	1823.564	0.208169
115071	Propylene	1	0	654.4673	0.074711
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=1 PRO=2 STK=5 NAME=TESORO STACK 5 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	26.27155	0.002999
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	5.356782	0.000612
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	818.772	0.093467
115071	Propylene	1	0	293.8529	0.033545
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*

110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=2 PRO=2 STK=6 NAME=TESORO STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	26.27155	0.002999
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	5.356782	0.000612
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	818.772	0.093467
115071	Propylene	1	0	293.8529	0.033545
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=1 STK=8 NAME=TESORO STACK 8 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	56.56	0.006456
115071	Propylene	1	0	249.5	0.02848
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=14 PRO=1 STK=20 NAME=TESORO STACK 20 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	2.93	0.000334
100414	Ethyl Benzene	1	0	0.257	0.0000293
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	41.6	0.00475
91203	Naphthalene	1	0	0.00134	0.000000153
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	2.04	0.000233
1330207	Xylenes	1	0	1.24	0.000141
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.0766	0.00000874
56553	B[a]anthracene	1	0	0.000000000087	9.99E-15
50328	B[a]P	1	0	0.000000133	0.000000000015

205992	B[b]fluoranthen	1	0	0.000000000000	7.07E-18
218019	Chrysene	1	0	0.000000000272	0.000000000000
98828	Cumene	1	0	0.0685	0.00000782
110827	Cyclohexane	1	0	6.71	0.000766
189640	D[a,h]pyrene	1	0	3.98E-15	4.55E-19
193395	In[1,2,3-cd]pyr	1	0	0.000000000000	7.35E-17
7439976	Mercury	1	0	0.00000373	0.000000000426
108952	Phenol	1	0	0.00056	0.000000064
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=2 STK=9 NAME=TESORO STACK 9 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	22.28	0.002543
115071	Propylene	1	0	98.28	0.01122
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=3 STK=10 NAME=TESORO STACK 10 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	48.58	0.005546
115071	Propylene	1	0	214.3	0.02446
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=5 PRO=1 STK=11 NAME=TESORO STACK 11 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	73.15	0.00835
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	720.2	0.08221
115071	Propylene	1	0	1391	0.1588

95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	1783	0.2035
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=6 PRO=1 STK=12 NAME=TESORO STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	44.96	0.005133
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	19.78	0.002258
7783064	H2S	1	0	3.597	0.0004106
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*

7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=7 PRO=1 STK=13 NAME=TESORO STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	0.09537	0.00001089
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=8 PRO=1 STK=14 NAME=TESORO STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*

75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	0.116	0.00001326
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=9 PRO=1 STK=15 NAME=TESORO STACK 15 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	38.48	0.004392
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	16.93	0.001933
7783064	H2S	1	0	3.078	0.0003514
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*

7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=10 PRO=1 STK=16 NAME=TESORO STACK 16 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	1.996	0.0002278
100414	Ethyl Benzene	1	0	29.27	0.003341
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	54.81	0.006257
91203	Naphthalene	1	0	0.03326	0.000003797
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	31.93	0.003645
1330207	Xylenes	1	0	36.25	0.004138
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	12.57	0.001435
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	2.328	0.0002658
110827	Cyclohexane	1	0	9.146	0.001044
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=11 PRO=1 STK=17 NAME=TESORO STACK 17 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	9.343	0.001067
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*

108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	1.905	0.0002175
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	291.2	0.03324
115071	Propylene	1	0	104.5	0.01193
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=12 PRO=1 STK=18 NAME=TESORO STACK 18 EMS (lbs/yr)

49 SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	470.25	0.05368
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*

7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=13 PRO=1 STK=19 NAME=TESORO STACK 19 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	11.64	0.0582
107028	Acrolein	1	0	0.5038	0.002519
7664417	NH3	1	0	11.89	0.05944
71432	Benzene	1	0	2.768	0.01384
100414	Ethyl Benzene	1	0	0.162	0.0008099
50000	Formaldehyde	1	0	25.65	0.1282
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	0.2927	0.001464
1151	PAHs-w/o	1	0	0.5379	0.00269
108883	Toluene	1	0	1.566	0.007831
1330207	Xylenes	1	0	0.6301	0.00315
106990	1,3-Butadiene	1	0	3.231	0.01615
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	0.02972	0.0001486
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	497.8	2.489
7440382	Arsenic	1	0	0.02378	0.0001189
7440439	Cadmium	1	0	0.0229	0.0001115
18540299	Cr(VI)	1	0	0.001486	0.00000743
7440508	Copper	1	0	0.06093	0.0003046
7647010	HCl	1	0	2.768	0.01384
7439921	Lead	1	0	0.1233	0.0006167
7439965	Manganese	1	0	0.04607	0.0002303
7440020	Nickel	1	0	0.05795	0.0002898
7782492	Selenium	1	0	0.03269	0.0001635

EMISSIONS FOR FACILITY FAC=2449 DEV=13 PRO=2 STK=21 NAME=TESORO STACK 21 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	0.0414	0.00000472
100414	Ethyl Benzene	1	0	0.29	0.0000331
50000	Formaldehyde	1	0	*	*

110543	Hexane	1	0	1.45	0.000165
91203	Naphthalene	1	0	1.49	0.00017
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	0.303	0.0000346
1330207	Xylenes	1	0	1.46	0.000167
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	2.17	0.000247
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	0.351	0.00004
218019	Chrysene	1	0	0.000521	0.000000059
98828	Cumene	1	0	0.124	0.0000142
110827	Cyclohexane	1	0	0.0965	0.000011
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	3.01	0.000343
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	0.37	0.0000423
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

51

ACUTE HI REPORT

ACUTE HI, RECEPTOR 1903

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX	UTME	UTMN
0001	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0002	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.40E-02	0.00E+00	0.00E+00	7.40E-02		
0003	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E-03	0.00E+00	0.00E+00	2.74E-03		
0004	0.00E+00	0.00E+00	0.00E+00	5.02E-05	0.00E+00	0.00E+00	0.00E+00	5.02E-05	0.00E+00	5.02E-05	0.00E+00	0.00E+00	5.02E-05	5.02E-05		
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0006	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.55E-03	0.00E+00	7.55E-03	0.00E+00	0.00E+00	7.55E-03	0.00E+00	0.00E+00	7.55E-03		
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	4.58E-06	0.00E+00	4.58E-06	0.00E+00	4.58E-06	0.00E+00	0.00E+00	0.00E+00	4.58E-06	4.58E-06	0.00E+00	0.00E+00	4.58E-06		
0011	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.05E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.05E-06	0.00E+00	0.00E+00	8.05E-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	8.68E-09	0.00E+00	8.68E-09	0.00E+00	0.00E+00	0.00E+00	8.68E-09	8.68E-09	0.00E+00	0.00E+00	8.68E-09		
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	0.00E+00	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		
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	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		

0025	0.00E+00	0.00E+00	0.00E+00	4.56E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.56E-04	0.00E+00	0.00E+00	0.00E+00	4.56E-04			
0026	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.96E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.96E-05	0.00E+00	0.00E+00	4.96E-05			
0027	0.00E+00	5.08E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.08E-01			
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	2.63E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.63E-03	0.00E+00	0.00E+00	0.00E+00	2.63E-03			
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.68E-05	0.00E+00	0.00E+00	1.68E-05			
0033	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.64E-05	0.00E+00	0.00E+00	3.64E-05			
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	0.00E+00	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	2.67E-04	0.00E+00	0.00E+00	2.67E-04	0.00E+00	0.00E+00	2.67E-04		
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			
SUM	0.00E+00	5.08E-01	0.00E+00	3.14E-03	0.00E+00	8.44E-02	0.00E+00	7.87E-03	0.00E+00	3.14E-03	8.47E-02	0.00E+00	5.02E-05	5.08E-01	385794	3739524	

This file: C:\HARP\PROJECTS\2550teso\HRA\2550 HRA MCHI.txt

Created by HARP Version 1.4 Build 23.06.09
Uses ISC Version 99155
Uses BPIP (Dated: 04112)
Creation date: 7/18/2008 3:58:28 PM

EXCEPTION REPORT
   (there have been no changes or exceptions)

INPUT FILES:
   Source-Receptor file: C:\HARP\PROJECTS\2550teso\HRA\2550HRA.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):   1245
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	75070	Acetaldehyde	Acetaldehyde	0.000E+00
0002	107028	Acrolein	Acrolein	0.000E+00
0003	7664417	NH3	Ammonia	0.000E+00
0004	71432	Benzene	Benzene	0.000E+00
0005	100414	Ethyl Benzene	Ethyl benzene	0.000E+00
0006	50000	Formaldehyde	Formaldehyde	0.000E+00
0007	110543	Hexane	Hexane	0.000E+00
0008	91203	Naphthalene	Naphthalene	0.000E+00
0009	1151	PAHs-w/o	PAHs, total, w/o individ. components reported [Treated as B(a)P for HRA]	0.000E+00
0010	108883	Toluene	Toluene	0.000E+00
0011	1330207	Xylenes	Xylenes (mixed)	0.000E+00
0012	106990	1,3-Butadiene	1,3-Butadiene	0.000E+00
0013	75569	Propylene Oxide	Propylene oxide	0.000E+00
0014	74851	Ethylene	Ethylene	0.000E+00
0015	115071	Propylene	Propylene	0.000E+00
0016	95636	1,2,4TriMeBenze	1,2,4-Trimethylbenzene	0.000E+00
0017	56553	B[a]anthracene	Benz[a]anthracene	0.000E+00
0018	50328	B[a]P	Benzo[a]pyrene	0.000E+00
0019	205992	B[b]fluoranthen	Benzo[b]fluoranthene	0.000E+00
0020	218019	Chrysene	Chrysene	0.000E+00
0021	98828	Cumene	Cumene	0.000E+00
0022	110827	Cyclohexane	Cyclohexane	0.000E+00
0023	189640	D[a,h]pyrene	Dibenzo[a,h]pyrene	0.000E+00
0024	193395	In[1,2,3-cd]pyr	Indeno[1,2,3-cd]pyrene	0.000E+00
0025	7439976	Mercury	Mercury	0.000E+00
0026	108952	Phenol	Phenol	0.000E+00
0027	7783064	H2S	Hydrogen sulfide	0.000E+00
0028	9901	DieselExhPM	Diesel engine exhaust, particulate matter (Diesel PM)	0.000E+00
0029	7440382	Arsenic	Arsenic	0.000E+00
0030	7440439	Cadmium	Cadmium	0.000E+00
0031	18540299	Cr(VI)	Chromium, hexavalent (& compounds)	0.000E+00
0032	7440508	Copper	Copper	0.000E+00
0033	7647010	HCl	Hydrochloric acid	0.000E+00
0034	7439921	Lead	Lead	0.000E+00
0035	7439965	Manganese	Manganese	0.000E+00
0036	7440020	Nickel	Nickel	0.000E+00
0037	7782492	Selenium	Selenium	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	75070	Acetaldehyde	1.00E-02	*	9.00E+00	*	*
0002	107028	Acrolein	*	*	6.00E-02	*	1.90E-01
0003	7664417	NH3	*	*	2.00E+02	*	3.20E+03
0004	71432	Benzene	1.00E-01	*	6.00E+01	*	1.30E+03
0005	100414	Ethyl Benzene	8.70E-03	*	2.00E+03	*	*
0006	50000	Formaldehyde	2.10E-02	*	3.00E+00	*	9.40E+01
0007	110543	Hexane	*	*	7.00E+03	*	*
0008	91203	Naphthalene	1.20E-01	*	9.00E+00	*	*
0009	1151	PAHs-w/o	3.90E+00	1.20E+01	*	*	*
0010	108883	Toluene	*	*	3.00E+02	*	3.70E+04
0011	1330207	Xylenes	*	*	7.00E+02	*	2.20E+04
0012	106990	1,3-Butadiene	6.00E-01	*	2.00E+01	*	*
0013	75569	Propylene Oxide	1.30E-02	*	3.00E+01	*	3.10E+03
0014	74851	Ethylene	*	*	*	*	*
0015	115071	Propylene	*	*	3.00E+03	*	*
0016	95636	1,2,4TriMeBenze	*	*	*	*	*
0017	56553	B[a]anthracene	3.90E-01	1.20E+00	*	*	*
0018	50328	B[a]P	3.90E+00	1.20E+01	*	*	*
0019	205992	B[b]fluoranthen	3.90E-01	1.20E+00	*	*	*
0020	218019	Chrysene	3.90E-02	1.20E-01	*	*	*
0021	98828	Cumene	*	*	*	*	*
0022	110827	Cyclohexane	*	*	*	*	*
0023	189640	D[a,h]pyrene	3.90E+01	1.20E+02	*	*	*
0024	193395	In[1,2,3-cd]pyr	3.90E-01	1.20E+00	*	*	*
0025	7439976	Mercury	*	*	9.00E-02	3.00E-04	1.80E+00
0026	108952	Phenol	*	*	2.00E+02	*	5.80E+03
0027	7783064	H2S	*	*	1.00E+01	*	4.20E+01
0028	9901	DieselExhPM	1.10E+00	*	5.00E+00	*	*
0029	7440382	Arsenic	1.20E+01	1.50E+00	3.00E-02	3.00E-04	1.90E-01
0030	7440439	Cadmium	1.50E+01	*	2.00E-02	5.00E-04	*
0031	18540299	Cr(VI)	5.10E+02	*	2.00E-01	2.00E-02	*
0032	7440508	Copper	*	*	*	*	1.00E+02
0033	7647010	HCl	*	*	9.00E+00	*	2.10E+03
0034	7439921	Lead	4.20E-02	8.50E-03	*	*	*
0035	7439965	Manganese	*	*	2.00E-01	*	*
0036	7440020	Nickel	9.10E-01	*	5.00E-02	5.00E-02	6.00E+00
0037	7782492	Selenium	*	*	2.00E+01	*	*

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

EMISSIONS FOR FACILITY FAC=2449 DEV=1 PRO=1 STK=1 NAME=TESORO STACK 1 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	2.31	0.000264
107028	Acrolein	1	0	2.06	0.000235
7664417	NH3	1	0	6930	0.791
71432	Benzene	1	0	4.37	0.000499
100414	Ethyl Benzene	1	0	5.14	0.000587
50000	Formaldehyde	1	0	9.25	0.00106
110543	Hexane	1	0	3.34	0.000381
91203	Naphthalene	1	0	0.771	0.000088
1151	PAHs-w/o	1	0	0.257	0.0000293
108883	Toluene	1	0	20	0.00229
1330207	Xylenes	1	0	14.9	0.0017
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*

56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=2 PRO=1 STK=2 NAME=TESORO STACK 2 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	2.31	0.000264
107028	Acrolein	1	0	2.06	0.000235
7664417	NH3	1	0	6930	0.791
71432	Benzene	1	0	4.37	0.000499
100414	Ethyl Benzene	1	0	5.14	0.000587
50000	Formaldehyde	1	0	9.25	0.00106
110543	Hexane	1	0	3.34	0.000381
91203	Naphthalene	1	0	0.771	0.000088
1151	PAHs-w/o	1	0	0.257	0.0000293
108883	Toluene	1	0	20	0.00229
1330207	Xylenes	1	0	14.9	0.0017
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*

7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=3 PRO=1 STK=3 NAME=TESORO STACK 3 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	161	0.0184
107028	Acrolein	1	0	27.3	0.00312
7664417	NH3	1	0	3180	3.64
71432	Benzene	1	0	51.5	0.00589
100414	Ethyl Benzene	1	0	132	0.0151
50000	Formaldehyde	1	0	2820	0.323
110543	Hexane	1	0	3.21	0.000368
91203	Naphthalene	1	0	5.38	0.000616
1151	PAHs-w/o	1	0	3.64	0.000417
108883	Toluene	1	0	536	0.0613
1330207	Xylenes	1	0	268	0.0306
106990	1,3-Butadiene	1	0	1.71	0.000195
75569	Propylene Oxide	1	0	115	0.0132
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=3 PRO=2 STK=4 NAME=TESORO STACK 4 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	58.51182	0.006679
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	11.93059	0.001362
75569	Propylene Oxide	1	0	*	*

74851	Ethylene	1	0	1823.564	0.208169
115071	Propylene	1	0	654.4673	0.074711
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=1 PRO=2 STK=5 NAME=TESORO STACK 5 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	26.27155	0.002999
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	5.356782	0.000612
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	818.772	0.093467
115071	Propylene	1	0	293.8529	0.033545
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*

7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=2 PRO=2 STK=6 NAME=TESORO STACK 6 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	26.27155	0.002999
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	5.356782	0.000612
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	818.772	0.093467
115071	Propylene	1	0	293.8529	0.033545
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=1 STK=8 NAME=TESORO STACK 8 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*

1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	56.56	0.006456
115071	Propylene	1	0	249.5	0.02848
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=14 PRO=1 STK=20 NAME=TESORO STACK 20 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	2.93	0.000334
100414	Ethyl Benzene	1	0	0.257	0.0000293
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	41.6	0.00475
91203	Naphthalene	1	0	0.00134	0.000000153
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	2.04	0.000233
1330207	Xylenes	1	0	1.24	0.000141
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	0.0766	0.00000874
56553	B[a]anthracene	1	0	0.000000000087	9.99E-15
50328	B[a]P	1	0	0.000000133	0.000000000015
205992	B[b]fluoranthen	1	0	0.000000000000	7.07E-18
218019	Chrysene	1	0	0.000000000272	0.000000000000
98828	Cumene	1	0	0.0685	0.00000782
110827	Cyclohexane	1	0	6.71	0.000766
189640	D[a,h]pyrene	1	0	3.98E-15	4.55E-19
193395	In[1,2,3-cd]pyr	1	0	0.000000000000	7.35E-17
7439976	Mercury	1	0	0.00000373	0.000000000426
108952	Phenol	1	0	0.00056	0.000000064
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*

7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=2 STK=9 NAME=TESORO STACK 9 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	22.28	0.002543
115071	Propylene	1	0	98.28	0.01122
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=4 PRO=3 STK=10 NAME=TESORO STACK 10 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*

91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	48.58	0.005546
115071	Propylene	1	0	214.3	0.02446
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

62

EMISSIONS FOR FACILITY FAC=2449 DEV=5 PRO=1 STK=11 NAME=TESORO STACK 11 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	73.15	0.00835
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	720.2	0.08221
115071	Propylene	1	0	1391	0.1588
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*

7783064	H2S	1	0	1783	0.2035
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=6 PRO=1 STK=12 NAME=TESORO STACK 12 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	44.96	0.005133
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	19.78	0.002258
7783064	H2S	1	0	3.597	0.0004106
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=7 PRO=1 STK=13 NAME=TESORO STACK 13 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*

100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	0.09537	0.00001089
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=8 PRO=1 STK=14 NAME=TESORO STACK 14 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	0.116	0.00001326
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*

193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=9 PRO=1 STK=15 NAME=TESORO STACK 15 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	38.48	0.004392
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	16.93	0.001933
7783064	H2S	1	0	3.078	0.0003514
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=10 PRO=1 STK=16 NAME=TESORO STACK 16 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*

107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	1.996	0.0002278
100414	Ethyl Benzene	1	0	29.27	0.003341
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	54.81	0.006257
91203	Naphthalene	1	0	0.03326	0.000003797
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	31.93	0.003645
1330207	Xylenes	1	0	36.25	0.004138
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	12.57	0.001435
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	2.328	0.0002658
110827	Cyclohexane	1	0	9.146	0.001044
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=11 PRO=1 STK=17 NAME=TESORO STACK 17 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	9.343	0.001067
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	1.905	0.0002175
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	291.2	0.03324
115071	Propylene	1	0	104.5	0.01193
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*

98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=12 PRO=1 STK=18 NAME=TESORO STACK 18 EMS (lbs/yr)
SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	470.25	0.05368
71432	Benzene	1	0	*	*
100414	Ethyl Benzene	1	0	*	*
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	*	*
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	*	*
1330207	Xylenes	1	0	*	*
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

EMISSIONS FOR FACILITY FAC=2449 DEV=13 PRO=1 STK=19 NAME=TESORO STACK 19 EMS (lbs/yr)

SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	11.64	0.0582
107028	Acrolein	1	0	0.5038	0.002519
7664417	NH3	1	0	11.89	0.05944
71432	Benzene	1	0	2.768	0.01384
100414	Ethyl Benzene	1	0	0.162	0.0008099
50000	Formaldehyde	1	0	25.65	0.1282
110543	Hexane	1	0	*	*
91203	Naphthalene	1	0	0.2927	0.001464
1151	PAHs-w/o	1	0	0.5379	0.00269
108883	Toluene	1	0	1.566	0.007831
1330207	Xylenes	1	0	0.6301	0.00315
106990	1,3-Butadiene	1	0	3.231	0.01615
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	*	*
56553	B[a]anthracene	1	0	*	*
50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	*	*
218019	Chrysene	1	0	*	*
98828	Cumene	1	0	*	*
110827	Cyclohexane	1	0	*	*
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	*	*
7439976	Mercury	1	0	0.02972	0.0001486
108952	Phenol	1	0	*	*
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	497.8	2.489
7440382	Arsenic	1	0	0.02378	0.0001189
7440439	Cadmium	1	0	0.0229	0.0001115
18540299	Cr(VI)	1	0	0.001486	0.00000743
7440508	Copper	1	0	0.06093	0.0003046
7647010	HCl	1	0	2.768	0.01384
7439921	Lead	1	0	0.1233	0.0006167
7439965	Manganese	1	0	0.04607	0.0002303
7440020	Nickel	1	0	0.05795	0.0002898
7782492	Selenium	1	0	0.03269	0.0001635

EMISSIONS FOR FACILITY FAC=2449 DEV=13 PRO=2 STK=21 NAME=TESORO STACK 21 EMS (lbs/yr)

SOURCE MULTIPLIER=1

CAS	ABBREV	MULTIPLIER	BG (ug/m^3)	AVRG (lbs/yr)	MAX (lbs/hr)
75070	Acetaldehyde	1	0	*	*
107028	Acrolein	1	0	*	*
7664417	NH3	1	0	*	*
71432	Benzene	1	0	0.0414	0.00000472
100414	Ethyl Benzene	1	0	0.29	0.0000331
50000	Formaldehyde	1	0	*	*
110543	Hexane	1	0	1.45	0.000165
91203	Naphthalene	1	0	1.49	0.00017
1151	PAHs-w/o	1	0	*	*
108883	Toluene	1	0	0.303	0.0000346
1330207	Xylenes	1	0	1.46	0.000167
106990	1,3-Butadiene	1	0	*	*
75569	Propylene Oxide	1	0	*	*
74851	Ethylene	1	0	*	*
115071	Propylene	1	0	*	*
95636	1,2,4TriMeBenze	1	0	2.17	0.000247
56553	B[a]anthracene	1	0	*	*

50328	B[a]P	1	0	*	*
205992	B[b]fluoranthen	1	0	0.351	0.00004
218019	Chrysene	1	0	0.000521	0.000000059
98828	Cumene	1	0	0.124	0.0000142
110827	Cyclohexane	1	0	0.0965	0.000011
189640	D[a,h]pyrene	1	0	*	*
193395	In[1,2,3-cd]pyr	1	0	3.01	0.000343
7439976	Mercury	1	0	*	*
108952	Phenol	1	0	0.37	0.0000423
7783064	H2S	1	0	*	*
9901	DieselExhPM	1	0	*	*
7440382	Arsenic	1	0	*	*
7440439	Cadmium	1	0	*	*
18540299	Cr(VI)	1	0	*	*
7440508	Copper	1	0	*	*
7647010	HCl	1	0	*	*
7439921	Lead	1	0	*	*
7439965	Manganese	1	0	*	*
7440020	Nickel	1	0	*	*
7782492	Selenium	1	0	*	*

CHRONIC HI REPORT

DOMINANT PATHWAYS, Receptor 1245

CHEM	INHAL	DERM	SOIL	MOTHER	FISH	WATER	VEG	DAIRY	BEEF	CHICK	PIG	EGG
0001	YES	-	-	-	-	-	-	-	-	-	-	-
0002	YES	-	-	-	-	-	-	-	-	-	-	-
0003	YES	-	-	-	-	-	-	-	-	-	-	-
0004	YES	-	-	-	-	-	-	-	-	-	-	-
0005	YES	-	-	-	-	-	-	-	-	-	-	-
0006	YES	-	-	-	-	-	-	-	-	-	-	-
0007	YES	-	-	-	-	-	-	-	-	-	-	-
0008	YES	-	-	-	-	-	-	-	-	-	-	-
0009	YES	YES	-	-	-	-	YES	-	-	-	-	-
0010	YES	-	-	-	-	-	-	-	-	-	-	-
0011	YES	-	-	-	-	-	-	-	-	-	-	-
0012	YES	-	-	-	-	-	-	-	-	-	-	-
0013	YES	-	-	-	-	-	-	-	-	-	-	-
0014	YES	-	-	-	-	-	-	-	-	-	-	-
0015	YES	-	-	-	-	-	-	-	-	-	-	-
0016	YES	-	-	-	-	-	-	-	-	-	-	-
0017	YES	YES	-	-	-	-	YES	-	-	-	-	-
0018	YES	YES	-	-	-	-	YES	-	-	-	-	-
0019	YES	YES	-	-	-	-	YES	-	-	-	-	-
0020	YES	YES	-	-	-	-	YES	-	-	-	-	-
0021	YES	-	-	-	-	-	-	-	-	-	-	-
0022	YES	-	-	-	-	-	-	-	-	-	-	-
0023	YES	YES	-	-	-	-	YES	-	-	-	-	-
0024	YES	YES	-	-	-	-	YES	-	-	-	-	-
0025	YES	YES	-	-	-	-	YES	-	-	-	-	-
0026	YES	-	-	-	-	-	-	-	-	-	-	-
0027	YES	-	-	-	-	-	-	-	-	-	-	-
0028	YES	-	-	-	-	-	-	-	-	-	-	-
0029	YES	YES	YES	-	-	-	-	-	-	-	-	-
0030	YES	-	YES	-	-	-	YES	-	-	-	-	-
0031	YES	-	YES	-	-	-	YES	-	-	-	-	-
0032	YES	-	-	-	-	-	-	-	-	-	-	-
0033	YES	-	-	-	-	-	-	-	-	-	-	-
0034	YES	-	YES	-	-	-	YES	-	-	-	-	-
0035	YES	-	-	-	-	-	-	-	-	-	-	-

0036	YES	YES	-	-	-	-	YES	-	-	-	-	-				
0037	YES	-	-	-	-	-	-	-	-	-	-	-				

DERIVED CHRONIC HI, RECEPTOR 1245

CHEM	CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	MAX	UTME	UTMN
0001	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.80E-05	0.00E+00	0.00E+00	5.80E-05		
0002	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.66E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.66E-04	0.00E+00	0.00E+00	6.66E-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	8.14E-04	0.00E+00	0.00E+00	8.14E-04		
0004	0.00E+00	4.00E-06	0.00E+00	4.00E-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	4.00E-06		
0005	0.00E+00	0.00E+00	0.00E+00	3.82E-07	3.82E-07	0.00E+00	3.82E-07	0.00E+00	3.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.82E-07		
0006	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.16E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.16E-04	0.00E+00	0.00E+00	5.16E-04		
0007	0.00E+00	3.93E-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	3.93E-06		
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	3.83E-05	0.00E+00	0.00E+00	3.83E-05		
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		
0010	0.00E+00	3.57E-06	0.00E+00	3.57E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.57E-06	0.00E+00	0.00E+00	3.57E-06		
0011	0.00E+00	1.85E-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	1.85E-06	0.00E+00	0.00E+00	1.85E-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	1.86E-03	0.00E+00	0.00E+00	0.00E+00	1.86E-03		
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	5.74E-07	0.00E+00	0.00E+00	5.74E-07		
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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.10E-04	0.00E+00	0.00E+00	3.10E-04		
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		
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	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
0025	0.00E+00	1.36E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-04	1.23E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-04		
0026	1.85E-05	1.85E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-05	0.00E+00	1.85E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E-05		
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	7.80E-02	0.00E+00	0.00E+00	7.80E-02		
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	4.11E-03	0.00E+00	0.00E+00	4.11E-03		
0029	6.26E-05	3.27E-05	0.00E+00	3.27E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.98E-05	0.00E+00	6.26E-05		
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	7.06E-05	0.00E+00	4.73E-05	0.00E+00	0.00E+00	7.06E-05		
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	3.07E-07	0.00E+00	1.45E-08	3.07E-07		
0032	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
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	1.27E-05	0.00E+00	0.00E+00	1.27E-05		
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	9.51E-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	9.51E-06		
0036	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.00E-07	0.00E+00	0.00E+00	0.00E+00	4.79E-05	0.00E+00	4.79E-05	4.79E-05		
0037	6.75E-08	6.75E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.75E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.75E-08		
SUM	8.12E-05	8.79E-05	0.00E+00	4.07E-05	3.82E-07	1.18E-03	1.96E-05	1.23E-04	2.13E-04	1.86E-03	8.46E-02	2.98E-05	5.19E-05	8.46E-02	386133	3739290

ATTACHMENT B

HARP Results for Cancer Burden

POPULATION EXPOSURE ESTIMATE REPORT - CANCER RISK
File: C:\HARP\PROJECTS\2550teso\HRA\Burden\Cancer_Population_Exposure.txt

EXCEPTION REPORT
(there have been no changes or exceptions)

COUNT	REC	DESCRIPTION	CANCER RISK	POP	CANCER BURDEN	CUM. POP	CUM. BURDEN	UTME	UTMN	ZONE
1	2604	BLK29412302	1.410E-05	0	0.000E+00	0	0.000E+00	385779	3739450	11
2	2635	BLK29412399	1.390E-05	0	0.000E+00	0	0.000E+00	386096	3739444	11
3	1549	BLK57550500	1.248E-05	0	0.000E+00	0	0.000E+00	386473	3739340	11
4	1063	BLK57280300	1.165E-05	0	0.000E+00	0	0.000E+00	386497	3739408	11
5	2599	BLK29412301	1.130E-05	0	0.000E+00	0	0.000E+00	386463	3739431	11
6	1548	BLK57550500	1.061E-05	0	0.000E+00	0	0.000E+00	386517	3739287	11
7	1547	BLK57550500	8.532E-06	0	0.000E+00	0	0.000E+00	386635	3739251	11
8	2633	BLK29412305	7.754E-06	0	0.000E+00	0	0.000E+00	385632	3738866	11
9	1545	BLK57550500	7.695E-06	0	0.000E+00	0	0.000E+00	386854	3739315	11
10	2634	BLK29412399	7.449E-06	0	0.000E+00	0	0.000E+00	385714	3738832	11
11	1546	BLK57550500	7.250E-06	0	0.000E+00	0	0.000E+00	386728	3739222	11
12	1058	BLK57280200	7.058E-06	0	0.000E+00	0	0.000E+00	386887	3739453	11
13	2944	BLK29470600	6.957E-06	0	0.000E+00	0	0.000E+00	385615	3738781	11
14	2804	BLK29470101	6.840E-06	0	0.000E+00	0	0.000E+00	385732	3738781	11
15	2629	BLK29412304	6.033E-06	0	0.000E+00	0	0.000E+00	385307	3738921	11
16	2945	BLK29470600	6.019E-06	0	0.000E+00	0	0.000E+00	385540	3738830	11
17	2802	BLK29470101	6.012E-06	0	0.000E+00	0	0.000E+00	385653	3738599	11
18	1534	BLK57550400	5.910E-06	2	1.182E-05	2	1.182E-05	387124	3739295	11
19	2832	BLK29470201	5.841E-06	0	0.000E+00	2	1.182E-05	385673	3738573	11
20	2803	BLK29470101	5.793E-06	2	1.159E-05	4	2.340E-05	385728	3738613	11
21	2624	BLK29412304	5.753E-06	0	0.000E+00	4	2.340E-05	385305	3739138	11
22	2601	BLK29412301	5.659E-06	0	0.000E+00	4	2.340E-05	386434	3739159	11
23	2632	BLK29412304	5.636E-06	0	0.000E+00	4	2.340E-05	385326	3738858	11
24	2831	BLK29470201	5.542E-06	0	0.000E+00	4	2.340E-05	385734	3738580	11
25	1535	BLK57550400	5.328E-06	2	1.066E-05	6	3.406E-05	387123	3739201	11
26	2833	BLK29470201	5.244E-06	0	0.000E+00	6	3.406E-05	385691	3738475	11
27	2843	BLK29470202	5.178E-06	0	0.000E+00	6	3.406E-05	385590	3738497	11
28	1053	BLK57280100	5.034E-06	0	0.000E+00	6	3.406E-05	387362	3739376	11
29	2946	BLK29470600	4.988E-06	0	0.000E+00	6	3.406E-05	385493	3738747	11
30	2801	BLK29470101	4.965E-06	0	0.000E+00	6	3.406E-05	385809	3738707	11
31	2628	BLK29412304	4.912E-06	0	0.000E+00	6	3.406E-05	385159	3739014	11
32	2972	BLK29470602	4.892E-06	0	0.000E+00	6	3.406E-05	385492	3738683	11
33	1052	BLK57280100	4.865E-06	0	0.000E+00	6	3.406E-05	387269	3739529	11
34	2842	BLK29470202	4.795E-06	0	0.000E+00	6	3.406E-05	385540	3738491	11
35	1533	BLK57550400	4.785E-06	4	1.914E-05	10	5.320E-05	387301	3739199	11
36	2948	BLK29470600	4.750E-06	0	0.000E+00	10	5.320E-05	385240	3738752	11
37	1057	BLK57280200	4.661E-06	0	0.000E+00	10	5.320E-05	386896	3739614	11
38	2947	BLK29470600	4.659E-06	0	0.000E+00	10	5.320E-05	385425	3738767	11
39	2598	BLK29412301	4.642E-06	0	0.000E+00	10	5.320E-05	386404	3739594	11
40	1532	BLK57550400	4.502E-06	25	1.126E-04	35	1.658E-04	387405	3739197	11
41	1087	BLK57290200	4.459E-06	0	0.000E+00	35	1.658E-04	387512	3739440	11
42	2981	BLK29470699	4.458E-06	0	0.000E+00	35	1.658E-04	385502	3738492	11
43	2830	BLK29470201	4.412E-06	0	0.000E+00	35	1.658E-04	385816	3738584	11
44	2625	BLK29412304	4.320E-06	25	1.080E-04	60	2.738E-04	385279	3739390	11
45	2600	BLK29412301	4.296E-06	0	0.000E+00	60	2.738E-04	386114	3739110	11
46	2626	BLK29412304	4.275E-06	5	2.138E-05	65	2.951E-04	385264	3739284	11
47	2631	BLK29412304	4.268E-06	16	6.829E-05	81	3.634E-04	385035	3738849	11
48	1531	BLK57550400	4.247E-06	73	3.100E-04	154	6.735E-04	387507	3739196	11
49	1536	BLK57550400	4.233E-06	6	2.540E-05	160	6.989E-04	387119	3739107	11
50	2630	BLK29412304	4.210E-06	0	0.000E+00	160	6.989E-04	385044	3738921	11
51	1497	BLK57550101	4.201E-06	0	0.000E+00	160	6.989E-04	387630	3739289	11

52	1088	BLK57290201	4.199E-06	99	4.157E-04	259	1.115E-03	387632	3739389	11
53	2834	BLK29470201	4.178E-06	0	0.000E+00	259	1.115E-03	385820	3738512	11
54	2971	BLK29470602	4.158E-06	5	2.079E-05	264	1.135E-03	385428	3738622	11
55	2627	BLK29412304	4.139E-06	0	0.000E+00	264	1.135E-03	385123	3739055	11
56	2949	BLK29470600	4.130E-06	0	0.000E+00	264	1.135E-03	385038	3738738	11
57	2605	BLK29412302	4.081E-06	0	0.000E+00	264	1.135E-03	385719	3739861	11
58	1086	BLK57290200	4.034E-06	113	4.558E-04	377	1.591E-03	387636	3739489	11
59	1498	BLK57550101	3.959E-06	27	1.069E-04	404	1.698E-03	387629	3739191	11
60	2636	BLK29412399	3.923E-06	0	0.000E+00	404	1.698E-03	386184	3739597	11
61	2973	BLK29470602	3.885E-06	0	0.000E+00	404	1.698E-03	385423	3738532	11
62	2841	BLK29470202	3.883E-06	0	0.000E+00	404	1.698E-03	385479	3738401	11
63	1496	BLK57550100	3.870E-06	0	0.000E+00	404	1.698E-03	387768	3739288	11
64	1089	BLK57290201	3.863E-06	140	5.408E-04	544	2.239E-03	387771	3739387	11
65	2597	BLK29412301	3.794E-06	0	0.000E+00	544	2.239E-03	386328	3739616	11
66	2970	BLK29470602	3.794E-06	2	7.587E-06	546	2.246E-03	385340	3738618	11
67	2950	BLK29470600	3.777E-06	0	0.000E+00	546	2.246E-03	384961	3738698	11
68	2968	BLK29470602	3.762E-06	1	3.762E-06	547	2.250E-03	385140	3738604	11
69	2621	BLK29412303	3.738E-06	0	0.000E+00	547	2.250E-03	385371	3739729	11
70	1085	BLK57290200	3.735E-06	174	6.499E-04	721	2.900E-03	387772	3739487	11
71	2969	BLK29470602	3.735E-06	0	0.000E+00	721	2.900E-03	385236	3738608	11
72	1081	BLK57290200	3.702E-06	151	5.590E-04	872	3.459E-03	387637	3739589	11
73	1499	BLK57550101	3.682E-06	0	0.000E+00	872	3.459E-03	387767	3739189	11
74	2745	BLK29462100	3.641E-06	0	0.000E+00	872	3.459E-03	385136	3739336	11
75	2967	BLK29470602	3.596E-06	1	3.596E-06	873	3.463E-03	385044	3738600	11
76	1090	BLK57290201	3.554E-06	208	7.392E-04	1081	4.202E-03	387919	3739386	11
77	1495	BLK57550100	3.515E-06	0	0.000E+00	1081	4.202E-03	387918	3739236	11
78	2980	BLK29470699	3.495E-06	0	0.000E+00	1081	4.202E-03	385425	3738372	11
79	1082	BLK57290200	3.474E-06	250	8.685E-04	1331	5.070E-03	387773	3739587	11
80	1502	BLK57550101	3.461E-06	0	0.000E+00	1331	5.070E-03	387628	3739090	11
81	1084	BLK57290200	3.450E-06	236	8.143E-04	1567	5.885E-03	387920	3739485	11
82	2622	BLK29412303	3.419E-06	0	0.000E+00	1567	5.885E-03	385360	3739596	11
83	2751	BLK29462100	3.396E-06	0	0.000E+00	1567	5.885E-03	385030	3739021	11
84	1051	BLK57280100	3.386E-06	202	6.840E-04	1769	6.569E-03	387293	3739687	11
85	2840	BLK29470202	3.313E-06	0	0.000E+00	1769	6.569E-03	385844	3738241	11
86	2746	BLK29462100	3.298E-06	0	0.000E+00	1769	6.569E-03	385131	3739435	11
87	2620	BLK29412303	3.286E-06	0	0.000E+00	1769	6.569E-03	385360	3739801	11
88	1500	BLK57550101	3.285E-06	16	5.256E-05	1785	6.621E-03	387767	3739088	11
89	2951	BLK29470600	3.278E-06	0	0.000E+00	1785	6.621E-03	384868	3738585	11
90	1083	BLK57290200	3.246E-06	159	5.161E-04	1944	7.137E-03	387921	3739585	11
91	1490	BLK57550100	3.235E-06	0	0.000E+00	1944	7.137E-03	388083	3739236	11
92	2974	BLK29470603	3.227E-06	0	0.000E+00	1944	7.137E-03	385299	3738475	11
93	2805	BLK29470101	3.218E-06	0	0.000E+00	1944	7.137E-03	385896	3738710	11
94	1070	BLK57290100	3.211E-06	271	8.703E-04	2215	8.008E-03	388093	3739433	11
95	1074	BLK57290101	3.205E-06	309	9.903E-04	2524	8.998E-03	388066	3739484	11
96	2966	BLK29470602	3.203E-06	0	0.000E+00	2524	8.998E-03	384932	3738534	11
97	2623	BLK29412304	3.183E-06	0	0.000E+00	2524	8.998E-03	385292	3739478	11
98	1080	BLK57290200	3.182E-06	135	4.296E-04	2659	9.428E-03	387635	3739683	11
99	1494	BLK57550100	3.179E-06	0	0.000E+00	2659	9.428E-03	388070	3739179	11
100	2976	BLK29470603	3.170E-06	19	6.023E-05	2678	9.488E-03	385051	3738461	11
101	2766	BLK29462102	3.150E-06	58	1.827E-04	2736	9.670E-03	384879	3738844	11
102	2975	BLK29470603	3.134E-06	0	0.000E+00	2736	9.670E-03	385149	3738460	11
103	2800	BLK29470101	3.116E-06	0	0.000E+00	2736	9.670E-03	385909	3738810	11
104	1501	BLK57550101	3.104E-06	0	0.000E+00	2736	9.670E-03	387916	3739086	11
105	2952	BLK29470600	3.082E-06	0	0.000E+00	2736	9.670E-03	384784	3738653	11
106	1079	BLK57290200	3.061E-06	294	8.998E-04	3030	1.057E-02	387774	3739681	11
107	1073	BLK57290100	3.033E-06	270	8.188E-04	3300	1.139E-02	388073	3739583	11
108	1075	BLK57290101	3.024E-06	0	0.000E+00	3300	1.139E-02	388220	3739421	11
109	1489	BLK57550100	3.012E-06	0	0.000E+00	3300	1.139E-02	388224	3739221	11
110	2829	BLK29470201	2.977E-06	0	0.000E+00	3300	1.139E-02	385905	3738589	11
111	1540	BLK57550500	2.949E-06	4	1.180E-05	3304	1.140E-02	387121	3739007	11

112	1493	BLK57550100	2.941E-06	6	1.765E-05	3310	1.142E-02	388072	3739084	11
113	2965	BLK29470602	2.908E-06	8	2.326E-05	3318	1.144E-02	384911	3738422	11
114	2835	BLK29470202	2.901E-06	0	0.000E+00	3318	1.144E-02	385908	3738517	11
115	1078	BLK57290200	2.899E-06	147	4.261E-04	3465	1.187E-02	387923	3739685	11
116	2977	BLK29470603	2.899E-06	0	0.000E+00	3465	1.187E-02	385259	3738379	11
117	1541	BLK57550500	2.897E-06	0	0.000E+00	3465	1.187E-02	386845	3739012	11
118	1076	BLK57290101	2.886E-06	0	0.000E+00	3465	1.187E-02	388316	3739464	11
119	1488	BLK57550100	2.876E-06	0	0.000E+00	3465	1.187E-02	388317	3739191	11
120	2767	BLK29462102	2.857E-06	118	3.372E-04	3583	1.221E-02	384890	3738928	11
121	1512	BLK57550200	2.851E-06	0	0.000E+00	3583	1.221E-02	387625	3739001	11
122	2765	BLK29462102	2.799E-06	136	3.806E-04	3719	1.259E-02	384790	3738788	11
123	1072	BLK57290100	2.761E-06	258	7.124E-04	3977	1.330E-02	388073	3739683	11
124	2750	BLK29462100	2.760E-06	32	8.832E-05	4009	1.339E-02	384955	3739299	11
125	1492	BLK57550100	2.752E-06	0	0.000E+00	4009	1.339E-02	388188	3739066	11
126	1511	BLK57550200	2.743E-06	0	0.000E+00	4009	1.339E-02	387764	3738994	11
127	1071	BLK57290100	2.727E-06	163	4.444E-04	4172	1.383E-02	388194	3739654	11
128	2747	BLK29462100	2.688E-06	34	9.138E-05	4206	1.392E-02	385017	3739465	11
129	1510	BLK57550200	2.657E-06	0	0.000E+00	4206	1.392E-02	387917	3738992	11
130	2752	BLK29462100	2.621E-06	153	4.010E-04	4359	1.432E-02	384925	3739119	11
131	1064	BLK57290100	2.620E-06	0	0.000E+00	4359	1.432E-02	388370	3739615	11
132	2846	BLK29470203	2.616E-06	0	0.000E+00	4359	1.432E-02	385791	3737755	11
133	1136	BLK57300401	2.598E-06	0	0.000E+00	4359	1.432E-02	388563	3739433	11
134	1424	BLK57540201	2.596E-06	0	0.000E+00	4359	1.432E-02	388602	3739278	11
135	2753	BLK29462100	2.579E-06	184	4.745E-04	4543	1.480E-02	384899	3739028	11
136	1509	BLK57550200	2.558E-06	0	0.000E+00	4543	1.480E-02	388074	3738990	11
137	2958	BLK29470601	2.555E-06	0	0.000E+00	4543	1.480E-02	384636	3738455	11
138	2619	BLK29412303	2.549E-06	0	0.000E+00	4543	1.480E-02	385241	3739663	11
139	1137	BLK57300401	2.542E-06	74	1.881E-04	4617	1.499E-02	388623	3739433	11
140	2602	BLK29412301	2.539E-06	0	0.000E+00	4617	1.499E-02	386444	3738939	11
141	1423	BLK57540201	2.528E-06	0	0.000E+00	4617	1.499E-02	388600	3739158	11
142	1425	BLK57540201	2.526E-06	0	0.000E+00	4617	1.499E-02	388673	3739327	11
143	1113	BLK57300201	2.482E-06	0	0.000E+00	4617	1.499E-02	388680	3739360	11
144	1437	BLK57540299	2.462E-06	0	0.000E+00	4617	1.499E-02	388494	3739074	11
145	2953	BLK29470600	2.453E-06	132	3.238E-04	4749	1.531E-02	384629	3738616	11
146	1112	BLK57300200	2.450E-06	209	5.120E-04	4958	1.582E-02	388698	3739437	11
147	2764	BLK29462101	2.435E-06	100	2.435E-04	5058	1.607E-02	384721	3738782	11
148	1138	BLK57300499	2.422E-06	0	0.000E+00	5058	1.607E-02	388506	3739640	11
149	1422	BLK57540201	2.401E-06	0	0.000E+00	5058	1.607E-02	388598	3739052	11
150	1135	BLK57300401	2.395E-06	75	1.797E-04	5133	1.624E-02	388590	3739622	11
151	1450	BLK57540400	2.390E-06	6	1.434E-05	5139	1.626E-02	388779	3739270	11
152	1111	BLK57300200	2.366E-06	70	1.656E-04	5209	1.642E-02	388778	3739420	11
153	2799	BLK29470100	2.364E-06	1	2.364E-06	5210	1.643E-02	386012	3738821	11
154	2978	BLK29470603	2.356E-06	0	0.000E+00	5210	1.643E-02	385202	3738156	11
155	2617	BLK29412303	2.356E-06	0	0.000E+00	5210	1.643E-02	385211	3739675	11
156	2603	BLK29412302	2.356E-06	0	0.000E+00	5210	1.643E-02	386687	3738937	11
157	1451	BLK57540400	2.354E-06	2	4.709E-06	5212	1.643E-02	388777	3739148	11
158	2957	BLK29470601	2.311E-06	79	1.826E-04	5291	1.661E-02	384532	3738445	11
159	2748	BLK29462100	2.302E-06	1	2.302E-06	5292	1.662E-02	384840	3739430	11
160	2844	BLK29470202	2.302E-06	0	0.000E+00	5292	1.662E-02	385314	3737911	11
161	1123	BLK57300300	2.300E-06	156	3.588E-04	5448	1.698E-02	388700	3739621	11
162	1110	BLK57300200	2.279E-06	179	4.080E-04	5627	1.738E-02	388861	3739419	11
163	2798	BLK29470100	2.268E-06	6	1.361E-05	5633	1.740E-02	386104	3738807	11
164	2959	BLK29470601	2.262E-06	72	1.629E-04	5705	1.756E-02	384590	3738283	11
165	2596	BLK29412301	2.260E-06	0	0.000E+00	5705	1.756E-02	386369	3739755	11
166	1077	BLK57290199	2.252E-06	0	0.000E+00	5705	1.756E-02	388458	3739740	11
167	2595	BLK29412301	2.251E-06	0	0.000E+00	5705	1.756E-02	386439	3739739	11
168	1056	BLK57280200	2.240E-06	0	0.000E+00	5705	1.756E-02	386994	3739768	11
169	1449	BLK57540400	2.235E-06	18	4.024E-05	5723	1.760E-02	388950	3739263	11
170	1122	BLK57300300	2.234E-06	63	1.407E-04	5786	1.774E-02	388780	3739620	11
171	1487	BLK57550100	2.232E-06	0	0.000E+00	5786	1.774E-02	388355	3738937	11

172	1458	BLK57540401	2.230E-06	0	0.000E+00	5786	1.774E-02	388776	3739038	11
173	1452	BLK57540400	2.200E-06	0	0.000E+00	5786	1.774E-02	388948	3739146	11
174	1109	BLK57300200	2.198E-06	107	2.352E-04	5893	1.798E-02	388968	3739417	11
175	2749	BLK29462100	2.185E-06	0	0.000E+00	5893	1.798E-02	384781	3739231	11
176	2796	BLK29470100	2.177E-06	0	0.000E+00	5893	1.798E-02	386283	3738839	11
177	1121	BLK57300300	2.168E-06	96	2.082E-04	5989	1.818E-02	388864	3739619	11
178	2797	BLK29470100	2.166E-06	0	0.000E+00	5989	1.818E-02	386200	3738790	11
179	2806	BLK29470101	2.159E-06	0	0.000E+00	5989	1.818E-02	385995	3738692	11
180	2763	BLK29462101	2.149E-06	88	1.891E-04	6077	1.837E-02	384656	3738776	11
181	1514	BLK57550200	2.147E-06	0	0.000E+00	6077	1.837E-02	387760	3738900	11
182	2795	BLK29470100	2.147E-06	0	0.000E+00	6077	1.837E-02	386352	3738844	11
183	2756	BLK29462101	2.145E-06	0	0.000E+00	6077	1.837E-02	384748	3738941	11
184	1508	BLK57550199	2.142E-06	0	0.000E+00	6077	1.837E-02	388446	3738936	11
185	1515	BLK57550200	2.137E-06	1	2.137E-06	6078	1.838E-02	387916	3738898	11
186	1108	BLK57300200	2.135E-06	0	0.000E+00	6078	1.838E-02	389032	3739448	11
187	1539	BLK57550400	2.131E-06	55	1.172E-04	6133	1.849E-02	387504	3738903	11
188	1448	BLK57540400	2.126E-06	56	1.191E-04	6189	1.861E-02	389084	3739261	11
189	2854	BLK29470300	2.125E-06	0	0.000E+00	6189	1.861E-02	384828	3738072	11
190	2963	BLK29470601	2.125E-06	0	0.000E+00	6189	1.861E-02	384655	3738147	11
191	2979	BLK29470699	2.125E-06	0	0.000E+00	6189	1.861E-02	385188	3738006	11
192	1513	BLK57550200	2.124E-06	0	0.000E+00	6189	1.861E-02	387622	3738898	11
193	1538	BLK57550400	2.117E-06	13	2.751E-05	6202	1.864E-02	387401	3738904	11
194	2616	BLK29412303	2.115E-06	90	1.904E-04	6292	1.883E-02	385059	3739547	11
195	1102	BLK57290301	2.114E-06	90	1.902E-04	6382	1.902E-02	387994	3739834	11
196	1516	BLK57550200	2.112E-06	1	2.112E-06	6383	1.902E-02	388075	3738896	11
197	1457	BLK57540401	2.111E-06	0	0.000E+00	6383	1.902E-02	388947	3739036	11
198	2960	BLK29470601	2.111E-06	109	2.300E-04	6492	1.925E-02	384470	3738274	11
199	1068	BLK57290100	2.110E-06	90	1.899E-04	6582	1.944E-02	388095	3739833	11
200	1069	BLK57290100	2.108E-06	136	2.867E-04	6718	1.973E-02	388202	3739832	11
201	1101	BLK57290301	2.107E-06	89	1.875E-04	6807	1.992E-02	387896	3739835	11
202	1100	BLK57290300	2.106E-06	103	2.169E-04	6910	2.013E-02	387809	3739836	11
203	1537	BLK57550400	2.100E-06	0	0.000E+00	6910	2.013E-02	387297	3738905	11
204	1491	BLK57550100	2.099E-06	0	0.000E+00	6910	2.013E-02	388191	3738895	11
205	1107	BLK57300200	2.099E-06	131	2.749E-04	7041	2.041E-02	389095	3739409	11
206	1453	BLK57540400	2.097E-06	27	5.662E-05	7068	2.046E-02	389083	3739145	11
207	1120	BLK57300300	2.094E-06	170	3.561E-04	7238	2.082E-02	388968	3739612	11
208	1421	BLK57540200	2.091E-06	0	0.000E+00	7238	2.082E-02	388596	3738928	11
209	2755	BLK29462101	2.087E-06	65	1.357E-04	7303	2.096E-02	384758	3739152	11
210	1099	BLK57290300	2.087E-06	83	1.732E-04	7386	2.113E-02	387739	3739837	11
211	2956	BLK29470601	2.086E-06	10	2.086E-05	7396	2.115E-02	384444	3738440	11
212	2962	BLK29470601	2.080E-06	1	2.080E-06	7397	2.115E-02	384585	3738162	11
213	2794	BLK29470100	2.080E-06	0	0.000E+00	7397	2.115E-02	386500	3738842	11
214	1544	BLK57550500	2.078E-06	1	2.078E-06	7398	2.115E-02	387119	3738907	11
215	1097	BLK57290300	2.070E-06	101	2.091E-04	7499	2.136E-02	387600	3739833	11
216	2954	BLK29470601	2.065E-06	136	2.808E-04	7635	2.164E-02	384524	3738606	11
217	1098	BLK57290300	2.062E-06	142	2.928E-04	7777	2.194E-02	387669	3739838	11
218	1447	BLK57540400	2.061E-06	87	1.793E-04	7864	2.212E-02	389163	3739210	11
219	1106	BLK57300200	2.054E-06	69	1.417E-04	7933	2.226E-02	389165	3739408	11
220	1119	BLK57300300	2.048E-06	0	0.000E+00	7933	2.226E-02	389032	3739611	11
221	2606	BLK29412302	2.047E-06	0	0.000E+00	7933	2.226E-02	385392	3740123	11
222	2754	BLK29462100	2.043E-06	73	1.492E-04	8006	2.241E-02	384732	3739045	11
223	2828	BLK29470201	2.032E-06	0	0.000E+00	8006	2.241E-02	385999	3738599	11
224	2762	BLK29462101	2.022E-06	99	2.002E-04	8105	2.261E-02	384597	3738738	11
225	1456	BLK57540401	2.014E-06	0	0.000E+00	8105	2.261E-02	389081	3739034	11
226	1442	BLK57540300	2.013E-06	2	4.025E-06	8107	2.261E-02	388775	3738926	11
227	1118	BLK57300300	2.012E-06	220	4.427E-04	8327	2.305E-02	389097	3739610	11
228	1105	BLK57300200	2.006E-06	333	6.679E-04	8660	2.372E-02	389243	3739409	11
229	1446	BLK57540400	2.005E-06	335	6.716E-04	8995	2.439E-02	389241	3739209	11
230	1134	BLK57300401	1.996E-06	60	1.197E-04	9055	2.451E-02	388593	3739827	11
231	2855	BLK29470300	1.988E-06	0	0.000E+00	9055	2.451E-02	385029	3738010	11

232	2768	BLK29462200	1.972E-06	31	6.114E-05	9086	2.457E-02	384725	3739446	11
233	2845	BLK29470203	1.970E-06	0	0.000E+00	9086	2.457E-02	385170	3737894	11
234	1117	BLK57300300	1.965E-06	74	1.454E-04	9160	2.472E-02	389167	3739610	11
235	2836	BLK29470202	1.962E-06	0	0.000E+00	9160	2.472E-02	386006	3738521	11
236	2811	BLK29470102	1.945E-06	0	0.000E+00	9160	2.472E-02	386282	3738745	11
237	1133	BLK57300400	1.945E-06	88	1.711E-04	9248	2.489E-02	388702	3739826	11
238	1454	BLK57540400	1.942E-06	172	3.341E-04	9420	2.523E-02	389160	3739011	11
239	2930	BLK29470501	1.929E-06	78	1.504E-04	9498	2.538E-02	384347	3738264	11
240	1116	BLK57300300	1.927E-06	444	8.556E-04	9942	2.623E-02	389246	3739609	11
241	1460	BLK57540500	1.923E-06	424	8.155E-04	10366	2.705E-02	389361	3739203	11
242	1104	BLK57300200	1.917E-06	528	1.012E-03	10894	2.806E-02	389363	3739408	11
243	1132	BLK57300400	1.913E-06	64	1.225E-04	10958	2.818E-02	388783	3739825	11
244	1441	BLK57540300	1.912E-06	0	0.000E+00	10958	2.818E-02	388946	3738919	11
245	1455	BLK57540400	1.897E-06	659	1.250E-03	11617	2.943E-02	389239	3739010	11
246	2812	BLK29470102	1.893E-06	0	0.000E+00	11617	2.943E-02	386407	3738768	11
247	2773	BLK29462200	1.891E-06	209	3.953E-04	11826	2.983E-02	384653	3739353	11
248	1131	BLK57300400	1.891E-06	101	1.910E-04	11927	3.002E-02	388866	3739818	11
249	2961	BLK29470601	1.883E-06	6	1.130E-05	11933	3.003E-02	384493	3738053	11
250	1440	BLK57540300	1.851E-06	0	0.000E+00	11933	3.003E-02	389081	3738917	11
251	2931	BLK29470501	1.850E-06	55	1.017E-04	11988	3.013E-02	384356	3738436	11
252	1115	BLK57300300	1.849E-06	583	1.078E-03	12571	3.121E-02	389366	3739607	11
253	1459	BLK57540500	1.847E-06	88	1.625E-04	12659	3.137E-02	389484	3739201	11
254	1130	BLK57300400	1.846E-06	106	1.957E-04	12765	3.157E-02	388970	3739817	11
255	1461	BLK57540500	1.838E-06	403	7.409E-04	13168	3.231E-02	389359	3739008	11
256	2807	BLK29470101	1.835E-06	0	0.000E+00	13168	3.231E-02	386095	3738680	11
257	2889	BLK29470303	1.832E-06	0	0.000E+00	13168	3.231E-02	385274	3737474	11
258	2888	BLK29470303	1.832E-06	0	0.000E+00	13168	3.231E-02	385204	3737626	11
259	1103	BLK57300200	1.830E-06	144	2.636E-04	13312	3.257E-02	389488	3739406	11
260	2932	BLK29470501	1.830E-06	5	9.151E-06	13317	3.258E-02	384356	3738103	11
261	2774	BLK29462200	1.821E-06	121	2.204E-04	13438	3.280E-02	384627	3739272	11
262	1129	BLK57300400	1.819E-06	0	0.000E+00	13438	3.280E-02	389035	3739816	11
263	2955	BLK29470601	1.816E-06	139	2.524E-04	13577	3.305E-02	384439	3738595	11
264	2964	BLK29470602	1.815E-06	7	1.271E-05	13584	3.307E-02	384473	3738000	11
265	2610	BLK29412302	1.810E-06	1	1.810E-06	13585	3.307E-02	385030	3739980	11
266	2810	BLK29470102	1.800E-06	0	0.000E+00	13585	3.307E-02	386281	3738682	11
267	1128	BLK57300400	1.799E-06	174	3.130E-04	13759	3.338E-02	389100	3739816	11
268	2618	BLK29412303	1.796E-06	0	0.000E+00	13759	3.338E-02	385106	3739652	11
269	2793	BLK29470100	1.791E-06	0	0.000E+00	13759	3.338E-02	386671	3738774	11
270	2757	BLK29462101	1.789E-06	97	1.735E-04	13856	3.355E-02	384618	3738987	11
271	2808	BLK29470101	1.779E-06	0	0.000E+00	13856	3.355E-02	386194	3738661	11
272	1469	BLK57540300	1.775E-06	393	6.975E-04	14249	3.425E-02	389605	3739150	11
273	1462	BLK57540500	1.770E-06	475	8.406E-04	14724	3.509E-02	389484	3739001	11
274	1114	BLK57300300	1.769E-06	336	5.945E-04	15060	3.569E-02	389491	3739606	11
275	2615	BLK29412303	1.765E-06	38	6.708E-05	15098	3.575E-02	384840	3739553	11
276	2777	BLK29462200	1.758E-06	91	1.600E-04	15189	3.591E-02	384601	3739190	11
277	1127	BLK57300400	1.753E-06	242	4.242E-04	15431	3.634E-02	389206	3739814	11
278	2792	BLK29470100	1.741E-06	0	0.000E+00	15431	3.634E-02	386768	3738778	11
279	1164	BLK57300400	1.735E-06	726	1.260E-03	16157	3.760E-02	389619	3739505	11
280	1420	BLK57540200	1.727E-06	0	0.000E+00	16157	3.760E-02	388594	3738812	11
281	2933	BLK29470501	1.724E-06	6	1.035E-05	16163	3.761E-02	384229	3738094	11
282	1468	BLK57540300	1.724E-06	364	6.276E-04	16527	3.824E-02	389700	3739154	11
283	2769	BLK29462200	1.723E-06	35	6.029E-05	16562	3.830E-02	384600	3739442	11
284	2761	BLK29462101	1.716E-06	126	2.162E-04	16688	3.851E-02	384529	3738783	11
285	2929	BLK29470500	1.714E-06	88	1.509E-04	16776	3.866E-02	384224	3738260	11
286	2809	BLK29470101	1.710E-06	0	0.000E+00	16776	3.866E-02	386283	3738642	11
287	1126	BLK57300400	1.709E-06	163	2.785E-04	16939	3.894E-02	389310	3739813	11
288	2579	BLK29412200	1.703E-06	63	1.073E-04	17002	3.905E-02	384719	3739529	11
289	1467	BLK57540300	1.698E-06	284	4.823E-04	17286	3.953E-02	389762	3739153	11
290	1443	BLK57540300	1.693E-06	0	0.000E+00	17286	3.953E-02	388774	3738810	11
291	2813	BLK29470102	1.676E-06	0	0.000E+00	17286	3.953E-02	386366	3738650	11

292	2827	BLK29470201	1.670E-06	0	0.000E+00	17286	3.953E-02	386097	3738598	11
293	1439	BLK57540300	1.670E-06	327	5.460E-04	17613	4.008E-02	389181	3738835	11
294	1466	BLK57540300	1.669E-06	386	6.441E-04	17999	4.072E-02	389828	3739147	11
295	1125	BLK57300400	1.668E-06	496	8.272E-04	18495	4.155E-02	389408	3739812	11
296	2791	BLK29470100	1.666E-06	3	4.999E-06	18498	4.155E-02	386837	3738761	11
297	2814	BLK29470102	1.661E-06	0	0.000E+00	18498	4.155E-02	386345	3738633	11
298	1444	BLK57540300	1.658E-06	0	0.000E+00	18498	4.155E-02	388944	3738808	11
299	1163	BLK57300400	1.658E-06	1018	1.688E-03	19516	4.324E-02	389766	3739503	11
300	1543	BLK57550500	1.653E-06	0	0.000E+00	19516	4.324E-02	387118	3738807	11
301	1517	BLK57550200	1.651E-06	0	0.000E+00	19516	4.324E-02	388074	3738796	11
302	1438	BLK57540300	1.649E-06	287	4.734E-04	19803	4.372E-02	389260	3738832	11
303	2826	BLK29470201	1.649E-06	0	0.000E+00	19803	4.372E-02	386197	3738608	11
304	1465	BLK57540300	1.643E-06	28	4.599E-05	19831	4.376E-02	389897	3739095	11
305	1470	BLK57540300	1.638E-06	599	9.814E-04	20430	4.474E-02	389598	3738900	11
306	2825	BLK29470201	1.637E-06	0	0.000E+00	20430	4.474E-02	386284	3738607	11
307	1518	BLK57550200	1.636E-06	0	0.000E+00	20430	4.474E-02	387914	3738798	11
308	2611	BLK29412302	1.635E-06	96	1.569E-04	20526	4.490E-02	384998	3739847	11
309	1124	BLK57300400	1.627E-06	203	3.302E-04	20729	4.523E-02	389507	3739811	11
310	1445	BLK57540300	1.626E-06	0	0.000E+00	20729	4.523E-02	389079	3738806	11
311	1162	BLK57300400	1.625E-06	499	8.110E-04	21228	4.604E-02	389832	3739502	11
312	2940	BLK29470502	1.621E-06	0	0.000E+00	21228	4.604E-02	384239	3737932	11
313	2824	BLK29470200	1.621E-06	0	0.000E+00	21228	4.604E-02	386360	3738617	11
314	1519	BLK57550201	1.619E-06	0	0.000E+00	21228	4.604E-02	387762	3738800	11
315	2758	BLK29462101	1.612E-06	35	5.641E-05	21263	4.610E-02	384525	3738922	11
316	1160	BLK57300300	1.608E-06	196	3.152E-04	21459	4.641E-02	389627	3739771	11
317	1471	BLK57540300	1.607E-06	548	8.807E-04	22007	4.729E-02	389723	3738899	11
318	1520	BLK57550201	1.605E-06	0	0.000E+00	22007	4.729E-02	387623	3738801	11
319	1161	BLK57300400	1.595E-06	20	3.189E-05	22027	4.732E-02	389920	3739501	11
320	2934	BLK29470501	1.586E-06	0	0.000E+00	22027	4.732E-02	384106	3738084	11
321	1472	BLK57540300	1.578E-06	355	5.604E-04	22382	4.789E-02	389812	3738898	11
322	2920	BLK29470500	1.578E-06	38	5.995E-05	22420	4.795E-02	384352	3738597	11
323	1627	BLK57560205	1.572E-06	0	0.000E+00	22420	4.795E-02	385346	3736897	11
324	2837	BLK29470202	1.571E-06	0	0.000E+00	22420	4.795E-02	386103	3738531	11
325	1402	BLK57530300	1.570E-06	94	1.476E-04	22514	4.809E-02	390084	3739255	11
326	1403	BLK57530300	1.566E-06	274	4.292E-04	22788	4.852E-02	390082	3739144	11
327	1278	BLK57320400	1.565E-06	125	1.956E-04	22913	4.872E-02	390068	3739350	11
328	1159	BLK57300300	1.557E-06	292	4.547E-04	23205	4.917E-02	389748	3739769	11
329	1473	BLK57540300	1.550E-06	0	0.000E+00	23205	4.917E-02	389895	3738897	11
330	2580	BLK29412200	1.548E-06	53	8.204E-05	23258	4.925E-02	384591	3739525	11
331	1277	BLK57320400	1.548E-06	131	2.028E-04	23389	4.946E-02	390070	3739449	11
332	1406	BLK57530300	1.546E-06	405	6.262E-04	23794	5.008E-02	390080	3739044	11
333	1464	BLK57540500	1.538E-06	1190	1.830E-03	24984	5.191E-02	389356	3738776	11
334	2770	BLK29462200	1.537E-06	27	4.149E-05	25011	5.195E-02	384484	3739433	11
335	2939	BLK29470501	1.529E-06	0	0.000E+00	25011	5.195E-02	384116	3737923	11
336	1274	BLK57320400	1.528E-06	201	3.071E-04	25212	5.226E-02	390071	3739554	11
337	1407	BLK57530300	1.528E-06	0	0.000E+00	25212	5.226E-02	389996	3738922	11
338	2823	BLK29470200	1.527E-06	8	1.222E-05	25220	5.227E-02	386399	3738575	11
339	2759	BLK29462101	1.522E-06	51	7.764E-05	25271	5.235E-02	384442	3738815	11
340	1155	BLK57300300	1.517E-06	118	1.790E-04	25389	5.253E-02	389628	3739876	11
341	1463	BLK57540500	1.514E-06	136	2.059E-04	25525	5.274E-02	389481	3738774	11
342	2928	BLK29470500	1.508E-06	0	0.000E+00	25525	5.274E-02	384102	3738245	11
343	2921	BLK29470500	1.508E-06	54	8.142E-05	25579	5.282E-02	384260	3738498	11
344	2839	BLK29470202	1.506E-06	11	1.656E-05	25590	5.283E-02	386288	3738540	11
345	1408	BLK57530300	1.503E-06	93	1.398E-04	25683	5.297E-02	390044	3738912	11
346	1158	BLK57300300	1.501E-06	196	2.941E-04	25879	5.327E-02	389882	3739773	11
347	1273	BLK57320400	1.500E-06	186	2.791E-04	26065	5.355E-02	390070	3739649	11
348	2941	BLK29470502	1.488E-06	0	0.000E+00	26065	5.355E-02	384199	3737798	11
349	1401	BLK57530300	1.487E-06	168	2.498E-04	26233	5.380E-02	390274	3739247	11
350	1279	BLK57320400	1.486E-06	130	1.932E-04	26363	5.399E-02	390259	3739347	11
351	2838	BLK29470202	1.485E-06	0	0.000E+00	26363	5.399E-02	386200	3738530	11

352	1404	BLK57530300	1.484E-06	212	3.146E-04	26575	5.431E-02	390273	3739142	11
353	1156	BLK57300300	1.477E-06	102	1.507E-04	26677	5.446E-02	389749	3739874	11
354	2780	BLK29462201	1.475E-06	118	1.740E-04	26795	5.463E-02	384436	3738928	11
355	1409	BLK57530300	1.473E-06	428	6.306E-04	27223	5.526E-02	390126	3738911	11
356	1405	BLK57530300	1.468E-06	204	2.994E-04	27427	5.556E-02	390272	3739042	11
357	1276	BLK57320400	1.467E-06	174	2.553E-04	27601	5.582E-02	390260	3739447	11
358	2818	BLK29470200	1.457E-06	0	0.000E+00	27601	5.582E-02	386649	3738635	11
359	2775	BLK29462200	1.456E-06	305	4.442E-04	27906	5.626E-02	384413	3739239	11
360	2772	BLK29462200	1.455E-06	216	3.144E-04	28122	5.657E-02	384409	3739345	11
361	2938	BLK29470501	1.454E-06	0	0.000E+00	28122	5.657E-02	384000	3737913	11
362	1275	BLK57320400	1.444E-06	255	3.682E-04	28377	5.694E-02	390261	3739553	11
363	1157	BLK57300300	1.443E-06	171	2.468E-04	28548	5.719E-02	389885	3739873	11
364	2776	BLK29462200	1.443E-06	126	1.818E-04	28674	5.737E-02	384416	3739145	11
365	2935	BLK29470501	1.439E-06	0	0.000E+00	28674	5.737E-02	383992	3738076	11
366	2790	BLK29470100	1.433E-06	0	0.000E+00	28674	5.737E-02	386912	3738669	11
367	2778	BLK29462201	1.430E-06	173	2.474E-04	28847	5.762E-02	384419	3739039	11
368	1410	BLK57530300	1.426E-06	0	0.000E+00	28847	5.762E-02	390270	3738915	11
369	2819	BLK29470200	1.424E-06	0	0.000E+00	28847	5.762E-02	386616	3738604	11
370	1272	BLK57320400	1.420E-06	212	3.011E-04	29059	5.792E-02	390260	3739647	11
371	1288	BLK57320500	1.417E-06	273	3.869E-04	29332	5.831E-02	390081	3739826	11
372	1280	BLK57320401	1.415E-06	118	1.669E-04	29450	5.847E-02	390410	3739396	11
373	1505	BLK57550101	1.411E-06	0	0.000E+00	29450	5.847E-02	388217	3738727	11
374	2581	BLK29412200	1.409E-06	8	1.128E-05	29458	5.848E-02	384478	3739521	11
375	2856	BLK29470300	1.405E-06	21	2.951E-05	29479	5.851E-02	384365	3737560	11
376	1415	BLK57540200	1.401E-06	101	1.415E-04	29580	5.866E-02	389217	3738699	11
377	1477	BLK57540400	1.398E-06	303	4.236E-04	29883	5.908E-02	389601	3738717	11
378	2614	BLK29412303	1.392E-06	102	1.420E-04	29985	5.922E-02	384859	3739646	11
379	2942	BLK29470502	1.388E-06	0	0.000E+00	29985	5.922E-02	384010	3737763	11
380	1418	BLK57540200	1.387E-06	0	0.000E+00	29985	5.922E-02	388772	3738705	11
381	2866	BLK29470301	1.385E-06	0	0.000E+00	29985	5.922E-02	384199	3737639	11
382	1417	BLK57540200	1.384E-06	1	1.384E-06	29986	5.922E-02	388943	3738703	11
383	1289	BLK57320500	1.382E-06	181	2.501E-04	30167	5.947E-02	390216	3739803	11
384	1144	BLK57300500	1.381E-06	0	0.000E+00	30167	5.947E-02	389037	3740021	11
385	1143	BLK57300500	1.381E-06	162	2.238E-04	30329	5.970E-02	389102	3740021	11
386	1416	BLK57540200	1.381E-06	72	9.943E-05	30401	5.980E-02	389077	3738701	11
387	1145	BLK57300500	1.380E-06	114	1.573E-04	30515	5.995E-02	388973	3740022	11
388	2822	BLK29470200	1.380E-06	0	0.000E+00	30515	5.995E-02	386497	3738525	11
389	2608	BLK29412302	1.379E-06	0	0.000E+00	30515	5.995E-02	384962	3740166	11
390	1281	BLK57320401	1.378E-06	183	2.522E-04	30698	6.021E-02	390507	3739394	11
391	1142	BLK57300500	1.378E-06	163	2.246E-04	30861	6.043E-02	389209	3740019	11
392	2865	BLK29470301	1.378E-06	0	0.000E+00	30861	6.043E-02	384140	3737671	11
393	1386	BLK57530100	1.378E-06	374	5.152E-04	31235	6.095E-02	390555	3739189	11
394	1476	BLK57540400	1.376E-06	262	3.605E-04	31497	6.131E-02	389721	3738716	11
395	1271	BLK57320400	1.376E-06	120	1.651E-04	31617	6.147E-02	390412	3739595	11
396	1146	BLK57300500	1.374E-06	77	1.058E-04	31694	6.158E-02	388866	3740023	11
397	1141	BLK57300500	1.372E-06	257	3.525E-04	31951	6.193E-02	389312	3740018	11
398	2760	BLK29462101	1.369E-06	150	2.053E-04	32101	6.213E-02	384340	3738763	11
399	1147	BLK57300500	1.366E-06	69	9.424E-05	32170	6.223E-02	388783	3740024	11
400	1140	BLK57300500	1.362E-06	234	3.188E-04	32404	6.255E-02	389410	3740017	11
401	2771	BLK29462200	1.362E-06	33	4.493E-05	32437	6.259E-02	384349	3739428	11
402	1475	BLK57540400	1.359E-06	214	2.908E-04	32651	6.288E-02	389837	3738715	11
403	1396	BLK57530200	1.356E-06	28	3.796E-05	32679	6.292E-02	389993	3738735	11
404	1148	BLK57300500	1.356E-06	79	1.071E-04	32758	6.303E-02	388704	3740025	11
405	1139	BLK57300500	1.351E-06	157	2.122E-04	32915	6.324E-02	389510	3740016	11
406	2937	BLK29470501	1.350E-06	0	0.000E+00	32915	6.324E-02	383880	3737906	11
407	1290	BLK57320500	1.349E-06	117	1.578E-04	33032	6.340E-02	390315	3739801	11
408	1387	BLK57530100	1.347E-06	0	0.000E+00	33032	6.340E-02	390553	3738967	11
409	1411	BLK57530301	1.345E-06	211	2.837E-04	33243	6.368E-02	390269	3738787	11
410	1395	BLK57530200	1.344E-06	305	4.099E-04	33548	6.409E-02	390044	3738734	11
411	1474	BLK57540400	1.342E-06	0	0.000E+00	33548	6.409E-02	389920	3738714	11

412	1267	BLK57320300	1.342E-06	311	4.173E-04	33859	6.451E-02	390609	3739393	11
413	1270	BLK57320400	1.342E-06	224	3.005E-04	34083	6.481E-02	390509	3739594	11
414	1149	BLK57300501	1.336E-06	38	5.079E-05	34121	6.486E-02	388597	3740027	11
415	1154	BLK57300300	1.336E-06	156	2.085E-04	34277	6.507E-02	389623	3740015	11
416	2779	BLK29462201	1.336E-06	96	1.283E-04	34373	6.520E-02	384339	3738924	11
417	1394	BLK57530200	1.326E-06	503	6.670E-04	34876	6.586E-02	390126	3738733	11
418	2820	BLK29470200	1.323E-06	0	0.000E+00	34876	6.586E-02	386715	3738578	11
419	2943	BLK29470502	1.321E-06	0	0.000E+00	34876	6.586E-02	383889	3737748	11
420	2578	BLK29412200	1.318E-06	259	3.413E-04	35135	6.621E-02	384653	3739619	11
421	1419	BLK57540200	1.314E-06	0	0.000E+00	35135	6.621E-02	388592	3738681	11
422	1152	BLK57300300	1.313E-06	256	3.362E-04	35391	6.654E-02	389815	3740012	11
423	1291	BLK57320500	1.313E-06	99	1.300E-04	35490	6.667E-02	390412	3739800	11
424	1269	BLK57320300	1.312E-06	14	1.837E-05	35504	6.669E-02	390710	3739342	11
425	1151	BLK57300300	1.306E-06	221	2.886E-04	35725	6.698E-02	389919	3740011	11
426	1150	BLK57300599	1.303E-06	0	0.000E+00	35725	6.698E-02	388517	3740028	11
427	1266	BLK57320300	1.303E-06	177	2.306E-04	35902	6.721E-02	390611	3739593	11
428	2817	BLK29470200	1.299E-06	0	0.000E+00	35902	6.721E-02	386776	3738573	11
429	1268	BLK57320300	1.296E-06	71	9.202E-05	35973	6.730E-02	390712	3739442	11
430	1521	BLK57550300	1.287E-06	1	1.287E-06	35974	6.730E-02	388073	3738696	11
431	1524	BLK57550300	1.287E-06	11	1.415E-05	35985	6.732E-02	387621	3738702	11
432	2864	BLK29470301	1.285E-06	0	0.000E+00	35985	6.732E-02	384016	3737597	11
433	1287	BLK57320500	1.285E-06	325	4.176E-04	36310	6.773E-02	390029	3740010	11
434	1347	BLK57520300	1.284E-06	111	1.425E-04	36421	6.788E-02	390805	3739186	11
435	2816	BLK29470200	1.284E-06	0	0.000E+00	36421	6.788E-02	386845	3738572	11
436	1292	BLK57320501	1.282E-06	144	1.846E-04	36565	6.806E-02	390512	3739799	11
437	2852	BLK29470203	1.282E-06	0	0.000E+00	36565	6.806E-02	386631	3738512	11
438	2609	BLK29412302	1.280E-06	0	0.000E+00	36565	6.806E-02	384858	3739943	11
439	1323	BLK57330201	1.280E-06	8	1.024E-05	36573	6.807E-02	390775	3739408	11
440	2582	BLK29412200	1.279E-06	109	1.395E-04	36682	6.821E-02	384348	3739517	11
441	1522	BLK57550300	1.278E-06	0	0.000E+00	36682	6.821E-02	387913	3738698	11
442	1523	BLK57550300	1.276E-06	0	0.000E+00	36682	6.821E-02	387761	3738700	11
443	2936	BLK29470501	1.276E-06	0	0.000E+00	36682	6.821E-02	383871	3738071	11
444	1153	BLK57300300	1.272E-06	209	2.659E-04	36891	6.848E-02	389723	3740047	11
445	2927	BLK29470500	1.271E-06	0	0.000E+00	36891	6.848E-02	383970	3738242	11
446	1265	BLK57320300	1.270E-06	145	1.842E-04	37036	6.866E-02	390713	3739592	11
447	1054	BLK57280200	1.270E-06	0	0.000E+00	37036	6.866E-02	387044	3739912	11
448	1527	BLK57550300	1.268E-06	3	3.804E-06	37039	6.866E-02	387294	3738650	11
449	1286	BLK57320500	1.268E-06	285	3.613E-04	37324	6.903E-02	390116	3740009	11
450	1322	BLK57330201	1.268E-06	69	8.747E-05	37393	6.911E-02	390813	3739407	11
451	1388	BLK57530100	1.267E-06	395	5.004E-04	37788	6.961E-02	390551	3738784	11
452	1320	BLK57330201	1.259E-06	113	1.423E-04	37901	6.976E-02	390862	3739342	11
453	2851	BLK29470203	1.253E-06	0	0.000E+00	37901	6.976E-02	386608	3738470	11
454	1346	BLK57520300	1.253E-06	148	1.855E-04	38049	6.994E-02	390903	3739185	11
455	1263	BLK57320300	1.252E-06	243	3.042E-04	38292	7.025E-02	390613	3739798	11
456	1318	BLK57330201	1.250E-06	140	1.750E-04	38432	7.042E-02	390814	3739524	11
457	1285	BLK57320500	1.247E-06	226	2.819E-04	38658	7.070E-02	390218	3740008	11
458	2863	BLK29470300	1.246E-06	3	3.739E-06	38661	7.071E-02	383892	3737593	11
459	2915	BLK29470402	1.246E-06	8	9.965E-06	38669	7.072E-02	383762	3737744	11
460	2870	BLK29470301	1.244E-06	0	0.000E+00	38669	7.072E-02	384010	3737525	11
461	2922	BLK29470500	1.243E-06	104	1.293E-04	38773	7.085E-02	384154	3738535	11
462	1526	BLK57550300	1.242E-06	0	0.000E+00	38773	7.085E-02	387400	3738649	11
463	2784	BLK29462300	1.242E-06	51	6.333E-05	38824	7.091E-02	384263	3738920	11
464	2815	BLK29470200	1.242E-06	0	0.000E+00	38824	7.091E-02	386960	3738560	11
465	2821	BLK29470200	1.241E-06	0	0.000E+00	38824	7.091E-02	386731	3738522	11
466	2847	BLK29470203	1.238E-06	0	0.000E+00	38824	7.091E-02	386501	3738410	11
467	1413	BLK57540200	1.238E-06	0	0.000E+00	38824	7.091E-02	389354	3738626	11
468	1065	BLK57290100	1.237E-06	75	9.279E-05	38899	7.100E-02	388301	3740036	11
469	1414	BLK57540200	1.236E-06	0	0.000E+00	38899	7.100E-02	389216	3738628	11
470	1412	BLK57540200	1.236E-06	0	0.000E+00	38899	7.100E-02	389477	3738625	11
471	1393	BLK57530200	1.235E-06	276	3.409E-04	39175	7.134E-02	390268	3738676	11

472	1542	BLK57550500	1.235E-06	0	0.000E+00	39175	7.134E-02	387066	3738573	11
473	1348	BLK57520300	1.233E-06	386	4.758E-04	39561	7.182E-02	390950	3739029	11
474	2613	BLK29412303	1.229E-06	175	2.151E-04	39736	7.203E-02	384885	3739745	11
475	2914	BLK29470402	1.229E-06	3	3.686E-06	39739	7.204E-02	383752	3737905	11
476	1478	BLK57540400	1.226E-06	0	0.000E+00	39739	7.204E-02	389598	3738623	11
477	1264	BLK57320300	1.224E-06	213	2.606E-04	39952	7.230E-02	390716	3739792	11
478	1284	BLK57320500	1.223E-06	203	2.483E-04	40155	7.255E-02	390315	3740007	11
479	1345	BLK57520300	1.223E-06	402	4.915E-04	40557	7.304E-02	391005	3739184	11
480	1479	BLK57540400	1.221E-06	0	0.000E+00	40557	7.304E-02	389720	3738622	11
481	1319	BLK57330201	1.219E-06	136	1.658E-04	40693	7.320E-02	390916	3739523	11
482	2853	BLK29470203	1.215E-06	0	0.000E+00	40693	7.320E-02	386748	3738506	11
483	1317	BLK57330200	1.213E-06	163	1.977E-04	40856	7.340E-02	390862	3739651	11
484	1351	BLK57520300	1.211E-06	286	3.464E-04	41142	7.375E-02	390929	3738894	11
485	1480	BLK57540400	1.211E-06	0	0.000E+00	41142	7.375E-02	389836	3738620	11
486	1525	BLK57550300	1.211E-06	1	1.211E-06	41143	7.375E-02	387501	3738648	11
487	1321	BLK57330201	1.211E-06	74	8.959E-05	41217	7.384E-02	391014	3739367	11
488	1429	BLK57540201	1.210E-06	0	0.000E+00	41217	7.384E-02	389077	3738629	11
489	1283	BLK57320500	1.203E-06	70	8.423E-05	41287	7.392E-02	390412	3740006	11
490	1481	BLK57540400	1.203E-06	0	0.000E+00	41287	7.392E-02	389919	3738619	11
491	1428	BLK57540201	1.201E-06	0	0.000E+00	41287	7.392E-02	388942	3738631	11
492	1630	BLK57560300	1.198E-06	33	3.954E-05	41320	7.396E-02	385306	3736208	11
493	1357	BLK57520400	1.198E-06	144	1.725E-04	41464	7.413E-02	390861	3738803	11
494	1303	BLK57330101	1.196E-06	193	2.309E-04	41657	7.437E-02	390812	3739791	11
495	2862	BLK29470300	1.196E-06	0	0.000E+00	41657	7.437E-02	383769	3737578	11
496	1066	BLK57290100	1.195E-06	127	1.518E-04	41784	7.452E-02	388202	3740037	11
497	2867	BLK29470301	1.192E-06	0	0.000E+00	41784	7.452E-02	383953	3737459	11
498	1344	BLK57520300	1.192E-06	182	2.169E-04	41966	7.473E-02	391111	3739182	11
499	2887	BLK29470303	1.188E-06	0	0.000E+00	41966	7.473E-02	384817	3737306	11
500	1055	BLK57280200	1.188E-06	0	0.000E+00	41966	7.473E-02	386832	3739951	11
501	2787	BLK29462300	1.187E-06	303	3.596E-04	42269	7.509E-02	384195	3738748	11
502	1282	BLK57320500	1.182E-06	147	1.738E-04	42416	7.527E-02	390514	3740004	11
503	1314	BLK57330200	1.179E-06	139	1.639E-04	42555	7.543E-02	391113	3739365	11
504	2869	BLK29470301	1.178E-06	0	0.000E+00	42555	7.543E-02	383889	3737473	11
505	1356	BLK57520400	1.176E-06	100	1.176E-04	42655	7.555E-02	390952	3738802	11
506	2785	BLK29462300	1.175E-06	48	5.642E-05	42703	7.561E-02	384202	3738914	11
507	2612	BLK29412302	1.175E-06	140	1.645E-04	42843	7.577E-02	384861	3739821	11
508	1315	BLK57330200	1.174E-06	0	0.000E+00	42843	7.577E-02	391064	3739521	11
509	2849	BLK29470203	1.172E-06	0	0.000E+00	42843	7.577E-02	386879	3738500	11
510	1349	BLK57520300	1.169E-06	4	4.675E-06	42847	7.577E-02	391147	3738984	11
511	1304	BLK57330101	1.168E-06	184	2.148E-04	43031	7.599E-02	390914	3739795	11
512	2916	BLK29470402	1.167E-06	0	0.000E+00	43031	7.599E-02	383642	3737740	11
513	1338	BLK57520200	1.166E-06	0	0.000E+00	43031	7.599E-02	391186	3739252	11
514	1355	BLK57520400	1.164E-06	121	1.409E-04	43152	7.613E-02	391042	3738827	11
515	1350	BLK57520300	1.162E-06	0	0.000E+00	43152	7.613E-02	391136	3738910	11
516	1262	BLK57320300	1.161E-06	174	2.020E-04	43326	7.633E-02	390616	3740003	11
517	2923	BLK29470500	1.157E-06	93	1.076E-04	43419	7.644E-02	384066	3738484	11
518	2783	BLK29462300	1.154E-06	163	1.881E-04	43582	7.663E-02	384180	3739028	11
519	1643	BLK57560399	1.154E-06	0	0.000E+00	43582	7.663E-02	385079	3736633	11
520	2577	BLK29412200	1.153E-06	258	2.975E-04	43840	7.693E-02	384397	3739607	11
521	1316	BLK57330200	1.153E-06	32	3.689E-05	43872	7.696E-02	391065	3739649	11
522	1067	BLK57290100	1.152E-06	104	1.198E-04	43976	7.708E-02	388096	3740038	11
523	2848	BLK29470203	1.151E-06	0	0.000E+00	43976	7.708E-02	386815	3738470	11
524	2871	BLK29470301	1.149E-06	0	0.000E+00	43976	7.708E-02	383653	3737580	11
525	2781	BLK29462300	1.149E-06	112	1.287E-04	44088	7.721E-02	384153	3739222	11
526	1339	BLK57520200	1.146E-06	197	2.257E-04	44285	7.744E-02	391265	3739125	11
527	1637	BLK57560300	1.144E-06	0	0.000E+00	44285	7.744E-02	385748	3735966	11
528	1340	BLK57520200	1.144E-06	263	3.010E-04	44548	7.774E-02	391257	3739020	11
529	1504	BLK57550101	1.142E-06	0	0.000E+00	44548	7.774E-02	388167	3738636	11
530	1337	BLK57520200	1.142E-06	34	3.881E-05	44582	7.778E-02	391281	3739230	11
531	1261	BLK57320300	1.140E-06	220	2.507E-04	44802	7.803E-02	390718	3740002	11

532	2926	BLK29470500	1.138E-06	0	0.000E+00	44802	7.803E-02	383863	3738209	11
533	2510	BLK57340401	1.137E-06	194	2.205E-04	44996	7.825E-02	391737	3739946	11
534	1305	BLK57330101	1.136E-06	210	2.386E-04	45206	7.849E-02	391017	3739799	11
535	1392	BLK57530200	1.136E-06	0	0.000E+00	45206	7.849E-02	390396	3738608	11
536	1633	BLK57560300	1.135E-06	0	0.000E+00	45206	7.849E-02	385238	3736152	11
537	1641	BLK57560301	1.133E-06	0	0.000E+00	45206	7.849E-02	385895	3736099	11
538	1398	BLK57530200	1.132E-06	122	1.381E-04	45328	7.862E-02	390044	3738579	11
539	1343	BLK57520200	1.132E-06	229	2.592E-04	45557	7.888E-02	391256	3738926	11
540	1302	BLK57330100	1.131E-06	215	2.432E-04	45772	7.913E-02	390865	3739950	11
541	2861	BLK29470300	1.127E-06	0	0.000E+00	45772	7.913E-02	383775	3737423	11
542	2517	BLK57340500	1.124E-06	132	1.483E-04	45904	7.928E-02	392019	3739782	11
543	1391	BLK57530200	1.123E-06	176	1.976E-04	46080	7.947E-02	390498	3738607	11
544	1629	BLK57560300	1.121E-06	0	0.000E+00	46080	7.947E-02	386046	3736419	11
545	1507	BLK57550102	1.114E-06	0	0.000E+00	46080	7.947E-02	388227	3738622	11
546	1306	BLK57330101	1.113E-06	217	2.416E-04	46297	7.971E-02	391118	3739787	11
547	1528	BLK57550300	1.112E-06	0	0.000E+00	46297	7.971E-02	387618	3738596	11
548	2903	BLK29470401	1.112E-06	0	0.000E+00	46297	7.971E-02	383745	3738066	11
549	2868	BLK29470301	1.110E-06	0	0.000E+00	46297	7.971E-02	383816	3737372	11
550	1353	BLK57520400	1.110E-06	270	2.997E-04	46567	8.001E-02	391203	3738776	11
551	1312	BLK57330200	1.109E-06	0	0.000E+00	46567	8.001E-02	391359	3739407	11
552	1361	BLK57520400	1.109E-06	239	2.651E-04	46806	8.028E-02	390981	3738685	11
553	1390	BLK57530100	1.109E-06	166	1.840E-04	46972	8.046E-02	390602	3738606	11
554	1091	BLK57290300	1.108E-06	98	1.086E-04	47070	8.057E-02	387994	3740039	11
555	2607	BLK29412302	1.108E-06	0	0.000E+00	47070	8.057E-02	385214	3740438	11
556	2516	BLK57340500	1.107E-06	62	6.864E-05	47132	8.064E-02	392125	3739781	11
557	2509	BLK57340400	1.107E-06	25	2.767E-05	47157	8.067E-02	391883	3739989	11
558	2786	BLK29462300	1.107E-06	44	4.869E-05	47201	8.072E-02	384130	3738904	11
559	2493	BLK57340302	1.106E-06	2	2.212E-06	47203	8.072E-02	391373	3740194	11
560	1636	BLK57560300	1.105E-06	0	0.000E+00	47203	8.072E-02	385374	3735843	11
561	1397	BLK57530200	1.102E-06	6	6.614E-06	47209	8.073E-02	389992	3738558	11
562	2913	BLK29470402	1.099E-06	3	3.298E-06	47212	8.073E-02	383630	3737896	11
563	1336	BLK57520200	1.097E-06	154	1.690E-04	47366	8.090E-02	391458	3739178	11
564	1389	BLK57530100	1.097E-06	205	2.249E-04	47571	8.112E-02	390699	3738610	11
565	1399	BLK57530200	1.094E-06	124	1.357E-04	47695	8.126E-02	390125	3738556	11
566	1436	BLK57540202	1.094E-06	314	3.435E-04	48009	8.160E-02	389504	3738552	11
567	1486	BLK57540401	1.094E-06	13	1.422E-05	48022	8.162E-02	389565	3738551	11
568	1485	BLK57540401	1.094E-06	0	0.000E+00	48022	8.162E-02	389623	3738551	11
569	1484	BLK57540401	1.093E-06	9	9.836E-06	48031	8.163E-02	389719	3738549	11
570	2878	BLK29470302	1.092E-06	0	0.000E+00	48031	8.163E-02	383663	3737413	11
571	1483	BLK57540400	1.092E-06	0	0.000E+00	48031	8.163E-02	389835	3738548	11
572	1434	BLK57540202	1.092E-06	81	8.841E-05	48112	8.171E-02	389379	3738553	11
573	1341	BLK57520200	1.091E-06	229	2.499E-04	48341	8.196E-02	391461	3739023	11
574	1435	BLK57540202	1.090E-06	58	6.323E-05	48399	8.203E-02	389442	3738553	11
575	2872	BLK29470301	1.090E-06	0	0.000E+00	48399	8.203E-02	383537	3737570	11
576	1506	BLK57550101	1.089E-06	0	0.000E+00	48399	8.203E-02	388320	3738603	11
577	1301	BLK57330100	1.088E-06	264	2.873E-04	48663	8.231E-02	391069	3739943	11
578	1482	BLK57540400	1.088E-06	0	0.000E+00	48663	8.231E-02	389919	3738547	11
579	1352	BLK57520400	1.087E-06	268	2.914E-04	48931	8.261E-02	391301	3738775	11
580	1433	BLK57540202	1.086E-06	85	9.231E-05	49016	8.270E-02	389319	3738554	11
581	1359	BLK57520400	1.085E-06	176	1.910E-04	49192	8.289E-02	390780	3738610	11
582	2508	BLK57340400	1.084E-06	0	0.000E+00	49192	8.289E-02	391910	3740075	11
583	1342	BLK57520200	1.084E-06	242	2.624E-04	49434	8.315E-02	391455	3738923	11
584	1400	BLK57530200	1.084E-06	212	2.298E-04	49646	8.338E-02	390266	3738555	11
585	1299	BLK57330100	1.083E-06	222	2.404E-04	49868	8.362E-02	390866	3740050	11
586	1311	BLK57330200	1.081E-06	0	0.000E+00	49868	8.362E-02	391329	3739664	11
587	1558	BLK57560100	1.079E-06	0	0.000E+00	49868	8.362E-02	387289	3738491	11
588	1432	BLK57540202	1.078E-06	70	7.548E-05	49938	8.370E-02	389215	3738555	11
589	1559	BLK57560100	1.076E-06	0	0.000E+00	49938	8.370E-02	387079	3738450	11
590	2917	BLK29470402	1.073E-06	0	0.000E+00	49938	8.370E-02	383526	3737730	11
591	1529	BLK57550300	1.073E-06	0	0.000E+00	49938	8.370E-02	387756	3738589	11

592	1358	BLK57520400	1.070E-06	321	3.433E-04	50259	8.404E-02	390859	3738603	11
593	1427	BLK57540201	1.069E-06	0	0.000E+00	50259	8.404E-02	388771	3738583	11
594	1092	BLK57290300	1.066E-06	81	8.636E-05	50340	8.413E-02	387896	3740040	11
595	2714	BLK29461100	1.065E-06	0	0.000E+00	50340	8.413E-02	384054	3739360	11
596	1376	BLK57520400	1.065E-06	268	2.854E-04	50608	8.441E-02	391403	3738774	11
597	1430	BLK57540201	1.065E-06	0	0.000E+00	50608	8.441E-02	389076	3738563	11
598	1426	BLK57540201	1.063E-06	0	0.000E+00	50608	8.441E-02	388627	3738585	11
599	1050	BLK57280100	1.063E-06	60	6.380E-05	50668	8.448E-02	387393	3739991	11
600	2789	BLK29462300	1.062E-06	0	0.000E+00	50668	8.448E-02	384053	3738683	11
601	2860	BLK29470300	1.062E-06	0	0.000E+00	50668	8.448E-02	383673	3737334	11
602	1307	BLK57330101	1.061E-06	444	4.713E-04	51112	8.495E-02	391345	3739773	11
603	498	BLK54390801	1.060E-06	0	0.000E+00	51112	8.495E-02	385960	3740518	11
604	1368	BLK57520300	1.058E-06	245	2.593E-04	51357	8.521E-02	391611	3739177	11
605	1369	BLK57520300	1.058E-06	139	1.471E-04	51496	8.535E-02	391611	3739055	11
606	1313	BLK57330200	1.058E-06	3	3.174E-06	51499	8.536E-02	391518	3739499	11
607	2877	BLK29470302	1.057E-06	0	0.000E+00	51499	8.536E-02	383550	3737409	11
608	1372	BLK57520300	1.054E-06	68	7.169E-05	51567	8.543E-02	391611	3738993	11
609	1293	BLK57330100	1.054E-06	344	3.626E-04	51911	8.579E-02	391319	3739845	11
610	1647	BLK57560900	1.052E-06	0	0.000E+00	51911	8.579E-02	385854	3735771	11
611	2575	BLK29412200	1.052E-06	195	2.050E-04	52106	8.600E-02	384649	3739715	11
612	1632	BLK57560300	1.050E-06	0	0.000E+00	52106	8.600E-02	385105	3736190	11
613	2788	BLK29462300	1.050E-06	0	0.000E+00	52106	8.600E-02	384055	3738794	11
614	1373	BLK57520300	1.049E-06	100	1.049E-04	52206	8.610E-02	391608	3738916	11
615	1431	BLK57540201	1.049E-06	0	0.000E+00	52206	8.610E-02	388942	3738564	11
616	1300	BLK57330100	1.049E-06	159	1.668E-04	52365	8.627E-02	391070	3740042	11
617	1530	BLK57550300	1.047E-06	0	0.000E+00	52365	8.627E-02	387912	3738587	11
618	1375	BLK57520400	1.044E-06	307	3.204E-04	52672	8.659E-02	391507	3738773	11
619	1294	BLK57330100	1.041E-06	38	3.954E-05	52710	8.663E-02	391238	3739972	11
620	1360	BLK57520400	1.039E-06	229	2.380E-04	52939	8.687E-02	390967	3738583	11
621	2859	BLK29470300	1.039E-06	0	0.000E+00	52939	8.687E-02	383658	3737285	11
622	1634	BLK57560300	1.039E-06	0	0.000E+00	52939	8.687E-02	385181	3735960	11
623	1367	BLK57520300	1.038E-06	409	4.245E-04	53348	8.729E-02	391713	3739170	11
624	1362	BLK57520401	1.034E-06	157	1.623E-04	53505	8.745E-02	391202	3738621	11
625	2782	BLK29462300	1.033E-06	29	2.997E-05	53534	8.748E-02	384048	3738955	11
626	1370	BLK57520300	1.033E-06	348	3.593E-04	53882	8.784E-02	391711	3738965	11
627	1503	BLK57550101	1.033E-06	0	0.000E+00	53882	8.784E-02	388074	3738586	11
628	1093	BLK57290300	1.030E-06	111	1.144E-04	53993	8.796E-02	387811	3740041	11
629	1557	BLK57560100	1.030E-06	0	0.000E+00	53993	8.796E-02	387475	3738478	11
630	1295	BLK57330100	1.025E-06	0	0.000E+00	53993	8.796E-02	391139	3740089	11
631	2873	BLK29470301	1.024E-06	2	2.049E-06	53995	8.796E-02	383414	3737560	11
632	1374	BLK57520400	1.023E-06	429	4.390E-04	54424	8.840E-02	391609	3738772	11
633	2924	BLK29470500	1.020E-06	2	2.040E-06	54426	8.840E-02	383951	3738474	11
634	1366	BLK57520300	1.017E-06	201	2.043E-04	54627	8.860E-02	391810	3739174	11
635	1258	BLK57320301	1.015E-06	166	1.685E-04	54793	8.877E-02	390032	3740210	11
636	2498	BLK57340302	1.014E-06	0	0.000E+00	54793	8.877E-02	391321	3740040	11
637	1257	BLK57320301	1.013E-06	252	2.552E-04	55045	8.903E-02	390119	3740209	11
638	2876	BLK29470302	1.013E-06	0	0.000E+00	55045	8.903E-02	383427	3737399	11
639	1371	BLK57520300	1.013E-06	261	2.643E-04	55306	8.929E-02	391808	3738969	11
640	2507	BLK57340400	1.012E-06	739	7.482E-04	56045	9.004E-02	391774	3740295	11
641	2879	BLK29470302	1.012E-06	0	0.000E+00	56045	9.004E-02	383555	3737280	11
642	1310	BLK57330200	1.012E-06	0	0.000E+00	56045	9.004E-02	391580	3739737	11
643	1259	BLK57320301	1.012E-06	214	2.166E-04	56259	9.026E-02	390217	3740207	11
644	1181	BLK57310200	1.011E-06	238	2.407E-04	56497	9.050E-02	389919	3740211	11
645	1260	BLK57320301	1.010E-06	0	0.000E+00	56497	9.050E-02	390315	3740206	11
646	1631	BLK57560300	1.010E-06	0	0.000E+00	56497	9.050E-02	384979	3736442	11
647	2514	BLK57340401	1.010E-06	0	0.000E+00	56497	9.050E-02	391590	3739759	11
648	2497	BLK57340302	1.008E-06	0	0.000E+00	56497	9.050E-02	391165	3740093	11
649	1583	BLK57560200	1.005E-06	0	0.000E+00	56497	9.050E-02	387079	3738387	11
650	2743	BLK29461201	1.004E-06	0	0.000E+00	56497	9.050E-02	383992	3738795	11
651	1235	BLK57320200	1.004E-06	186	1.867E-04	56683	9.068E-02	390414	3740205	11

652	1236	BLK57320201	1.002E-06	171	1.713E-04	56854	9.086E-02	390516	3740204	11
653	1094	BLK57290300	1.002E-06	85	8.516E-05	56939	9.094E-02	387741	3740042	11
654	1382	BLK57520500	1.002E-06	320	3.206E-04	57259	9.126E-02	391709	3738771	11
655	1309	BLK57330200	1.002E-06	98	9.815E-05	57357	9.136E-02	391734	3739502	11
656	1640	BLK57560301	1.001E-06	0	0.000E+00	57357	9.136E-02	386098	3736160	11
657	2496	BLK57340302	1.001E-06	0	0.000E+00	57357	9.136E-02	391144	3740127	11
658	2499	BLK57340302	1.000E-06	0	0.000E+00	57357	9.136E-02	391500	3739993	11