

MEMORANDUM

To: Diana Salazar, Costco Wholesale

From: Joseph Hower and Yi Tian, Ramboll US Corporation

Subject: **Human Health Risk Assessment for the Operation of the Gasoline Dispensing Facility at Costco Tustin Ranch**

INTRODUCTION

Costco currently operates a warehouse store at 2655 El Camino Real, Tustin California. Costco is proposing a gasoline dispensing facility ("GDF" or "fuel station") with 16 dispensers (i.e., 32 fueling positions) on the southeastern portion of the warehouse parking lot and relocation of parking to the current location of the neighboring Goodyear service facility, which will be demolished. This memorandum provides a human health risk assessment (HRA) of the on-road mobile source activities associated with the operation of the proposed Costco GDF (the "Project") in support of a California Environmental Quality Act (CEQA) Class 32 Categorical Exemption Evaluation for the Project. Specifically, emissions of toxic air contaminants (TACs) associated with Costco members' passenger cars travel, starting and idling, fuel delivery trucks travel, starting and idling, and gasoline transfer and dispensing were estimated in order to evaluate if the Project would cause a significant health risk impact. We conclude that the vehicle activities associated with the proposed Project would not cause a significant health risk impact, as shown in Table A below.

Date: October 4, 2019

Ramboll
5 Park Plaza
Suite 500
Irvine, CA 92614
USA

T +1 949 261 5151
F +1 949 261 6202

www.ramboll.com

Table A. Health Risk Assessment Results

Receptor Type	Maximum Estimated Cancer Risk (in a million)	Maximum Estimated Chronic Hazard Index	Maximum Estimated Acute Hazard Index
Residential	4.18	0.0139	0.0293
Sensitive	0.21	0.0007	0.0056
Worker	2.19	0.0645	0.2030
SCAQMD Threshold ¹	10	1	1

Notes:

¹ SCAQMD Air Quality Significance Thresholds. Available at:

<http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf>.

Accessed: September 2019.

A brief description of the methodology and results of the analyses are provided in the following sub-sections.

METHODOLOGY

TAC Emission Inventory

Operational Mobile Sources

Ramboll developed TAC emission inventories for the vehicle activities associated with the operation of the proposed GDF. Sources of Project-related vehicle emissions include passenger car travel, starting and idling, and fuel delivery truck travel, starting, and idling. This analysis focused on TAC components of volatile organic compound (VOC) and particulate matter emissions found in gasoline and diesel vehicle exhaust. The TACs analyzed in this HRA are based on the Federal Highway Administration's (FHWA) nine priority mobile source air toxics (MSATs), listed below.¹

- Diesel Particulate Matter (DPM)
- 1,3-Butadiene
- Acetaldehyde
- Acrolein
- Benzene
- Ethyl Benzene
- Formaldehyde
- Naphthalene
- Polycyclic Organic Matter (POM), which includes the following fifteen compounds²: acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, phenanthrene, and pyrene.

The above nine priority MSAT serve as the TACs for this HRA. Cancer and chronic non-cancer impacts for the diesel-fueled fuel delivery trucks were estimated using DPM emissions. Cancer and non-cancer chronic impacts for the gasoline-fueled passenger vehicles were estimated by speciating reactive organic gas (ROG) and particulate matter smaller than 2.5 microns (PM_{2.5}) emissions. Acute impacts from all vehicles were estimated by speciating ROG and PM_{2.5} emissions. Table 1 summarizes the speciation profile data used in this analysis.

¹ FHWA. 2016. Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA documents. October. Available at: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/msat/2016msat.pdf. Accessed: October 2019.

² FHWA. 2016. Frequently Asked Questions (FAQ) Conducting Quantitative MSAT Analysis for FHWA NEPA Documents. October. Available at: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/moves_msatFAQ.pdf. Accessed: October 2019.

Ramboll utilized California Air Resources Board's (CARB) approved On-Road Mobile-Source Emission Factor model³ (EMFAC2017) to estimate ROG, PM_{2.5}, and DPM emissions from fuel delivery trucks and passenger vehicles. DPM was assumed to be equivalent to particulate matter less than 10 microns (PM₁₀) emissions from diesel-fueled trucks.

The following assumptions were used to calculate emissions from Project-related mobile source emissions:

- EMFAC2017 Default Activity Inputs;
 - Run Mode: Emissions;
 - Run Type: Default Activity;
 - Area: Orange County (South Coast);
 - Calendar Year: 2020;
 - Season: Annual;
 - Aggregation Level: Day;
 - Vehicle Class: EMFAC2007 Vehicle Classes, LDA, LDT1, LDT2, MDV, HHDT;
 - Model Year: Aggregated;
 - Speed: Aggregated; and
 - Output Natural Gas Heavy Duty Vehicles: Yes;
 - Output: All pollutants, activities, and output by process.
- EMFAC2017 Project-Level Inputs;
 - Run Mode: Emission Rates;
 - Run Type: Project-Level Assessment;
 - Area: Orange County (South Coast);
 - Calendar Year: 2020;
 - Season: Annual;
 - Vehicle Class: EMFAC2007 Vehicle Classes, LDA, LDT1, LDT2, MDV, HHDT;
 - Model Year: Aggregated;
 - Fuel: By fuel;
 - Speed: 5 mph;
 - Meteorology: 64°F, 47% relative humidity; and
 - Output: All pollutants.

³ CARB. 2019. MSEI – Modeling Tools – EMFAC Software and Technical Support Documentation. Available at: <https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac>. Accessed: October 2019.

- Passenger cars
 - Vehicle class assumed to be light-duty autos, light-duty trucks, or medium duty vehicles;
 - Traffic volumes on modeled roadways provided by Kittelson & Associates; and
 - Idle duration of 12 minutes based on an average transaction time of four minutes and a maximum queue of five vehicles per each of the four lines.
- Fuel delivery trucks
 - Vehicle class assumed to be heavy-heavy duty trucks;
 - Truck volumes on modeled roadways (eight fuel delivery trucks per day) provided by Costco; and
 - Idle duration of five minutes based on CARB Air Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.⁴

Details of the mobile source emission calculations are presented in Appendix A.

Operational Gasoline Transfer and Dispensing

In addition to the TAC emissions from operational mobile sources, Ramboll estimated TAC emissions associated with gasoline transfer and dispensing. Emissions from gasoline transfer and dispensing mainly occur during loading, breathing, refueling, spillage, and from hose permeation. Emission factors were obtained from Table X-1 of SCAQMD Risk Assessment Procedures for Rules 1401, 1401.1, and 212 (SCAQMD Risk Assessment Guidance).⁵ The following assumptions were used to calculate emissions from gasoline transfer and dispensing:

- Maximum hourly throughput of 4,800 gallons per hour based on a maximum of 15 vehicles per dispensing position and an average fill-up of 10 gallons per vehicle.
- Annual throughput of 24.6 million gallons per year.

Details of the gasoline transfer and dispensing emission calculations are presented in Appendix A.

Air Dispersion Modeling

Model Selection

The AMS/EPA Regulatory Model Improvement Committee (AERMIC) Model (AERMOD) (Version 18081) was used to estimate the ambient air TAC concentrations.⁶ AERMOD has been approved for use in various regulatory applications by USEPA, CARB, and SCAQMD. AERMOD uses mathematical equations to simulate the movement and dispersion of air contaminants in the atmosphere. For each receptor

⁴ CARB. 2016. Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. Available at: <https://ww3.arb.ca.gov/msprog/truck-idling/truck-idling.htm>. Accessed: October 2019.

⁵ SCAQMD. 2017. Risk Assessment Procedures for Rules 1401, 1401.1 and 212. September 1. Available at: <http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12>. Accessed: October 2019.

⁶ USEPA. 2019. Meteorological Processors and Accessory Programs. August. Available at: <https://www.epa.gov/scram/meteorological-processors-and-accessory-programs#aermet>. Accessed: October 2019.

location, the model generates air concentrations (or air dispersion factors as unit emissions were modeled) that result from emissions from multiple sources.

The regulatory default option, urban dispersion characteristics, and 1-hour and PERIOD averaging times were selected based the SCAQMD modeling recommendations.⁷ Dispersion model averaging times are specified based on the averaging times of ambient air quality standards and the air quality significance thresholds established by the appropriate regulatory agencies. For the HRA, the 1-hour averaging time was used to evaluate acute (short-term) effects and the PERIOD averaging time (average concentration for the 5-year meteorological data set) was used to evaluate chronic (long-term) health effects. Emissions from passenger vehicle activity were assumed to occur between the hours of 5:00 AM and 10:00 PM, 7 days per week, and 365 days per year based on the anticipated operating schedule of the fueling station. Emissions from fuel delivery truck activity were to occur 24 hours per day, 7 days per week, and 365 days per year based on the potential for fuel to be delivered at any time of day. Emissions were modeled using the χ/Q ("chi over cue") method such that each source group had unit emission rates (i.e., a total of 1 gram per second [g/s]) and the model estimated dispersion factors (with a unit of micrograms per cubic meter per grams per second [$\mu\text{g}/\text{m}^3$]/[g/s]).

Source Characterization

Off-site vehicle travel was evaluated for roadway links in the Project vicinity, extending approximately 0.25 miles from the fueling station boundary. Line (area) sources were used in the air dispersion model to represent the on-site and off-site passenger vehicle and fuel delivery truck travel. Areapoly sources were used to represent on-site passenger vehicle and fuel delivery truck idling. The GDF emission sources were modeled as point sources (loading and breathing emissions) and volume sources (refueling, hose permeation, and spillage). Modeled source locations are shown in Figure 1.

Source parameters for mobile sources (Table B-1) were developed based on USEPA's Particulate Matter Conformity Guidance for Hotspot Analysis⁸ and the USEPA AERMOD user guide.⁹ Table B-2 presents a list of mobile sources and modeled emission rates. A source group was created for each roadway segment. As described earlier, modeling was done using the χ/Q method and emission rates were set to 1 gram per second for each source group.

Source parameters for the GDF emission sources (Tables B-3 and B-4) were developed based on SCAQMD Risk Assessment Guidance and the dimensions of the proposed GDF.¹⁰ The emission rate for each source was modeled as 1 gram per second.

⁷ SCAQMD Modeling Guidance for AERMOD. Available at: <http://www.aqmd.gov/home/air-quality/meteorological-data/modeling-guidance>. Accessed: October 2019.

⁸ EPA. 2015. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas Appendix J: Additional Reference Information on Air Quality Models and Data Inputs. Available at: <https://nepis.epa.gov/Exe/ZyPdf.cgi?Dockey=P100NN22.pdf>. Accessed: October 2019.

⁹ USEPA. User's Guide for the AMS/EPA Regulatory Model (AERMOD). Available at: https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf. Accessed: October 2019.

¹⁰ The exact location of the proposed storage tank is unknown. Therefore, the loading and breathing emission sources associated with the storage tank were placed in the center of the gas station canopy.

Meteorology

SCAQMD provides AERMOD model-ready meteorological data sets for use in air quality and risk impact analyses in the SCAB. SCAQMD's John Wayne International Airport (KSNA) meteorological data set was selected to analyze the Project's impacts, based on that station's close geographic proximity to the Project (Figure 2) and best representation of the facility's meteorological conditions (such as prevailing winds), terrain, and surrounding land use.¹¹ The SCAQMD meteorological data set is for January 1, 2012 to December 31, 2016.¹² Miramar was used as upper air meteorological station in this data set.

Receptors

Analyzing impacts of receptors close to sources of TACs is important in determining cancer and non-cancer health risk impacts. Receptor exposure to emission sources is greatest nearest to the emission source. ARB and SCAQMD emissions and modeling analyses showed an 80-percent drop-off in pollutant concentration at approximately 1,000 feet from traffic-related sources.¹³ In order to evaluate health impacts to off-site receptors, including nearby residential and sensitive receptor populations, the geographic scope of this assessment was extended to a one-quarter mile radius or 1,320 feet from the modeled Project sources. Receptors around the project development were covered in two grids of receptors:

- Fine Grid 25 m x 25 m up to 200 m from modeled Project sources; and
- Coarse Grid 100 m x 100 m from 200 m to 1,320 feet from modeled Project sources.

Grid receptors were classified as residential or worker based on the current land use.

SCAQMD requires inclusion of sensitive receptors in a health risk analysis and identifies the following as sensitive receptors: long-term health care facilities, rehabilitation centers, convalescent centers, retirement homes, residences, schools, playgrounds, child care centers, and athletic facilities.¹⁴ Non-residential sensitive receptor locations were identified within a one-quarter mile (1,320 feet) radius of the modeled Project sources, based on publicly available databases.¹⁵ Google Earth Pro was also used

¹¹ SCAQMD. 2017. Risk Assessment Procedures for Rules 1401, 1401.1 and 212. Version 8.1. September. Available at: <http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12>. Accessed: October 2019.

¹² SCAQMD. 2018. Data for AERMOD. Available at: <https://www.aqmd.gov/home/air-quality/air-quality-data-studies/meteorological-data/data-for-aermod>. Accessed: October 2019.

¹³ CARB. Air Quality and Land Use Handbook: A Community Health Perspective. 2005. Available at: <https://www.arb.ca.gov/ch/handbook.pdf>. Accessed: October 2019.

¹⁴ SCAQMD. 1993. CEQA Air Quality Handbook. April.

¹⁵ California Department of Education, California School Directory (Available at: <http://www.cde.ca.gov/re/sd>. Accessed: October 2019.).

California Community Care Licensing Division - licensed care facilities including adult residential facilities and daycares (Available at: <https://secure.dss.ca.gov/CareFacilitySearch/home/selecttype/>. Accessed: October 2019.).

California Office of Statewide Health Planning and Development, Automated Licensing Information and Report Tracking System - hospitals and long-term care facilities (Available at: <http://www.oshpd.ca.gov/hid/Products/Listings.html>. Accessed: October 2019.).

Davis Demographics School Site Locator - K-12 Schools (Available at: <https://www.davisdemographics.com/videos/schoolsite-locator/>. Accessed: October 2019.).

to identify schools and day care centers in the Project vicinity. Based on the database search, one sensitive receptor, Congregation B'nai Israel Child Development Center, was identified within a one-quarter mile radius from the modeled Project sources.

Receptor locations are illustrated in Figure 2. Receptor heights were assumed to be at ground-level based on SCAQMD guidance.¹⁶

Health Risk Assessment

Ramboll used CARB's Hotspots Analysis and Reporting Program (HARP2) Air Dispersion and Modeling and Risk Tool¹⁷ (ADMRT) to calculate the health risks associated with emissions from Project-related mobile sources. HARP2 has been developed by CARB for estimating health risk values and it incorporates the requirements of the latest version of the Office of Environmental Health Hazard Assessment (OEHHA) Air Toxics Hot Spots Risk Assessment guidelines.¹⁸ MSAT emissions input to HARP2 are shown in Appendix A.

Lifetime cancer risk, chronic hazard index (HIC), and acute hazard index (HIA) were calculated at each receptor. To estimate these impacts, the following runs were performed for the Project: residential cancer risk, residential non-cancer chronic risk, worker cancer risk, worker non-cancer chronic risk, and non-cancer acute risk. The health risk assessment options chosen for these runs (Table 2) were based on SCAQMD's default assumptions for HRAs.¹⁹

RESULTS

A summary of the maximum health risk impacts is shown in Table 3. HARP2 outputs for all receptors are shown in Appendix C. As shown in this table, the emissions associated with operation of the proposed Project are less than the SCAQMD significance thresholds²⁰.

¹⁶ SCAQMD. 2018. SCAQMD Modeling Guidance for AERMOD. Available at: <https://www.aqmd.gov/home/air-quality/air-quality-data-studies/meteorological-data/modeling-guidance>. Accessed: October 2019.

¹⁷ CARB. 2019. Hot Spots Analysis and Reporting Program (HARP). May. Available at: <https://ww3.arb.ca.gov/toxics/harp/harp.htm>. Accessed: October 2019.

¹⁸ Cal/EPA. 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. Office of Environmental Health Hazard Assessment. February. Available at: <https://oehha.ca.gov/air/crnrr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>. Accessed: October 2019.

¹⁹ SCAQMD. 2018. AB2588 and Rule 1402 Supplemental Guidelines. September. Available at: <http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab-2588-supplemental-guidelines-201809.pdf?sfvrsn=6>. Accessed: October 2019.

²⁰ SCAQMD. 2019. South Coast AQMD Air Quality Significance Thresholds. April. Available at: <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf>. Accessed: October 2019.

Table 1. Mobile Source Air Toxics Speciation Profiles

Tustin Ranch Costco Fuel Station
Orange County, California

Non-Criteria Air Pollutant	Speciation Profile	Speciated MSAT/COPC
ROG running and idling exhaust emissions from gasoline-fueled vehicles	Maximum of CARB Profiles OG2303 and OG2304 ¹	1,3-Butadiene, Acetaldehyde, Acrolein, Benzene, Ethyl Benzene, Formaldehyde, Naphthalene
	USEPA MOVES Gasoline VOC ² Profile ³	POM
ROG starting exhaust emissions from gasoline-fueled vehicles	Maximum of CARB Profiles OG2301 and OG2302 ⁴	1,3-Butadiene, Acetaldehyde, Acrolein, Benzene, Ethyl Benzene, Formaldehyde, Naphthalene
	USEPA MOVES Gasoline VOC ² Profile ³	POM
ROG evaporative emissions from gasoline-fueled vehicles	CARB Profile OG2315 ⁵	Benzene, Ethyl Benzene
PM _{2.5} running and starting exhaust emissions from gasoline-fueled vehicles	USEPA MOVES Gasoline PM _{2.5} Profile ^{3,6}	Naphthalene, POM
DPM ⁶	N/A	DPM
ROG running exhaust emissions from diesel-fueled vehicles ⁷	USEPA MOVES Diesel VOC ² Profile for Post-2007 Model Years ³	1,3-Butadiene, Acetaldehyde, Acrolein, Benzene, Ethyl Benzene, Formaldehyde, Naphthalene ⁵ , POM ⁵
PM _{2.5} running exhaust emissions from diesel-fueled vehicles ⁷	USEPA MOVES Diesel PM _{2.5} Profile for Post-2007 Model Years ³	Naphthalene ⁸ , POM ⁸

Notes:

¹ CARB. 2013. Organic Gas Speciation Profiles for Catalyzed Gasoline-Powered Vehicle Stabilized Running Exhaust - E6 Fuel (OG2303 & OG2304). December. Available at: https://ww3.arb.ca.gov/ei/speciate/profilereference/cate6running_og2303&04.pdf. Accessed: September 2019.

² Per EMFAC2017 User's Guide v1.0.1, The EMFAC2017 ROG class is the same as EPA's VOC definition. Available at: https://ww3.arb.ca.gov/msei/downloads/emfac2017_users_guide_final.pdf. Accessed: September 2019.

³ USEPA. 2016. Air Toxic Emissions from On-Road Vehicles in MOVES2014. November. Available at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100PUNO.pdf>. Accessed: September 2019.

⁴ CARB. 2013. Organic Gas Speciation Profiles for Catalyzed Gasoline-Powered Vehicle Start Exhaust - E6 Fuel (OG2301 & OG2302). October. Available at: https://ww3.arb.ca.gov/ei/speciate/profilereference/cate6start_og2301&02.pdf. Accessed: September 2019.

⁵ CARB. 2015. Organic Gas Speciation Profile for Gasoline-Powered Vehicles Hot Soak Evaporations - E10 Summer Fuel (OG2315). January. Available at: <https://ww3.arb.ca.gov/ei/speciate/profilereference/e10shotsoak-og2315.pdf>. Accessed: September 2019.

⁶ Diesel particulate matter was used as a surrogate for estimating cancer risk and chronic health impacts of diesel vehicle exhaust.

⁷ Speciated diesel exhaust emissions were used only for estimating acute health impacts of diesel vehicle exhaust.

⁸ Naphthalene and POM have only cancer and chronic impacts. Since DPM was used as a surrogate for estimating cancer and chronic impacts of diesel vehicle exhaust, naphthalene and POM emissions from diesel-fueled vehicles were not used to estimate health impacts in this health risk assessment.

Abbreviations:

CARB – California Air Resources Board CNG – Compressed Natural Gas

COPC – chemicals of potential concern MOVES – Motor Vehicle Emissions Simulator

PM_{2.5} – particulate matter less than 2.5 microns in diameter POM – polycyclic organic matter

ROG – Reactive Organic Gases TOG – Total Organic Gases

USEPA – United States Environmental Protection Agency VOC – Volatile Organic Gases

Table 2. Health Risk Assessment Options Used in HARP2 ADMRT Tool
Tustin Ranch Costco Fuel Station
Orange County, California

HARP2 Risk Analyses Screen/ Option Title		Options Chosen				
		Residential Cancer Risk Run	Residential Chronic Risk Run	Worker Cancer Risk Run	Worker Chronic Risk Run	Acute Risk Run
Select Risk Scenario	Analysis Type	Cancer Risk	Chronic Risk (Non-cancer)	Cancer Risk	Chronic Risk (Non-cancer)	Acute Risk (Non-cancer)
	Receptor Type	Individual Resident		Worker		N/A
	Exposure Duration	30-Year	N/A	25-Year	N/A	N/A
	Intake Rate, Percentile	RMP using the Derived Method	OEHHA Derived Method	OEHHA Derived Method		N/A
Select Pathways to Evaluate	Tab "Pathways to Evaluate"	Select "User Defined" pathways and choose: inhalation, soil ingestion, dermal, mother's milk, and homegrown produce		Select "Worker Pathways"		Default Inhalation Only Pathway
		Select deposition rate of 0.02 m/s		Select deposition rate of 0.02 m/s		
	Tab "Inh"	Check box "Apply the default fraction of time spent at home (FAH) to ages greater than or equal to 16 years"		Check box "Use Adjustment Factors" with WAF = 1.5 ²		Use Defaults (No Change)
	Tab "Soil"	Use Defaults (No Change)		Use Defaults (No Change)		N/A
	Tab "Derm"	Select "Warm" Climate		Select "Warm" Climate		N/A
	Tab "MMilk"	Use Defaults (No Change)		N/A	N/A	N/A
	Tab "HG Produce"	Use Defaults (No Change)		N/A	N/A	N/A

Notes:

¹ HARP2 options based on SCAQMD's default assumptions for HRAs. Available at: <http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab-2588-supplemental-guidelines-201809.pdf?sfvrsn=6>. Accessed: September 2019.

² Annual concentration adjustment factor for worker is set based on a schedule of 5:30 AM to 9:30 PM, 7 days a week.

Abbreviations:

ADMRT - Air Dispersion Modeling and Risk Tool

EIR - environmental impact report

HARP - Hotspots Analysis and Reporting Program

HRA - health risk assessment

m - mile

N/A - not applicable

OEHHA - Office of Environmental Health Hazard Assessment

RMP - Risk Management Policy

s - second

SCAQMD - South Coast Air Quality Management District

Table 3. Health Risk Assessment Results

Tustin Ranch Costco Fuel Station

Orange County, California

Receptor Type	Maximum Estimated Cancer Risk (in a million)	Maximum Estimated Chronic Hazard Index	Maximum Estimated Acute Hazard Index
Residential	4.18	0.0139	0.0293
Sensitive	0.21	0.0007	0.0056
Worker	2.19	0.0645	0.2030
SCAQMD Threshold ¹	10	1	1

Notes:

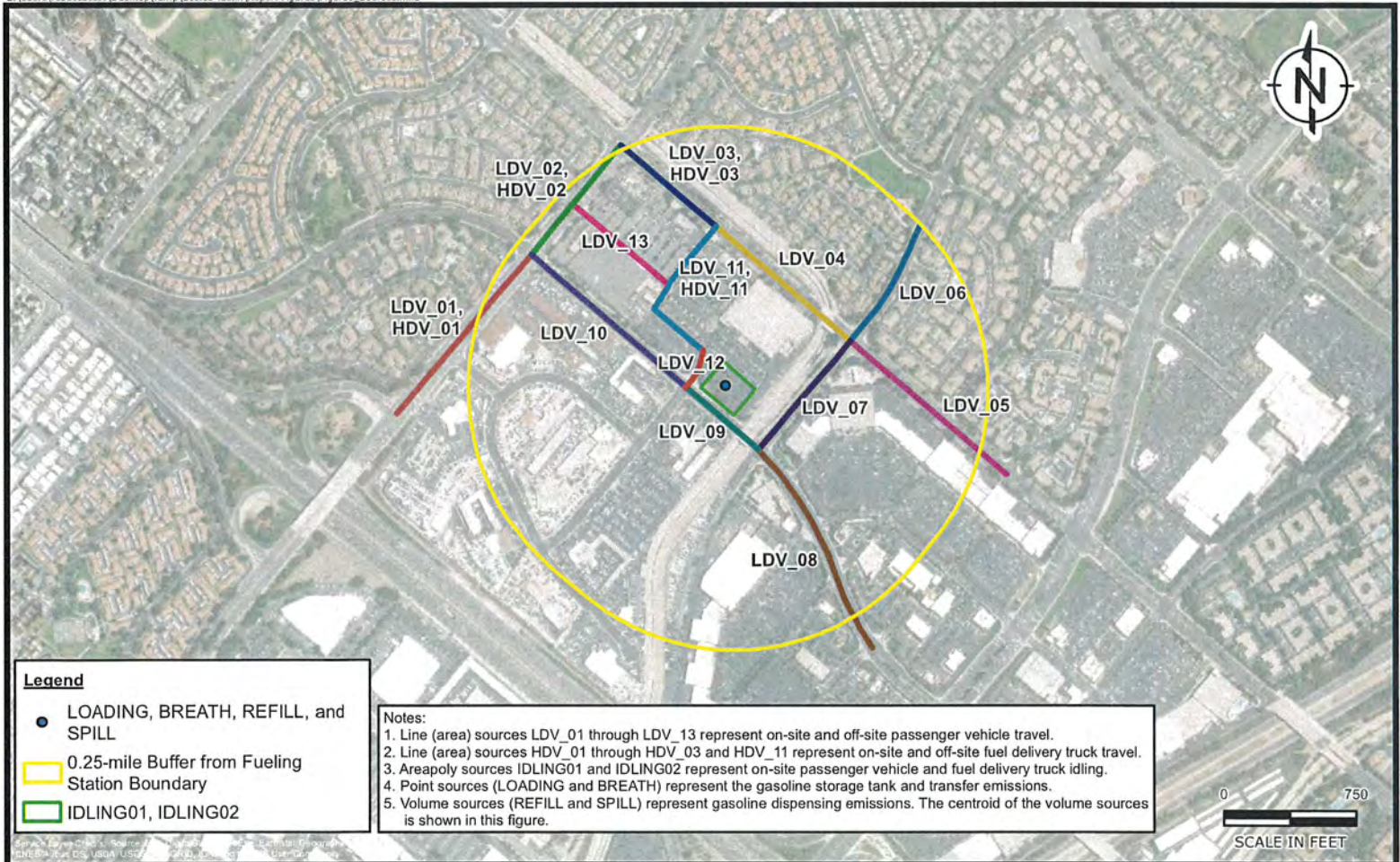
¹ SCAQMD Air Quality Significance Thresholds. Available at:
<http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf>. Accessed: September 2019.

Abbreviations:

ADMRT - Air Dispersion Modeling and Risk Tool

HARP - Hotspots Analysis and Reporting Program

SCAQMD - South Coast Air Quality Management District



Modeled Source Locations

FIGURE

1

DRAFTED BY: R. Case

DATE: 10/3/2019

PROJECT: 1690003739



RAMBOLL

Meteorological Station Location

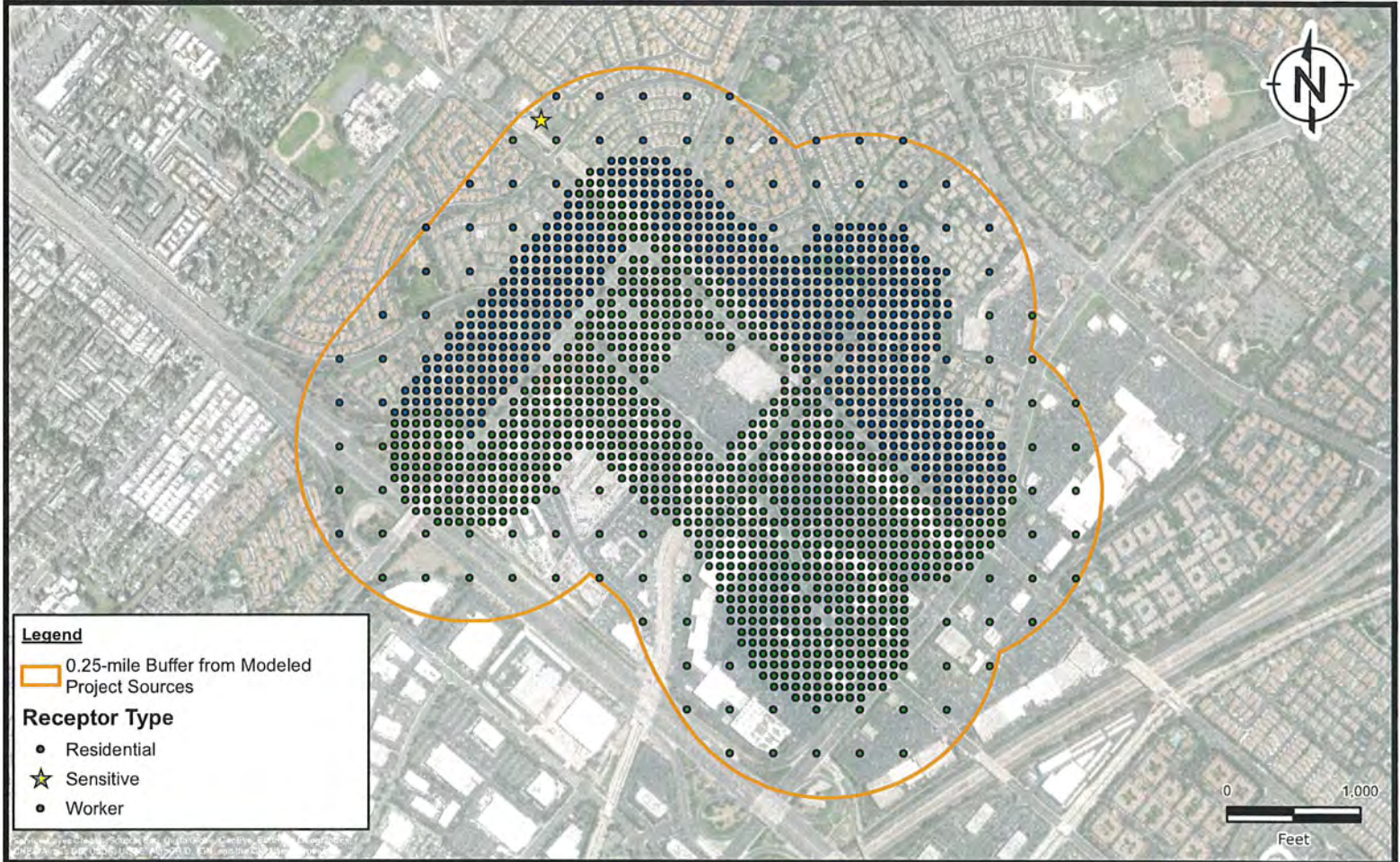
FIGURE

2

DRAFTED BY: R. Case

DATE: 9/16/2019

PROJECT: 1690003739



Modeled Receptor Locations

FIGURE
3

**APPENDIX A
EMISSION CALCULATIONS**

Table A-1. Traffic Volumes and Vehicle Miles Traveled on Modeled Roadways
Tustin Ranch Costco Fuel Station
Orange County, California

Modeled Roadway Links ¹		Source Group ID	Peak Hour Trip Rates ² (one-way trips/hour)				
			Internal ⁵	External			Total ⁷
				Primary	Diverted	Pass-by ⁶	
Fuel Delivery Trucks	Tustin Ranch Rd. (s/o El Camino Real)	HDV_01	0	2	0	0	2
	Tustin Ranch Rd. (btwn. Bryan Ave. and El Camino Real)	HDV_02	0	2	0	0	2
	Bryan Ave. (btwn. Tustin Ranch Rd. and Market St.)	HDV_03	0	2	0	0	2
	Market St. (Project Driveway)	HDV_11	0	2	0	0	2
	On-Site Idling	IDLING02	0	2	0	0	2
Passenger Cars ⁴	Tustin Ranch Rd. (s/o El Camino Real)	LDV_01	0	16	26	0	42
	Tustin Ranch Rd. (btwn. Bryan Ave. and El Camino Real)	LDV_02	0	3	4	0	7
	Bryan Ave. (btwn. Tustin Ranch Rd. and Market St.)	LDV_03	0	23	38	0	61
	Bryan Ave. (btwn. Market St. and Myford Rd.)	LDV_04	0	30	51	0	81
	Bryan Ave. (e/o Myford Rd.)	LDV_05	0	29	49	0	77
	Myford Rd. (n/o Bryan Ave.)	LDV_06	0	2	3	0	4
	Myford Rd. (btwn. Bryan Ave. and El Camino Real)	LDV_07	0	0.2	0.4	0	0.6
	El Camino Real (e/o Myford Rd.)	LDV_08	0	22	37	0	58
	El Camino Real (btwn. Auto Center Dr. and Myford Rd.)	LDV_09	0	22	37	0	59
	El Camino Real (btwn. Tustin Ranch Rd. and Auto Center Dr.)	LDV_10	0	24	41	0	65
	Market St. (Project Driveway)	LDV_11	0	53	89	82	224
	Auto Center Dr. (Project Driveway)	LDV_12	0	49	82	75	206
	Entry from Tustin Ranch Road (Project Driveway)	LDV_13	0	6	8	7	21
	On-Site Idling, Starting, and Evaporative	IDLING01	268	108	179	164	719

Table A-1. Traffic Volumes and Vehicle Miles Traveled on Modeled Roadways
Tustin Ranch Costco Fuel Station
Orange County, California

Modeled Roadway Links ¹		Source Group ID	Annual Trip Rates ² (one-way trips/year)					Segment Length ³ (miles)	Peak Hour VMT ⁴ (miles/hour)	Annual VMT ¹ (miles/year)
			Internal ⁵	External		Pass-by ⁶	Total ⁷			
				Primary	Diverted					
Fuel Delivery Trucks	Tustin Ranch Rd. (s/o El Camino Real)	HDV_01	0	5,840	0	0	5,840	0.22	0.44	1,295
	Tustin Ranch Rd. (btwn. Bryan Ave. and El Camino Real)	HDV_02	0	5,840	0	0	5,840	0.15	0.30	887
	Bryan Ave. (btwn. Tustin Ranch Rd. and Market St.)	HDV_03	0	5,840	0	0	5,840	0.13	0.27	787
	Market St. (Project Driveway)	HDV_11	0	5,840	0	0	5,840	0.18	0.36	1,046
	On-Site Idling	IDLING02	0	5,840	0	0	5,840	-	-	-
Passenger Cars ⁸	Tustin Ranch Rd. (s/o El Camino Real)	LDV_01	0	70,553	114,681	0	185,234	0.22	9.32	41,090
	Tustin Ranch Rd. (btwn. Bryan Ave. and El Camino Real)	LDV_02	0	12,202	19,661	0	31,863	0.15	1.06	4,837
	Bryan Ave. (btwn. Tustin Ranch Rd. and Market St.)	LDV_03	0	120,613	196,141	0	316,754	0.13	8.22	42,671
	Bryan Ave. (btwn. Market St. and Myford Rd.)	LDV_04	0	133,076	215,959	0	349,035	0.19	15.26	65,758
	Bryan Ave. (e/o Myford Rd.)	LDV_05	0	126,964	206,042	0	333,006	0.22	16.97	73,146
	Myford Rd. (n/o Bryan Ave.)	LDV_06	0	7,196	11,679	0	18,874	0.14	0.59	2,574
	Myford Rd. (btwn. Bryan Ave. and El Camino Real)	LDV_07	0	1,084	1,761	0	2,845	0.15	0.09	435
	El Camino Real (e/o Myford Rd.)	LDV_08	0	107,327	174,354	0	281,681	0.25	14.34	69,171
	El Camino Real (btwn. Auto Center Dr. and Myford Rd.)	LDV_09	0	108,411	176,115	0	284,526	0.10	6.07	29,277
	El Camino Real (btwn. Tustin Ranch Rd. and Auto Center Dr.)	LDV_10	0	109,871	178,827	0	288,698	0.22	14.14	62,822
	Market St. (Project Driveway)	LDV_11	0	253,689	412,100	403,780	1,069,569	0.18	40.13	191,604
	Auto Center Dr. (Project Driveway)	LDV_12	0	229,285	372,517	364,664	966,466	0.05	9.33	43,779
	Entry from Tustin Ranch Road (Project Driveway)	LDV_13	0	23,778	38,227	37,760	99,765	0.23	4.78	22,701
	On-Site Idling, Starting, and Evaporative	IDLING01	1,166,305	506,752	822,844	806,204	3,302,105	-	-	-

Notes:

¹ See Figure 1 for a graphic representation of the modeled sources.

² Trip rates based Project-specific data and peak hour trip rates prepared by traffic counts collected by Kittelson & Associates and data provided in the *Tustin Ranch Costco Fuel Station Additional Memorandum* dated April 17, 2019. Fuel deliver truck trip rates assume one truck per hour and eight trucks per day.

³ Segment length based on modeled source length in AERMOD.

⁴ VMT is calculated as the product of the segment length and the total number of trips in the respective averaging period.

⁵ Internal trips include trips made by patrons visiting the Costco member warehouse. Project-related emissions from internal trips are assumed to be from idling only.

⁶ Pass-by trips include vehicles already on the roadway that make an additional stop at the fuel station while on their current route. Project-related emissions from pass-by trips are assumed to occur on the project driveway road segments and during idling.

⁷ Total trips are the sum of all internal and external trips for each modeled source.

⁸ Passenger cars represent vehicles used by patrons of the fuel station.

Abbreviations:

Ave - avenue	Rd - road
btwn - between	s/o - south of
CalEEMod [®] - CALifornia Emissions Estimator MODEL	St - street
e/o - east of	VMT - vehicle miles traveled
n/o - north of	

Table A-2. Operational Mobile Source Fleet Mixes

Tustin Ranch Costco Fuel Station
Orange County, California

	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
CalEEMod® Default ¹	55.6%	4.4%	21.0%	11.6%	1.7%	0.6%	2.5%	1.6%	0.2%	0.2%	0.5%	0.1%	0.1%

	LDA	LDT1	LDT2	MDV
Passenger Vehicles ²	60.0%	4.7%	22.7%	12.6%

Notes:

¹ CalEEMod® default for Gasoline Service Station land use subtype in Orange County - South Coast.

² Passenger cars represent vehicles used by patrons of the fuel station. Fleet mix for passenger vehicles are estimated based on the ratio of the vehicle classes in CalEEMod® default fleet mix.

Abbreviations:

CalEEMod® - California Emissions Estimator MODEL

LDA - Light Duty Automobile

LDT - Light-Duty Truck

LHD - Light-Heavy Duty truck

HHD - Heavy-Heavy Duty truck

MDV - Medium-Duty Vehicle

MH - Motor Home

MHD - Medium-Heavy Duty truck

OBUS - Other Buses

UBUS - Urban Buses

MCY - Motorcycle

SBUS - School Bus

Table A-3. Reactive Organic Gas Emission Factors
Tustin Ranch Costco Fuel Station
Orange County, California

EMFAC Vehicle Class	EMFAC VMT Output ¹ (miles/day)	EMFAC Vehicle Trips Output ¹ (trips/day)	ROG Emission Factor					
			Off-site Running Exhaust ² (g/mile)	On-site Running Exhaust ³ (g/mile)	Running Loss ^{4,5} (g/mile)	Hot Soak ^{5,6} (g/trip)	Starting Exhaust ^{5,7} (g/trip)	Idle Exhaust ⁸ (g/Idle-minute)
Passenger Vehicles ⁹								
LDA	48,945,590	5,912,595	0.012	0.073	0.027	0.088	0.026	0.003
LDT1	5,047,196	619,699	0.031	0.172	0.088	0.173	0.041	0.007
LDT2	17,039,204	2,097,730	0.018	0.107	0.050	0.107	0.037	0.004
MDV	11,413,222	1,449,102	0.029	0.161	0.056	0.121	0.049	0.007
Weighted Emission Factor ¹⁰			0.017	0.096	0.039	0.100	0.032	0.004
Fuel Delivery Trucks ⁹								
HHDT	1,179,820	102,871	0.137	1.297	-	-	-	0.040

Notes:

¹ Data obtained from EMFAC2017 output for default emissions activity.

² Off-site running exhaust emission factor is based on EMFAC2017 default activity output for aggregated speeds.

³ On-site running exhaust emission factor is based on EMFAC2017 project-level emission rate output for a speed of 5 mph.

⁴ Running loss emission factor is based on EMFAC2017 output for default emissions activity.

⁵ Running loss, hot soak, and starting exhaust emissions for HHDT are zero, as reported by EMFAC2017.

⁶ Hot soak emission factor is based on EMFAC2017 project-level emission rate output.

⁷ Passenger vehicles will turn off their engines for approximately 4 minutes while fueling on-site. Hence, on-site starting exhaust emission factors for these vehicles were obtained from EMFAC2017 project-level output for starting exhaust with a 5-minute soak time.

⁸ Passenger vehicle idle exhaust emission factors are equivalent to the EMFAC2017 project-level running exhaust emission rate in grams per mile at 5 mph, multiplied by the speed correction factor of 2.5 mph.

⁹ Passenger vehicles are assumed to be gasoline-fueled. Fuel delivery trucks are assumed to be diesel-fueled.

¹⁰ Emission factors for EMFAC vehicle classes are weighted based on the project-specific fleet mix in Table A-2 to estimate emission factors for passenger vehicles.

Abbreviations:

EMFAC - Emission FACTors model

LDA - Light Duty Automobile

LDT - Light-Duty Truck

HHDT - Heavy-Heavy Duty truck

MDV - medium-duty vehicle

mph - miles per hour

ROG - reactive organic gases

VMT - vehicle miles travelled

Conversion Factors

60 minutes per hour

907184.7 g per ton

Table A-4. PM_{2.5} Emission Factors

Tustin Ranch Costco Fuel Station
Orange County, California

EMFAC Vehicle Class	EMFAC VMT Output ¹ (miles/day)	EMFAC Vehicle Trips Output ¹ (trips/day)	PM _{2.5} Emission Factor			
			Off-site Running Exhaust ² (g/mile)	On-site Running Exhaust ³ (g/mile)	Starting Exhaust ⁴ (g/trip)	Idle Exhaust ⁵ (g/idle- minute)
Passenger Vehicles ⁶						
LDA	48,945,590	5,912,595	0.002	0.0099	0.0002	0.0004
LDT1	5,047,196	619,699	0.002	0.0135	0.0002	0.0006
LDT2	17,039,204	2,097,730	0.002	0.0097	0.0001	0.0004
MDV	11,413,222	1,449,102	0.002	0.0101	0.0002	0.0004
Weighted Average Emission Factor ⁷			0.002	0.010	0.0002	0.0004
Fuel Delivery Trucks ⁶						
HHDT	1,179,820	102,871	0.060	0.135	-	0.001

Notes:

¹ Data obtained from EMFAC2017 output for default emissions activity.

² Off-site running exhaust emission factor is based on EMFAC2017 default activity output for aggregated speeds.

³ On-site running exhaust emission factor is based on EMFAC2017 project-level emission rate output for a speed of 5 mph.

⁴ Passenger vehicles will turn off their engines for approximately 4 minutes while fuelling on-site. Hence, on-site starting exhaust emission factors for these vehicles were obtained from EMFAC2017 project-level output for starting exhaust with a 5-minute soak time. Starting exhaust emissions for HHDT are zero, as reported by EMFAC2017.

⁵ Passenger vehicle idle exhaust emission factors are equivalent to the EMFAC2017 project-level running exhaust emission rate in grams per mile at 5 mph, multiplied by the speed correction factor of 2.5 mph.

⁶ Passenger vehicles are assumed to be gasoline-fueled. Fuel delivery trucks are assumed to be diesel-fueled.

⁷ Emission factors for EMFAC vehicle classes are weighted based on the project-specific fleet mix in Table A-2 to estimate emission factors for passenger vehicles.

Abbreviations:

EMFAC - Emission FACTors model

LDA - Light Duty Automobile

LDT - Light-Duty Truck

HHDT - Heavy-Heavy Duty truck

MDV - medium-duty vehicle

mph - miles per hour

PM_{2.5} - particulate matter less than 2.5 microns in diameter

VMT - vehicle miles travelled

Conversion Factors

60 minutes per hour

907184.74 g per ton

Table A-5. Diesel Particulate Matter Emission Factors

Tustin Ranch Costco Fuel Station

Orange County, California

EMFAC Vehicle Class	EMFAC VMT Output ¹ (miles/day)	DPM Emission Factor ²		
		Off-site Running Exhaust ³ (g/mile)	On-site Running Exhaust ⁴ (g/mile)	Idle Exhaust (g/idle-minute)
Fuel Delivery Trucks ⁶				
HHDT	1,179,820	0.06	0.14	0.00053

Notes:¹ Data obtained from EMFAC2017 output for HHDT diesel vehicle default emissions activity.² For purposes of this analysis, DPM emissions are assumed to be equal to PM₁₀ exhaust emissions from diesel vehicles.³ Off-site running exhaust emission factor is based on EMFAC2017 default activity output for aggregated speeds.⁴ On-site running exhaust emission factor is based on EMFAC2017 project-level emission rate output for a speed of 5 mph.**Abbreviations:**

DPM - diesel particulate matter
 EMFAC - Emission FACTors model
 HHDT - Heavy-Heavy Duty truck

mph - miles per hour
 PM₁₀ - particulate matter less than 10 microns in diameter
 VMT - vehicle miles travelled

Conversion Factors:

60 minutes per hour
 907184.74 g per ton

Table A-6. Passenger Vehicle Emissions
Tustin Ranch Costco Fuel Station
Orange County, California

Source Group ID ¹	Modeled Roadway Link	Project VMT ² (miles)		Project Trips ² (one-way trips)		Idle Duration (minutes/round trip)	ROG Starting Exhaust Emissions ³		ROG Running and Idling Exhaust Emissions ³		ROG Evaporative Emissions ³	
		Peak Hour	Annual	Peak Hour	Annual		Peak Hour (lb/hr)	Annual (lb/year)	Peak Hour (lb/hr)	Annual (lb/year)	Peak Hour (lb/hr)	Annual (lb/year)
LDV_01	Tustin Ranch Rd. (s/o El Camino Real)	9.32	41,090	42	185,234	-	0	0	3.42E-04	1.51E+00	7.92E-04	3.50E+00
LDV_02	Tustin Ranch Rd. (btwn. Bryan Ave. and El Camino Real)	1.06	4,837	7	31,863	-	0	0	3.91E-05	1.78E-01	9.04E-05	4.11E-01
LDV_03	Bryan Ave. (btwn. Tustin Ranch Rd. and Market St.)	8.22	42,671	61	316,754	-	0	0	3.02E-04	1.57E+00	6.99E-04	3.63E+00
LDV_04	Bryan Ave. (btwn. Market St. and Myford Rd.)	15.26	65,758	81	349,035	-	0	0	5.61E-04	2.42E+00	1.30E-03	5.59E+00
LDV_05	Bryan Ave. (e/o Myford Rd.)	16.97	73,146	77	333,006	-	0	0	6.24E-04	2.69E+00	1.44E-03	6.22E+00
LDV_06	Myford Rd. (n/o Bryan Ave.)	0.59	2,574	4	18,674	-	0	0	2.18E-05	9.46E-02	5.04E-05	2.19E-01
LDV_07	Myford Rd. (btwn. Bryan Ave. and El Camino Real)	0.09	435	1	2,845	-	0	0	3.32E-06	1.60E-02	7.68E-06	3.70E-02
LDV_08	El Camino Real (e/o Myford Rd.)	14.34	69,171	59	281,681	-	0	0	5.27E-04	2.54E+00	1.22E-03	5.88E+00
LDV_09	El Camino Real (btwn. Auto Center Dr. and Myford Rd.)	6.07	29,277	59	284,526	-	0	0	2.23E-04	1.08E+00	5.16E-04	2.49E+00
LDV_10	El Camino Real (btwn. Tustin Ranch Rd. and Auto Center Dr.)	14.14	62,822	65	288,698	-	0	0	5.20E-04	2.31E+00	1.20E-03	5.34E+00
LDV_11	Market St. (Project Driveway)	40.13	191,604	224	1,069,569	-	0	0	8.54E-03	4.08E+01	3.41E-03	1.63E+01
LDV_12	Auto Center Dr. (Project Driveway)	9.33	43,779	206	966,466	-	0	0	1.98E-03	9.31E+00	7.94E-04	3.72E+00
LDV_13	Entry from Tustin Ranch Road (Project Driveway)	4.78	22,701	21	99,765	-	0	0	1.02E-03	4.83E+00	4.06E-04	1.93E+00
IDLING01	On-Site Idling, Starting, and Evaporative ⁵	-	-	719	3,302,105	12	2.53E-02	1.16E+02	3.82E-02	1.76E+02	7.94E-02	3.65E+02

Table A-6. Passenger Vehicle Emissions
Tustin Ranch Costco Fuel Station
Orange County, California

Source Group ID ¹	Modeled Roadway Link	Project VMT ² (miles)		Project Trips ² (one-way trips)		Idle Duration (minutes/round trip)	PM _{2.5} Running and Idling Exhaust Emissions ⁴		PM _{2.5} Starting Exhaust Emissions ⁴	
		Peak Hour	Annual	Peak Hour	Annual		Peak Hour (lb/hr)	Annual (lb/year)	Peak Hour (lb/hr)	Annual (lb/year)
LDV_01	Tustin Ranch Rd. (s/o El Camino Real)	9.32	41,090	42	185,234	-	3.33E-05	1.47E-01	0	0
LDV_02	Tustin Ranch Rd. (btwn. Bryan Ave. and El Camino Real)	1.06	4,837	7	31,863	-	3.80E-06	1.73E-02	0	0
LDV_03	Bryan Ave. (btwn. Tustin Ranch Rd. and Market St.)	8.22	42,671	61	316,754	-	2.94E-05	1.52E-01	0	0
LDV_04	Bryan Ave. (btwn. Market St. and Myford Rd.)	15.26	65,758	81	349,035	-	5.45E-05	2.35E-01	0	0
LDV_05	Bryan Ave. (e/o Myford Rd.)	16.97	73,146	77	333,006	-	6.06E-05	2.61E-01	0	0
LDV_06	Myford Rd. (n/o Bryan Ave.)	0.59	2,574	4	18,874	-	2.12E-06	9.20E-03	0	0
LDV_07	Myford Rd. (btwn. Bryan Ave. and El Camino Real)	0.09	435	1	2,845	-	3.23E-07	1.56E-03	0	0
LDV_08	El Camino Real (e/o Myford Rd.)	14.34	69,171	58	281,681	-	5.12E-05	2.47E-01	0	0
LDV_09	El Camino Real (btwn. Auto Center Dr. and Myford Rd.)	6.07	29,277	59	284,526	-	2.17E-05	1.05E-01	0	0
LDV_10	El Camino Real (btwn. Tustin Ranch Rd. and Auto Center Dr.)	14.14	62,822	65	288,698	-	5.05E-05	2.24E-01	0	0
LDV_11	Market St. (Project Driveway)	40.13	191,604	224	1,069,569	-	8.89E-04	4.24E+00	0	0
LDV_12	Auto Center Dr. (Project Driveway)	9.33	43,779	206	966,466	-	2.07E-04	9.70E-01	0	0
LDV_13	Entry from Tustin Ranch Road (Project Driveway)	4.78	22,701	21	99,765	-	1.06E-04	5.03E-01	0	0
IDLING01	On-Site Idling, Starting, and Evaporative ⁵	-	-	719	3,302,105	12	3.98E-03	1.83E+01	1.27E-04	5.85E-01

Notes:

¹ See Figure 1 for a graphic representation of the modeled sources.

² Data obtained from Table A-1.

³ ROG emissions calculated using emission factors from Table A-3 along with Project VMT trips. Evaporative emissions include running loss and hotsoak emissions.

⁴ PM_{2.5} emissions calculated using emission factors from Table A-4 along with Project VMT and trips.

⁵ Includes emissions from on-site vehicle idling, on-site starts, and hotsoak emission estimated using the number of round trips (i.e., half of the one-way trips).

Abbreviations:

Ave - avenue
btwn - between
e/o - east of
n/o - north of
Rd - road
CalEEMod® - CALifornia Emissions Estimator MODeL
PM_{2.5} - particulate matter less than 2.5 microns in diameter
ROG - reactive organic gases
s/o - south of
St - street
VMT - vehicle miles traveled

Conversion Factor:

453.592 g/lb

Table A-7. Fuel Delivery Truck Emissions
Tustin Ranch Costco Fuel Station
Orange County, California

Source Group ID ¹	Modeled Roadway Link	Project VMT ² (miles)		Project Trips ² (one-way trips)		Idle Duration (minutes/round trip)	DPM Exhaust Emissions ³	ROG Exhaust Emissions ⁴		PM _{2.5} Exhaust Emissions ⁵	
		Peak Hour	Annual	Peak Hour	Annual		Annual (lb/year)	Peak Hour (lb/hr)	Annual (lb/year)	Peak Hour (lb/hr)	Annual (lb/year)
HDV_01	Tustin Ranch Rd. (s/o El Camino Real)	0.44	1,295	2	5,840	-	1.79E-01	1.34E-04	3.91E-01	5.85E-05	1.71E-01
HDV_02	Tustin Ranch Rd. (btwn. Bryan Ave. and El Camino Real)	0.30	887	2	5,840	-	1.22E-01	9.17E-05	2.68E-01	4.00E-05	1.17E-01
HDV_03	Bryan Ave. (btwn. Tustin Ranch Rd. and Market St.)	0.27	787	2	5,840	-	1.08E-01	8.14E-05	2.38E-01	3.55E-05	1.04E-01
HDV_11	Market St. (Project Driveway)	0.36	1,046	2	5,840	-	3.26E-01	1.02E-03	2.99E+00	1.07E-04	3.12E-01
IDLING02	On-Site Idling ⁶	-	-	2	5,840	5	1.71E-02	4.43E-04	1.29E+00	5.62E-06	1.64E-02

Notes:

¹ See Figure 1 for a graphic representation of the modeled sources.

² Data obtained from Table A-1.

³ DPM emissions calculated using emission factors from Table A-5 along with Project VMT and trips.

⁴ ROG emissions calculated using emission factors from Table A-3 along with Project VMT and trips.

⁵ PM_{2.5} emissions calculated using emission factors from Table A-4 along with Project VMT and trips.

⁶ Includes emissions from on-site vehicle idling that is estimated using the number of round trips (i.e. half of the one-way trips).

Abbreviations:

Ave - avenue

btwn - between

CalEEMod[®] - CALifornia Emissions Estimator MODel

DPM - diesel particulate matter

e/o - east of

n/o - north of

PM_{2.5} - particulate matter less than 2.5 microns in diameter

Rd - road

ROG - reactive organic gases

s/o - south of

St - street

VMT - vehicle miles traveled

Conversion Factor:

453.592 g/lb

Table A-8. Speciation Profiles Used to Calculate Mobile Source Air Toxic (MSAT) Emissions

Tustin Ranch Costco Fuel Station
Orange County, California

Chemical Name	CAS Number	Gasoline-Fueled Passenger Vehicles					Diesel-Fueled Fuel Delivery Trucks	
		ROG Weight Fraction			PM _{2.5} Weight Fraction		ROG Weight Fraction	PM _{2.5} Weight Fraction
		Starting Exhaust ¹	Running and Idling Exhaust ²	Evaporative ³	Starting Exhaust ⁴	Running and Idling Exhaust ⁴	Running and Idling Exhaust ⁵	Running and Idling Exhaust ⁵
1,3-butadiene	106990	6.48E-03	1.66E-03	--	--	--	8.00E-04	--
benzene	71432	2.59E-02	2.67E-02	1.17E-02	--	--	1.29E-02	--
formaldehyde	50000	1.62E-02	1.47E-02	--	--	--	2.17E-01	--
acrolein (2-propenal)	107028	6.33E-05	3.33E-05	--	--	--	9.99E-03	--
naphthalene	91203	2.07E-03	2.53E-03	--	7.16E-05	7.19E-05	1.63E-02	--
acetaldehyde	75070	1.12E-02	9.82E-03	--	--	--	6.93E-02	--
ethyl benzene	100414	1.29E-02	7.67E-03	7.55E-03	--	--	6.30E-03	--
POM (15 Pollutants)								
Acenaphthene	83329	3.99E-05	3.99E-05	--	--	--	5.26E-05	--
Acenaphthylene	208968	1.81E-04	1.81E-04	--	2.14E-05	2.13E-05	8.53E-05	--
Anthracene	120127	3.35E-05	3.35E-05	--	2.21E-05	2.21E-05	3.04E-05	2.66E-05
Benz(a)anthracene	56553	5.40E-06	5.40E-06	--	2.03E-04	2.03E-04	3.00E-07	7.99E-07
Benzo(a)pyrene	50328	2.94E-07	2.94E-07	--	5.07E-04	5.09E-04	--	3.30E-06
Benzo(b)fluoranthene	205992	4.01E-06	4.01E-06	--	2.48E-04	2.48E-04	--	1.40E-06
Benzo(g,h,i)perylene	191242	--	--	--	1.38E-03	1.38E-03	2.00E-07	2.00E-07
Benzo(k)fluoranthene	207089	4.01E-06	4.01E-06	--	2.48E-04	2.48E-04	--	1.40E-06
Chrysene	218019	6.05E-06	6.05E-06	--	1.71E-04	1.72E-04	5.00E-07	2.50E-06
Dibenz(a,h)anthracene	53703	--	--	--	1.19E-05	1.19E-05	--	1.00E-06
Fluoranthene	206440	5.60E-05	5.60E-05	--	7.80E-05	7.80E-05	4.57E-05	4.87E-05
Fluorene	86737	8.08E-05	8.08E-05	--	--	--	1.96E-04	5.38E-05
Indeno(1,2,3-c,d)pyrene	193395	--	--	--	5.16E-04	5.17E-04	--	5.00E-07
Phenanthrene	85018	2.14E-04	2.14E-04	--	7.72E-05	7.74E-05	8.51E-04	4.29E-04
Pyrene	129000	6.40E-05	6.40E-05	--	8.44E-05	8.47E-05	3.79E-05	4.67E-05

Notes:

¹ The ROG starting exhaust speciation profile for gasoline vehicles represents the maximum of CARB profiles OG2301 and OG2302 and EPA MOVES profiles. See Table 1 for further details.

² The ROG running and idling exhaust speciation profile for gasoline vehicles represents the maximum of CARB profiles OG2303 and OG2304 and EPA MOVES profiles. See Table 1 for further details.

³ The ROG evaporative speciation profile for gasoline vehicles represents CARB profile OG2315. See Table 1 for further details.

⁴ The PM_{2.5} starting, running, and idling exhaust speciation profiles for gasoline vehicles represent EPA MOVES profiles. See Table 1 for further details.

⁵ The ROG and PM_{2.5} running and idling exhaust speciation profiles for diesel vehicles represents the EPA MOVES profiles for post-2007 model year vehicles. See Table 1 for further details.

Abbreviations:

CAS - Chemical Abstract Service

EPA - Environmental Protection Agency

PM_{2.5} - particulate matter less than 2.5 microns in diameter

POM - polycyclic organic matter

ROG - reactive organic gases

Table A-9. Peak Hour Speciated MSAT Emissions for Passenger Vehicles
Tustin Ranch Cobas Fuel Station
Orange County, California

Process	Pollutant	Peak Hour Emissions (lb/hr)													
		LDV 01	LDV 02	LDV 03	LDV 04	LDV 05	LDV 06	LDV 07	LDV 08	LDV 09	LDV 10	LDV 11	LDV 12	LDV 13	TOTING01
RDG Starting Exhaust	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	1.64E-04
	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	6.56E-04
	formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.10E-04
	acrolein (2-propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-06
	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	5.25E-05
	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	2.85E-04
	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	3.26E-04
	acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-06
	acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.55E-06
	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	8.49E-07
	benz(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	1.37E-07
	benz(a)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	7.35E-09
	benz(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-07
	benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	benz(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-07
	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	1.57E-07
	dibenz(a,h)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	0.00E+00
	fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-06
	fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-06
	indeno(1,2,3-c,d)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	0.00E+00
	phenanthrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.47E-06
	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	1.67E-06
RDG Running and Idling Exhaust	1,3-butadiene	5.79E-07	6.50E-08	5.07E-07	9.33E-07	1.04E-06	3.62E-08	5.52E-07	8.77E-07	3.71E-07	8.65E-07	1.47E-05	3.30E-06	1.69E-05	6.36E-05
	benzene	9.13E-06	1.04E-05	8.06E-06	1.50E-05	1.66E-05	5.81E-07	8.85E-08	1.41E-05	5.95E-06	1.30E-05	2.78E-04	5.29E-05	2.71E-05	1.02E-03
	formaldehyde	5.04E-06	5.75E-07	4.45E-06	8.76E-06	9.19E-06	3.71E-07	3.89E-08	7.76E-05	3.79E-05	7.65E-06	1.76E-04	2.92E-05	1.50E-05	5.67E-04
	acrolein (2-propenal)	1.14E-08	1.30E-09	1.01E-09	1.87E-09	2.08E-09	2.75E-10	1.10E-10	1.76E-09	7.43E-09	1.73E-09	2.84E-07	6.61E-08	3.30E-08	1.27E-06
	naphthalene	8.65E-07	9.87E-08	7.67E-07	1.42E-06	1.58E-06	5.50E-08	8.38E-09	1.33E-05	5.61E-07	1.31E-06	2.16E-05	5.01E-06	2.57E-06	9.66E-05
	acetaldehyde	3.76E-06	3.83E-07	2.97E-06	5.51E-06	6.12E-06	2.18E-07	3.28E-08	5.18E-05	2.19E-06	5.11E-06	8.30E-05	1.95E-05	9.93E-06	3.75E-04
	ethyl benzene	2.63E-06	3.00E-07	2.32E-06	4.10E-06	4.78E-06	1.67E-07	2.55E-08	4.84E-05	1.71E-06	3.92E-06	6.55E-05	1.52E-05	7.79E-06	2.91E-04
	acenaphthene	1.72E-08	1.56E-09	1.21E-09	2.24E-09	2.49E-09	8.69E-10	1.37E-10	2.30E-09	8.90E-09	2.67E-09	3.41E-07	7.97E-09	4.06E-09	1.53E-08
	acenaphthylene	6.20E-08	7.07E-09	5.47E-09	1.02E-07	1.13E-07	3.94E-09	6.01E-10	9.54E-09	4.03E-09	9.41E-09	1.54E-06	1.59E-07	1.84E-07	6.92E-06
	anthracene	1.12E-08	1.31E-09	1.01E-09	1.88E-09	2.09E-09	2.30E-10	1.11E-10	1.77E-09	7.49E-09	1.78E-09	2.86E-07	6.63E-08	3.40E-08	1.28E-06
	benz(a)anthracene	1.85E-09	2.11E-10	1.67E-09	3.07E-09	3.37E-09	1.19E-10	1.72E-11	2.85E-09	1.21E-09	2.81E-09	4.61E-09	1.07E-08	5.49E-09	2.06E-07
	benz(a)pyrene	1.91E-10	1.15E-11	8.80E-11	1.65E-10	1.83E-10	6.40E-12	9.70E-13	1.55E-10	6.55E-11	1.53E-10	2.43E-09	5.84E-10	2.99E-10	1.12E-08
	benz(b)fluoranthene	1.72E-09	1.52E-10	1.21E-09	2.25E-09	2.50E-09	8.74E-11	1.33E-11	2.11E-09	8.95E-10	2.09E-09	1.47E-09	2.96E-09	4.88E-09	1.57E-07
	benz(g,h,i)perylene	6.00E-09	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00
	benz(k)fluoranthene	1.72E-09	1.52E-10	1.21E-09	2.25E-09	2.50E-09	8.74E-11	1.33E-11	2.11E-09	8.95E-10	2.09E-09	1.47E-09	2.96E-09	4.88E-09	1.57E-07
	chrysene	2.07E-09	2.36E-10	1.83E-09	3.39E-09	3.72E-09	1.32E-10	2.01E-11	3.19E-09	1.35E-09	3.15E-09	5.16E-09	1.20E-08	6.15E-09	2.31E-07
	dibenz(a,h)anthracene	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00	8.00E+00
	fluoranthene	1.92E-08	2.19E-09	1.69E-09	3.14E-09	3.49E-09	1.27E-09	1.86E-10	2.95E-09	1.25E-09	2.91E-09	4.79E-07	1.11E-07	5.69E-08	2.13E-06
	fluorene	3.77E-06	3.16E-09	2.44E-09	4.53E-09	5.04E-09	1.75E-09	2.68E-10	4.76E-09	1.80E-09	4.29E-09	6.90E-07	1.63E-07	8.21E-08	3.09E-06
	indeno(1,2,3-c,d)pyrene	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00	6.00E+00
	phenanthrene	7.73E-08	8.36E-09	6.46E-09	1.20E-07	1.37E-07	4.65E-09	7.10E-10	1.13E-07	4.78E-09	1.11E-07	1.87E-06	4.75E-07	2.18E-07	8.18E-06
	pyrene	2.13E-08	2.50E-09	1.93E-09	3.59E-09	3.99E-09	1.39E-09	2.12E-10	3.77E-09	1.47E-09	3.33E-09	5.46E-07	1.27E-07	6.40E-08	2.49E-06

Table A-9. Peak Hour Speciated MSAT Emissions for Passenger Vehicles
Tustin Ranch Costco Fuel Station
Orange County, California

Process	Pollutant	Peak Hour Emissions (lb/hr)													
		LDV 01	LDV 02	LDV 03	LDV 04	LDV 05	LDV 06	LDV 07	LDV 08	LDV 09	LDV 10	LDV 11	LDV 12	LDV 13	TOTAL(D)
ROG Evaporative Exhaust	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	0.00E+00
	benzene	9.74E-05	1.05E-05	8.15E-05	1.51E-05	1.68E-05	5.84E-07	8.95E-08	1.47E-05	6.07E-05	1.40E-05	3.99E-05	9.75E-05	4.74E-06	9.76E-05
	formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	acrolein (2-propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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	0.00E+00
	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	0.00E+00
	ethyl benzene	5.39E-05	6.80E-07	5.72E-06	9.79E-06	1.03E-05	7.40E-07	5.79E-09	9.31E-06	1.90E-05	9.08E-06	2.58E-05	5.93E-05	3.07E-06	5.93E-05
	acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	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	0.00E+00
	benz(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	0.00E+00
	benzo(a)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	0.00E+00
	benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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	0.00E+00
	dibenz(a,h)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	0.00E+00
	fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	indeno(1,2,3-c,d)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	0.00E+00
	phenanthrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	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	0.00E+00
RM: Running and Idling Exhaust	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	0.00E+00
	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	0.00E+00
	formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	acrolein (2-propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	naphthalene	7.39E-07	2.73E-10	2.11E-09	3.92E-09	4.36E-09	1.57E-10	7.32E-11	1.68E-09	1.56E-09	1.63E-09	6.39E-09	1.49E-09	7.61E-07	2.86E-07
	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	0.00E+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	0.00E+00
	acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	acenaphthylene	7.10E-10	8.10E-11	6.76E-10	1.16E-09	1.79E-09	4.57E-11	5.98E-12	1.09E-09	4.63E-10	1.08E-09	1.90E-09	4.41E-09	2.26E-09	4.49E-09
	anthracene	7.56E-10	4.39E-11	6.49E-10	1.21E-09	1.34E-09	4.69E-11	7.12E-12	1.12E-09	4.89E-10	1.17E-09	1.97E-09	4.57E-09	2.34E-09	4.80E-09
	benz(a)anthracene	6.73E-09	7.70E-10	5.52E-09	1.11E-08	1.22E-08	4.29E-10	6.54E-11	1.04E-08	4.48E-09	1.02E-08	1.80E-07	4.19E-08	2.15E-08	4.07E-07
	benzo(a)pyrene	1.69E-08	1.93E-09	1.49E-08	2.72E-08	3.00E-08	1.09E-09	1.64E-10	2.61E-08	1.10E-08	2.57E-08	4.52E-07	1.05E-07	5.39E-08	2.07E-06
	benzo(b)fluoranthene	8.75E-09	9.41E-10	7.76E-09	1.35E-08	1.50E-08	5.23E-10	8.00E-11	1.22E-08	5.38E-09	1.19E-08	2.20E-07	5.17E-08	2.67E-08	5.87E-07
	benzo(g,h,i)perylene	4.58E-08	5.27E-09	4.54E-08	7.50E-08	8.34E-08	2.91E-09	4.44E-10	7.05E-08	2.98E-08	6.95E-08	1.22E-06	2.84E-07	1.46E-07	5.48E-06
	benzo(k)fluoranthene	8.75E-09	9.41E-10	7.76E-09	1.35E-08	1.50E-08	5.23E-10	8.00E-11	1.22E-08	5.38E-09	1.19E-08	2.20E-07	5.17E-08	2.67E-08	5.87E-07
	chrysene	5.71E-07	6.51E-10	5.94E-09	9.35E-09	1.04E-08	2.63E-10	5.53E-11	8.79E-09	3.72E-09	8.62E-09	1.57E-07	3.55E-08	1.82E-08	6.87E-07
	dibenz(a,h)anthracene	3.95E-10	4.50E-11	3.49E-10	6.47E-10	7.19E-10	2.51E-11	3.83E-12	6.08E-10	2.57E-10	6.00E-10	1.05E-08	2.45E-09	1.26E-09	4.72E-08
	fluoranthene	2.60E-09	2.96E-10	2.79E-09	4.25E-09	4.73E-09	1.65E-10	2.52E-11	4.00E-09	1.69E-09	3.94E-09	6.93E-08	1.61E-08	8.25E-09	3.10E-07
	fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	indeno(1,2,3-c,d)pyrene	1.72E-08	1.98E-09	1.52E-08	2.87E-08	3.11E-08	1.09E-09	1.67E-10	2.63E-08	1.17E-08	2.61E-08	4.59E-07	1.07E-07	5.37E-08	2.06E-06
	phenanthrene	2.58E-09	2.94E-10	2.72E-09	4.22E-09	4.69E-09	1.61E-10	2.50E-11	3.87E-09	1.68E-09	3.91E-09	6.88E-08	1.50E-08	8.20E-09	1.08E-07
	pyrene	7.87E-09	8.71E-10	7.49E-09	1.26E-08	1.39E-08	4.79E-10	7.27E-11	1.14E-08	4.78E-09	1.08E-08	1.75E-08	3.86E-08	1.96E-08	1.17E-07

Table A-9. Peak Hour Speciated MSAT Emissions for Passenger Vehicles
Tustin Ranch Costco Fuel Station
Orange County, California

Process	Pollutant	Peak Hour Emissions (lb/hr)													
		LDV 01	LDV 02	LDV 03	LDV 04	LDV 05	LDV 06	LDV 07	LDV 08	LDV 09	LDV 10	LDV 11	LDV 12	LDV 13	TOTAL
PM ₁₀ - Starting Exhaust	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	0.00E+00
	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	0.00E+00
	Formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acrolein (2-propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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	0.00E+00
	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	0.00E+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	0.00E+00
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	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	0.00E+00
	Benz(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	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzofluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total	1,3-butadiene	5.70E-07	6.50E-08	5.02E-07	9.33E-07	1.04E-06	3.52E-08	5.52E-09	8.77E-07	3.71E-07	8.65E-07	1.42E-05	3.30E-06	1.69E-06	2.78E-04
	Benzene	1.84E-05	2.10E-06	1.62E-05	3.01E-05	3.35E-05	1.17E-06	1.78E-07	2.03E-05	1.20E-05	7.79E-05	2.67E-04	6.22E-05	3.18E-05	2.60E-03
	Formaldehyde	5.04E-06	5.72E-07	4.45E-06	8.26E-06	9.18E-06	3.11E-07	4.89E-08	7.76E-06	3.29E-06	7.66E-06	1.26E-04	2.92E-05	1.50E-05	9.73E-04
	Acrolein (2-propenal)	1.14E-08	1.30E-09	1.01E-08	1.87E-08	2.08E-08	7.25E-10	1.10E-10	1.76E-08	7.43E-09	1.73E-08	2.84E-07	6.61E-08	3.38E-08	2.88E-06
	Naphthalene	8.67E-07	9.89E-08	7.65E-07	1.42E-06	1.58E-06	5.52E-08	8.41E-09	1.34E-06	5.65E-07	1.32E-06	2.16E-05	5.03E-06	2.57E-06	1.49E-04
	Acetaldehyde	3.16E-06	3.84E-07	2.97E-06	5.51E-06	6.12E-06	2.14E-07	3.26E-08	5.18E-06	2.19E-06	5.11E-06	8.38E-05	1.95E-05	9.98E-06	6.60E-04
	Ethyl benzene	8.61E-08	9.82E-07	7.59E-08	1.41E-07	1.57E-07	5.47E-07	8.34E-08	1.32E-07	5.61E-08	1.31E-07	9.12E-05	2.12E-05	1.09E-05	1.72E-03
	Acenaphthene	1.37E-08	1.56E-09	1.21E-08	2.24E-08	2.49E-08	8.69E-10	1.32E-10	2.10E-08	9.90E-09	2.07E-08	3.31E-07	7.92E-08	4.06E-08	2.54E-06
	Acenaphthylene	6.27E-08	7.15E-09	5.53E-08	1.03E-07	1.14E-07	3.99E-09	6.08E-10	9.62E-08	4.09E-08	9.52E-08	1.56E-06	3.64E-07	1.86E-07	1.16E-05
	Anthracene	7.23E-08	1.39E-09	1.08E-08	2.00E-08	2.22E-08	7.77E-10	1.18E-10	1.89E-08	7.95E-09	1.85E-08	3.05E-07	7.11E-08	3.64E-08	2.22E-06
	Benz(a)anthracene	8.60E-09	9.81E-10	7.58E-09	1.41E-08	1.57E-08	5.47E-10	8.33E-11	1.32E-08	5.60E-09	1.31E-08	2.26E-07	5.29E-08	2.69E-08	1.70E-06
	Benzofluoranthene	1.70E-08	1.94E-09	1.50E-08	2.79E-08	3.10E-08	1.08E-09	1.65E-10	2.62E-08	1.11E-08	2.56E-08	4.55E-07	1.06E-07	5.41E-08	3.11E-06
	Benzofluoranthene	9.52E-09	1.10E-09	8.49E-09	1.58E-08	1.75E-08	6.12E-10	9.33E-11	1.48E-08	6.27E-09	1.46E-08	2.55E-07	5.92E-08	3.03E-08	1.77E-06
	Benzofluoranthene	4.58E-08	5.22E-09	4.04E-08	7.50E-08	8.34E-08	2.91E-09	4.44E-10	7.05E-08	2.99E-08	6.95E-08	1.22E-06	2.84E-07	1.46E-07	5.65E-06
	Benzofluoranthene	9.62E-09	1.10E-09	8.49E-09	1.58E-08	1.75E-08	6.12E-10	9.33E-11	1.48E-08	6.27E-09	1.46E-08	2.55E-07	5.92E-08	3.03E-08	1.77E-06
	Chrysene	2.78E-09	8.88E-10	6.86E-09	1.27E-08	1.42E-08	4.95E-10	7.54E-11	1.20E-08	5.07E-09	1.18E-08	2.04E-07	4.75E-08	2.43E-08	1.09E-06
	Dibenz(a,h)anthracene	3.95E-10	4.50E-11	3.48E-10	6.47E-10	7.19E-10	2.51E-11	3.83E-12	6.08E-10	2.52E-10	6.00E-10	1.05E-08	2.45E-09	1.26E-09	4.88E-08
	Fluoranthene	2.18E-08	2.48E-09	1.92E-08	3.57E-08	3.97E-08	1.39E-09	2.11E-10	3.35E-08	1.42E-08	3.31E-08	5.47E-07	1.27E-07	6.52E-08	3.08E-06
	Fluorene	2.77E-08	3.16E-09	2.44E-08	4.52E-08	5.04E-08	1.76E-09	2.68E-10	4.76E-08	1.80E-08	4.20E-08	6.90E-07	1.60E-07	8.21E-08	5.14E-06
	Indeno(1,2,3-c,d)pyrene	1.72E-08	1.96E-09	1.52E-08	2.82E-08	3.13E-08	1.09E-09	1.67E-10	2.65E-08	1.17E-08	2.61E-08	4.59E-07	1.07E-07	5.47E-08	2.12E-06
	Phenanthrene	7.59E-08	8.62E-09	6.62E-08	1.24E-07	1.38E-07	4.83E-09	7.35E-10	1.17E-07	4.94E-08	1.15E-07	1.90E-06	4.41E-07	2.26E-07	1.39E-05
	Pyrene	2.47E-08	2.82E-09	2.18E-08	4.05E-08	4.51E-08	1.57E-09	2.40E-10	3.81E-08	1.61E-08	3.76E-08	6.22E-07	1.45E-07	7.40E-08	4.42E-06

Notes:

¹ Speciated emissions are calculated using the speciation profiles in Table A-8 and the criteria pollutant emissions in Table A-6.

Abbreviations:

PM₁₀ - particulate matter less than 2.5 microns in diameter
ROG - reactive organic gases

Table A-10. Annual Average Speciated MSAT Emissions for Passenger Vehicles
 Tustin Ranch Costco Fuel Station
 Orange County, California

Process	Pollutant	Annual Emissions (lb/yr)							Annual Emissions (lb/yr)						
		LDV 01	LDV 02	LDV 03	LDV 04	LDV 05	LDV 06	LDV 07	LDV 08	LDV 09	LDV 10	LDV 11	LDV 12	LDV 13	IDLING01
HOG Starting Exhaust	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	2.55E-01
	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	3.01E+00
	formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E+00
	isocroton (2-propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.37E-03
	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	2.41E-01
	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	1.31E+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	1.51E+00
	acemaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-03
	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	2.11E-02
	benz(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	1.09E-03
	benzo(a)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	6.29E-04
	benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.42E-03
	benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.67E-04
	benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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	4.67E-04
	dibenz(a,h)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	0.00E+00
	fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.04E-04
	fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.41E-03
	indeno(1,2,3-c,d)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	0.00E+00
	phenanthrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-02
	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	7.45E-02
HOG Running and Idling Exhaust	1,3-butadiene	2.51E-03	2.96E-04	2.61E-03	4.02E-03	4.47E-03	1.57E-04	2.66E-05	4.23E-03	1.79E-03	3.84E-03	6.78E-02	1.55E-02	8.03E-03	2.92E-01
	benzene	4.03E-02	4.74E-03	4.18E-02	6.45E-02	7.17E-02	2.52E-03	4.72E-04	6.78E-02	2.87E-02	6.16E-02	1.09E+00	2.48E-01	1.29E-01	4.68E+00
	formaldehyde	2.22E-02	2.62E-03	2.31E-02	3.56E-02	3.96E-02	1.39E-02	2.16E-04	3.74E-02	1.59E-02	3.40E-02	6.00E-01	1.37E-01	7.11E-02	2.59E+00
	isocroton (2-propenal)	5.03E-05	5.92E-06	5.22E-05	8.05E-05	8.95E-05	3.15E-06	5.13E-07	8.46E-05	3.58E-05	7.66E-05	1.16E-03	2.10E-04	1.61E-04	5.84E-03
	naphthalene	1.82E-03	4.49E-04	3.96E-03	6.11E-03	6.79E-03	2.39E-04	4.04E-05	6.42E-03	2.72E-03	5.83E-03	1.03E-01	2.35E-02	1.22E-02	4.43E-01
	acetaldehyde	1.48E-02	1.75E-03	1.54E-02	2.37E-02	2.64E-02	9.29E-04	1.57E-04	2.50E-02	1.06E-02	2.27E-02	4.90E-01	9.14E-02	4.74E-02	1.72E+00
	ethyl benzene	1.16E-02	1.38E-03	1.20E-02	1.85E-02	2.06E-02	7.26E-04	1.13E-04	1.95E-02	8.25E-03	1.77E-02	3.13E-01	7.14E-02	3.70E-02	1.35E+00
	acemaphthylene	6.03E-05	7.09E-06	6.26E-05	9.45E-05	1.07E-04	3.78E-06	6.39E-07	1.01E-04	4.29E-05	9.21E-05	1.63E-03	3.72E-04	1.93E-04	7.01E-03
	anthracene	2.73E-04	3.72E-05	2.84E-04	4.38E-04	4.87E-04	1.71E-05	2.90E-06	4.60E-04	1.95E-04	4.10E-04	7.38E-03	1.69E-03	8.74E-04	3.10E-02
	benz(a)anthracene	5.05E-05	5.06E-06	5.25E-05	8.10E-05	9.01E-05	3.17E-06	5.16E-07	8.52E-05	3.61E-05	7.74E-05	1.37E-03	3.17E-04	1.62E-04	5.88E-03
	benzo(a)pyrene	8.15E-06	9.60E-07	8.47E-06	1.31E-05	1.45E-05	5.11E-07	8.63E-08	1.72E-05	5.81E-06	1.25E-05	2.10E-04	5.07E-05	2.61E-05	9.38E-04
	benzo(b)fluoranthene	4.43E-07	5.23E-08	4.61E-07	7.11E-07	7.91E-07	2.78E-08	4.71E-09	7.48E-07	2.16E-07	4.79E-07	1.70E-05	2.74E-06	1.42E-06	5.16E-05
	benzo(g,h,i)perylene	6.05E-06	7.13E-07	6.29E-06	9.69E-06	1.06E-05	3.79E-07	6.42E-08	1.02E-05	4.32E-06	9.26E-06	1.63E-04	3.77E-05	1.94E-05	7.04E-04
	benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	chrysene	9.14E-06	1.00E-06	9.49E-06	1.46E-05	1.63E-05	5.73E-07	9.66E-08	1.54E-05	6.51E-06	1.40E-05	2.47E-04	5.63E-05	2.92E-05	1.06E-03
	dibenz(a,h)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	0.00E+00
	fluoranthene	8.48E-05	9.56E-06	9.78E-05	1.75E-04	1.51E-04	5.30E-06	8.86E-07	1.42E-04	6.03E-05	1.29E-04	2.78E-03	5.21E-04	2.70E-04	9.93E-03
	fluorene	1.72E-04	1.44E-05	1.27E-04	1.85E-04	2.17E-04	7.65E-06	1.29E-06	2.08E-04	8.70E-05	1.87E-04	3.75E-03	3.00E-04	1.43E-02	0.00E+00
	indeno(1,2,3-c,d)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	0.00E+00
	phenanthrene	3.27E-04	3.81E-05	3.36E-04	5.17E-04	5.75E-04	2.03E-05	3.43E-06	5.44E-04	2.30E-04	4.94E-04	8.72E-03	1.99E-03	1.03E-03	3.76E-02
	pyrene	9.67E-05	1.14E-05	1.00E-04	1.55E-04	1.77E-04	6.09E-06	1.02E-06	1.67E-04	6.89E-05	1.40E-04	2.61E-03	5.99E-04	3.09E-04	1.12E-02

Table A-10. Annual Average Speciated MSAT Emissions for Passenger Vehicles
Tustin Ranch Costco Fuel Station
Orange County, California

Process	Pollutant	Annual Emissions (lb/yr)								Annual Emissions (lb/yr)							
		LDV 01	LDV 02	LDV 03	LDV 04	LDV 05	LDV 06	LDV 07	LDV 08	LDV 09	LDV 10	LDV 11	LDV 12	LDV 13	LDVING01	LDVING02	LDVING03
ROG Evaporative Exhaust	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	0.00E+00	0.00E+00	0.00E+00
	benzene	6.07E-02	4.80E-02	4.21E-02	6.52E-02	7.25E-02	2.55E-03	4.32E-04	6.86E-02	2.99E-02	3.23E-02	1.80E-01	6.24E-02	2.25E-02	4.25E-02	4.25E-02	4.25E-02
	formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	isotrin (2-methyl)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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	0.00E+00	0.00E+00	0.00E+00
	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	0.00E+00	0.00E+00	0.00E+00
	ethyl benzene	2.64E-02	3.10E-02	2.74E-02	4.22E-02	4.69E-02	1.65E-03	2.79E-04	4.44E-02	1.88E-02	2.03E-02	1.23E-01	2.91E-02	1.46E-02	2.75E-02	2.75E-02	2.75E-02
	acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	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	0.00E+00	0.00E+00	0.00E+00
	benz(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	0.00E+00	0.00E+00	0.00E+00
	benz(a)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	0.00E+00	0.00E+00	0.00E+00
	benz(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	benz(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	benz(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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	0.00E+00	0.00E+00	0.00E+00
	dibenz(a,h)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	0.00E+00	0.00E+00	0.00E+00
	fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	indeno(1,2,3-c,d)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	0.00E+00	0.00E+00	0.00E+00
	phenanthrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	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	0.00E+00	0.00E+00	0.00E+00
PM _{2.5} Running and Idling Exhaust	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	0.00E+00	0.00E+00	0.00E+00
	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	0.00E+00	0.00E+00	0.00E+00
	formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	isotrin (2-methyl)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	naphthalene	1.05E-05	1.24E-06	1.10E-05	1.69E-05	1.88E-05	6.61E-07	1.12E-07	1.70E-05	7.57E-06	1.61E-05	3.05E-04	6.97E-05	3.61E-05	1.31E-03	1.31E-03	1.31E-03
	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	0.00E+00	0.00E+00	0.00E+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	0.00E+00	0.00E+00	0.00E+00
	acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	acenaphthylene	3.13E-06	3.69E-07	3.25E-06	5.01E-06	5.57E-06	1.96E-07	3.32E-08	5.27E-06	2.23E-06	4.79E-06	9.03E-05	2.07E-05	1.07E-05	3.66E-04	3.66E-04	3.66E-04
	anthracene	3.25E-06	3.82E-07	3.37E-06	5.19E-06	5.78E-06	2.03E-07	3.44E-08	5.46E-06	2.31E-06	4.96E-06	9.19E-05	2.14E-05	1.11E-05	4.04E-04	4.04E-04	4.04E-04
	benz(a)anthracene	2.90E-05	3.50E-06	3.09E-05	4.76E-05	5.30E-05	1.86E-06	3.15E-07	5.01E-05	2.12E-05	4.55E-05	8.61E-04	1.97E-04	1.02E-04	3.71E-03	3.71E-03	3.71E-03
	benz(a)pyrene	7.47E-05	8.79E-06	7.75E-05	1.19E-04	1.33E-04	4.68E-06	7.91E-07	1.26E-04	5.32E-05	1.14E-04	2.16E-03	4.93E-04	2.56E-04	9.30E-03	9.30E-03	9.30E-03
	benz(b)fluoranthene	3.64E-05	4.28E-06	3.78E-05	5.87E-05	6.48E-05	2.38E-06	3.86E-07	6.17E-05	2.59E-05	5.56E-05	1.05E-03	2.40E-04	1.25E-04	4.53E-03	4.53E-03	4.53E-03
	benz(g,h,i)perylene	7.02E-04	2.38E-05	2.18E-04	3.73E-04	3.60E-04	1.27E-05	2.14E-06	3.40E-04	1.44E-04	3.09E-04	5.84E-03	1.37E-03	6.92E-04	2.52E-02	2.52E-02	2.52E-02
	benz(k)fluoranthene	3.64E-05	4.28E-06	3.78E-05	5.87E-05	6.48E-05	2.38E-06	3.86E-07	6.17E-05	2.59E-05	5.56E-05	1.05E-03	2.40E-04	1.25E-04	4.53E-03	4.53E-03	4.53E-03
	chrysene	2.52E-05	2.96E-06	2.62E-05	4.03E-05	4.46E-05	1.58E-06	2.67E-07	4.24E-05	1.79E-05	3.85E-05	7.70E-04	1.66E-04	8.61E-05	3.14E-03	3.14E-03	3.14E-03
	dibenz(a,h)anthracene	1.75E-06	2.05E-07	1.81E-06	2.79E-06	3.10E-06	1.09E-07	1.85E-08	2.91E-06	1.24E-06	2.86E-06	5.04E-05	1.15E-05	5.97E-06	2.17E-04	2.17E-04	2.17E-04
	fluoranthene	1.14E-05	1.35E-06	1.19E-05	1.83E-05	2.04E-05	7.17E-07	1.21E-07	1.91E-05	8.16E-06	1.75E-05	3.11E-04	7.58E-05	3.92E-05	1.43E-03	1.43E-03	1.43E-03
	fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	indeno(1,2,3-c,d)pyrene	7.50E-05	8.93E-06	7.88E-05	1.21E-04	1.35E-04	4.75E-06	8.04E-07	1.28E-04	5.41E-05	1.16E-04	2.19E-03	5.01E-04	2.50E-04	9.45E-03	9.45E-03	9.45E-03
	phenanthrene	1.14E-05	1.35E-06	1.19E-05	1.83E-05	2.04E-05	7.17E-07	1.21E-07	1.91E-05	8.16E-06	1.75E-05	3.11E-04	7.58E-05	3.92E-05	1.43E-03	1.43E-03	1.43E-03
	pyrene	1.24E-05	1.45E-06	1.29E-05	1.99E-05	2.21E-05	7.79E-07	1.32E-07	2.09E-05	8.86E-06	1.99E-05	3.59E-04	8.21E-05	4.26E-05	1.58E-03	1.58E-03	1.58E-03

Table A-10. Annual Average Speciated MSAT Emissions for Passenger Vehicles
Tustin Ranch Costco Fuel Station
Orange County, California

Process	Pollutant	Annual Emissions (lb/yr)										Annual Emissions (lb/yr)									
		LDV 01	LDV 02	LDV 03	LDV 04	LDV 05	LDV 06	LDV 07	LDV 08	LDV 09	LDV 10	LDV 11	LDV 12	LDV 13	TOT14G01						
PM _{2.5} Starting Exhaust:	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	0.00E+00						
	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	0.00E+00						
	formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
	acrolein (2-propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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	0.00E+00						
	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	0.00E+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	0.00E+00						
	acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
	acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
	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	0.00E+00						
	benz(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	0.00E+00						
	benzo(a)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	0.00E+00						
	benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
	benzo(g,h,i)perylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
	benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+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	0.00E+00						
	dibenz(a,h)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	0.00E+00						
	fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
	fluorene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
	indeno(1,2,3-c,d)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	0.00E+00						
	phenanthrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00						
	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	0.00E+00						
Total	1,3-butadiene	2.51E-03	2.96E-04	2.61E-03	4.02E-03	4.47E-03	1.57E-04	2.66E-05	4.23E-03	1.79E-03	3.84E-03	6.78E-02	1.55E-02	8.02E-03	1.05E+00						
	benzene	6.10E-02	9.54E-03	8.41E-02	1.30E-01	1.44E-01	5.08E-03	8.53E-04	1.36E-01	5.77E-02	1.24E-01	1.28E+00	2.92E-01	1.51E-01	1.19E+01						
	formaldehyde	2.27E-02	2.67E-03	2.31E-02	3.56E-02	3.95E-02	1.39E-03	2.16E-04	3.79E-02	1.58E-02	2.40E-02	6.00E-01	1.37E-01	7.11E-02	4.47E+00						
	acrolein (2-propenal)	5.03E-05	5.92E-06	5.22E-05	8.05E-05	8.95E-05	3.15E-06	5.33E-07	8.46E-05	3.58E-05	7.69E-05	1.26E-03	3.10E-04	1.61E-04	1.32E-02						
	naphthalene	3.82E-03	4.50E-04	3.97E-03	6.12E-03	6.81E-03	2.40E-04	4.05E-05	6.94E-03	2.73E-03	5.85E-03	1.03E-01	2.36E-02	1.22E-02	6.86E-01						
	acetaldehyde	1.48E-02	1.75E-03	1.54E-02	2.37E-02	2.64E-02	9.29E-04	1.57E-04	2.50E-02	1.06E-02	2.27E-02	4.00E-01	9.14E-02	4.74E-02	3.03E+00						
	ethyl benzene	3.80E-02	4.47E-03	3.94E-02	6.07E-02	6.76E-02	2.38E-03	4.02E-04	6.39E-02	2.70E-02	5.80E-02	4.36E-01	9.95E-02	5.16E-02	5.60E+00						
	acenaphthene	6.03E-05	7.09E-06	6.26E-05	9.65E-05	1.07E-04	3.78E-06	6.39E-07	1.01E-04	4.29E-05	9.21E-05	1.63E-03	3.72E-04	1.93E-04	1.17E-02						
	acenaphthylene	2.77E-04	3.26E-05	2.87E-04	4.43E-04	4.92E-04	1.72E-05	2.93E-06	4.66E-04	1.97E-04	4.23E-04	7.47E-03	1.71E-03	8.85E-04	5.33E-02						
	anthracene	5.38E-05	6.34E-06	5.59E-05	8.67E-05	9.59E-05	3.37E-06	5.71E-07	9.06E-05	3.84E-05	8.23E-05	1.46E-03	3.32E-04	1.72E-04	1.02E-02						
	benz(a)anthracene	3.79E-05	4.46E-06	3.94E-05	6.07E-05	6.75E-05	2.38E-06	4.02E-07	6.38E-05	2.70E-05	5.80E-05	1.08E-03	2.47E-04	1.28E-04	5.40E-03						
	benzo(a)pyrene	7.51E-05	8.84E-06	7.80E-05	1.26E-04	1.34E-04	4.70E-06	7.26E-07	1.26E-04	5.35E-05	1.15E-04	2.17E-03	4.96E-04	2.57E-04	9.68E-03						
	benzo(b)fluoranthene	4.24E-05	5.00E-06	4.41E-05	6.79E-05	7.56E-05	2.66E-06	4.50E-07	7.14E-05	3.02E-05	6.49E-05	1.22E-03	2.78E-04	1.44E-04	5.85E-03						
	benzo(g,h,i)perylene	2.02E-04	2.38E-05	2.10E-04	3.23E-04	3.60E-04	1.27E-05	2.14E-06	3.40E-04	1.44E-04	3.09E-04	5.84E-03	1.33E-03	6.92E-04	2.60E-02						
	benzo(k)fluoranthene	4.24E-05	5.00E-06	4.41E-05	6.79E-05	7.56E-05	2.66E-06	4.50E-07	7.14E-05	3.02E-05	6.49E-05	1.22E-03	2.78E-04	1.44E-04	5.85E-03						
	chrysene	3.43E-05	4.04E-06	3.56E-05	5.49E-05	6.11E-05	2.15E-06	3.64E-07	5.78E-05	2.45E-05	5.25E-05	9.75E-04	2.23E-04	1.15E-04	5.00E-03						
	dibenz(a,h)anthracene	1.74E-06	2.05E-07	1.81E-06	2.79E-06	3.10E-06	1.09E-07	1.85E-08	2.93E-06	1.24E-06	2.66E-06	5.05E-05	1.15E-05	5.97E-06	2.24E-04						
fluoranthene	9.60E-05	1.17E-05	9.97E-05	1.53E-04	1.71E-04	6.02E-06	1.02E-06	1.62E-04	6.84E-05	1.07E-04	2.61E-03	5.92E-04	3.10E-04	1.28E-02							
fluorene	1.22E-04	1.44E-05	1.27E-04	1.95E-04	2.17E-04	7.65E-06	1.29E-06	2.05E-04	8.70E-05	1.07E-04	2.39E-03	5.32E-04	3.90E-04	2.26E-02							
indeno(1,2,3-c,d)pyrene	2.59E-05	8.93E-06	2.98E-05	1.21E-04	1.35E-04	4.75E-06	8.04E-07	1.28E-04	5.41E-05	1.06E-04	2.19E-03	5.01E-04	2.60E-04	2.97E-03							
phenanthrene	3.15E-04	3.94E-05	3.47E-04	5.36E-04	5.96E-04	2.10E-05	3.55E-06	5.63E-04	2.38E-04	5.12E-04	9.05E-03	2.07E-02	1.07E-02	6.39E-02							
pyrene	1.09E-04	1.20E-05	1.13E-04	1.75E-04	1.94E-04	6.82E-06	1.16E-06	1.04E-04	2.72E-05	1.07E-04	2.92E-03	6.79E-04	3.52E-04	2.03E-02							

Table A-11. Peak Hour Speciated MSAT Emissions for Fuel Delivery Trucks

Tustin Ranch Costco Fuel Station

Orange County, California

Process	Pollutant	Peak Hour Emissions (lb/hr)				
		HDV_01	HDV_02	HDV_03	HDV_11	IDLING02
ROG Running and Idling Exhaust	1,3-butadiene	1.07E-07	7.34E-08	6.51E-08	8.20E-07	3.54E-07
	benzene	1.73E-06	1.18E-06	1.05E-06	1.32E-05	5.71E-06
	formaldehyde	2.91E-05	1.99E-05	1.77E-05	2.23E-04	9.62E-05
	acrolein (2-propenal)	1.34E-06	9.16E-07	8.13E-07	1.02E-05	4.42E-06
	Naphthalene	2.18E-06	1.50E-06	1.33E-06	1.67E-05	7.21E-06
	acetaldehyde	9.29E-06	6.36E-06	5.64E-06	7.11E-05	3.07E-05
	ethyl benzene	8.44E-07	5.78E-07	5.13E-07	6.46E-06	2.79E-06
	Acenaphthene	7.05E-09	4.82E-09	4.28E-09	5.39E-08	2.33E-08
	Acenaphthylene	1.14E-08	7.82E-09	6.94E-09	8.74E-08	3.78E-08
	Anthracene	4.08E-09	2.79E-09	2.47E-09	3.12E-08	1.35E-08
	Benz(a)anthracene	4.02E-11	2.75E-11	2.44E-11	3.07E-10	1.33E-10
	Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(g,h,i)perylene	2.68E-11	1.83E-11	1.63E-11	2.05E-10	8.85E-11
	Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Chrysene	6.70E-11	4.59E-11	4.07E-11	5.12E-10	2.21E-10
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	6.13E-09	4.19E-09	3.72E-09	4.68E-08	2.02E-08
	Fluorene	2.63E-08	1.80E-08	1.60E-08	2.01E-07	8.67E-08
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PM _{2.5} Running and Idling Exhaust	Phenanthrene	1.14E-07	7.81E-08	6.93E-08	8.72E-07	3.77E-07
	Pyrene	5.08E-09	3.48E-09	3.09E-09	3.88E-08	1.68E-08
	1,3-butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	acrolein (2-propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ethyl benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Anthracene	1.55E-09	1.06E-09	9.44E-10	2.84E-09	1.49E-10
	Benz(a)anthracene	4.68E-11	3.20E-11	2.84E-11	8.53E-11	4.49E-12
	Benzo(a)pyrene	1.93E-10	1.32E-10	1.17E-10	3.53E-10	1.86E-11
	Benzo(b)fluoranthene	8.19E-11	5.61E-11	4.97E-11	1.49E-10	7.87E-12
	Benzo(g,h,i)perylene	1.17E-11	8.01E-12	7.11E-12	2.13E-11	1.12E-12
	Benzo(k)fluoranthene	8.19E-11	5.61E-11	4.97E-11	1.49E-10	7.87E-12
	Chrysene	1.46E-10	1.00E-10	8.89E-11	2.67E-10	1.40E-11
	Dibenz(a,h)anthracene	5.85E-11	4.01E-11	3.55E-11	1.07E-10	5.62E-12
	Fluoranthene	2.85E-09	1.95E-09	1.73E-09	5.19E-09	2.73E-10
	Fluorene	3.15E-09	2.15E-09	1.91E-09	5.74E-09	3.02E-10
	Indeno(1,2,3-c,d)pyrene	2.93E-11	2.00E-11	1.78E-11	5.34E-11	2.81E-12
	Phenanthrene	2.51E-08	1.72E-08	1.52E-08	4.57E-08	2.41E-09
	Pyrene	2.73E-09	1.87E-09	1.66E-09	4.98E-09	2.62E-10

Table A-11. Peak Hour Speciated MSAT Emissions for Fuel Delivery Trucks

Tustin Ranch Costco Fuel Station

Orange County, California

Process	Pollutant	Peak Hour Emissions (lb/hr)				
		HDV_01	HDV_02	HDV_03	HDV_11	IDLING02
Total	1,3-butadiene	1.07E-07	7.34E-08	6.51E-08	8.20E-07	3.54E-07
	benzene	1.73E-06	1.18E-06	1.05E-06	1.32E-05	5.71E-06
	formaldehyde	2.91E-05	1.99E-05	1.77E-05	2.23E-04	9.62E-05
	acrolein (2-propenal)	1.34E-06	9.16E-07	8.13E-07	1.02E-05	4.42E-06
	Naphthalene	2.18E-06	1.50E-06	1.33E-06	1.67E-05	7.21E-06
	acetaldehyde	9.29E-06	6.36E-06	5.64E-06	7.11E-05	3.07E-05
	ethyl benzene	8.44E-07	5.78E-07	5.13E-07	6.46E-06	2.79E-06
	Acenaphthene	7.05E-09	4.82E-09	4.28E-09	5.39E-08	2.33E-08
	Acenaphthylene	1.14E-08	7.82E-09	6.94E-09	8.74E-08	3.78E-08
	Anthracene	5.63E-09	3.85E-09	3.42E-09	3.40E-08	1.36E-08
	Benz(a)anthracene	8.70E-11	5.95E-11	5.28E-11	3.93E-10	1.37E-10
	Benzo(a)pyrene	1.93E-10	1.32E-10	1.17E-10	3.53E-10	1.86E-11
	Benzo(b)fluoranthene	8.19E-11	5.61E-11	4.97E-11	1.49E-10	7.87E-12
	Benzo(g,h,i)perylene	3.85E-11	2.64E-11	2.34E-11	2.26E-10	8.96E-11
	Benzo(k)fluoranthene	8.19E-11	5.61E-11	4.97E-11	1.49E-10	7.87E-12
	Chrysene	2.13E-10	1.46E-10	1.30E-10	7.79E-10	2.35E-10
	Dibenz(a,h)anthracene	5.85E-11	4.01E-11	3.55E-11	1.07E-10	5.62E-12
	Fluoranthene	8.97E-09	6.14E-09	5.45E-09	5.20E-08	2.05E-08
	Fluorene	2.94E-08	2.01E-08	1.79E-08	2.07E-07	8.71E-08
	Indeno(1,2,3-c,d)pyrene	2.93E-11	2.00E-11	1.78E-11	5.34E-11	2.81E-12
	Phenanthrene	1.39E-07	9.52E-08	8.45E-08	9.18E-07	3.79E-07
	Pyrene	7.81E-09	5.35E-09	4.74E-09	4.38E-08	1.70E-08

Notes:

¹ Speciated emissions are calculated using the speciation profiles in Table A-8 and the criteria pollutant emissions in Table A-7.

Abbreviations:

PM_{2.5} - particulate matter less than 2.5 microns in diameter

ROG - reactive organic gases

Table A-12. Annual Average Speciated MSAT Emissions for Fuel Delivery Trucks

Tustin Ranch Costco Fuel Station

Orange County, California

Process	Pollutant	Annual Emissions (lb/year)				
		HDV 01	HDV 02	HDV 03	HDV 11	IDLING02
ROG Running and Idling Exhaust	1,3-butadiene	3.13E-04	2.14E-04	1.90E-04	2.39E-03	1.03E-03
	benzene	5.05E-03	3.46E-03	3.07E-03	3.86E-02	1.67E-02
	formaldehyde	8.51E-02	5.82E-02	5.17E-02	6.51E-01	2.81E-01
	acrolein (2-propenal)	3.91E-03	2.68E-03	2.37E-03	2.99E-02	1.29E-02
	Naphthalene	6.38E-03	4.37E-03	3.87E-03	4.88E-02	2.11E-02
	acetaldehyde	2.71E-02	1.86E-02	1.65E-02	2.08E-01	8.96E-02
	ethyl benzene	2.47E-03	1.69E-03	1.50E-03	1.89E-02	8.14E-03
	Acenaphthene	2.06E-05	1.41E-05	1.25E-05	1.57E-04	6.80E-05
	Acenaphthylene	3.34E-05	2.28E-05	2.03E-05	2.55E-04	1.10E-04
	Anthracene	1.19E-05	8.14E-06	7.23E-06	9.10E-05	3.93E-05
	Benz(a)anthracene	1.17E-07	8.04E-08	7.13E-08	8.98E-07	3.88E-07
	Benzo(a)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(b)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Benzo(g,h,i)perylene	7.83E-08	5.36E-08	4.75E-08	5.99E-07	2.58E-07
	Benzo(k)fluoranthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Chrysene	1.96E-07	1.34E-07	1.19E-07	1.50E-06	6.46E-07
	Dibenz(a,h)anthracene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Fluoranthene	1.79E-05	1.22E-05	1.09E-05	1.37E-04	5.91E-05
	Fluorene	7.67E-05	5.25E-05	4.66E-05	5.87E-04	2.53E-04
	Indeno(1,2,3-c,d)pyrene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PM _{2.5} Running and Idling Exhaust	Phenanthrene	3.33E-04	2.28E-04	2.02E-04	2.55E-03	1.10E-03
	Pyrene	1.48E-05	1.02E-05	9.01E-06	1.13E-04	4.90E-05
	1,3-butadiene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	formaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	acrolein (2-propenal)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Naphthalene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	acetaldehyde	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	ethyl benzene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Acenaphthylene	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Anthracene	4.54E-06	3.11E-06	2.76E-06	8.28E-06	4.36E-07
	Benz(a)anthracene	1.37E-07	9.35E-08	8.29E-08	2.49E-07	1.31E-08
	Benzo(a)pyrene	5.65E-07	3.86E-07	3.43E-07	1.03E-06	5.42E-08
	Benzo(b)fluoranthene	2.39E-07	1.64E-07	1.45E-07	4.36E-07	2.30E-08
	Benzo(g,h,i)perylene	3.42E-08	2.34E-08	2.08E-08	6.23E-08	3.28E-09
	Benzo(k)fluoranthene	2.39E-07	1.64E-07	1.45E-07	4.36E-07	2.30E-08
	Chrysene	4.27E-07	2.92E-07	2.59E-07	7.79E-07	4.10E-08
	Dibenz(a,h)anthracene	1.71E-07	1.17E-07	1.04E-07	3.12E-07	1.64E-08
	Fluoranthene	8.32E-06	5.69E-06	5.05E-06	1.52E-05	7.99E-07
	Fluorene	9.19E-06	6.29E-06	5.58E-06	1.68E-05	8.83E-07
	Indeno(1,2,3-c,d)pyrene	8.55E-08	5.85E-08	5.19E-08	1.56E-07	8.21E-09
	Phenanthrene	7.32E-05	5.01E-05	4.45E-05	1.34E-04	7.03E-06
	Pyrene	7.97E-06	5.46E-06	4.84E-06	1.45E-05	7.66E-07

Table A-12. Annual Average Speciated MSAT Emissions for Fuel Delivery Trucks

Tustin Ranch Costco Fuel Station

Orange County, California

Process	Pollutant	Annual Emissions (lb/year)				
		HDV_01	HDV_02	HDV_03	HDV_11	IDLING02
DPM Running and Idling Exhaust	DieselExhPM	1.79E-01	1.22E-01	1.08E-01	3.26E-01	1.71E-02
Total	1,3-butadiene	3.13E-04	2.14E-04	1.90E-04	2.39E-03	1.03E-03
	benzene	5.05E-03	3.46E-03	3.07E-03	3.86E-02	1.67E-02
	formaldehyde	8.51E-02	5.82E-02	5.17E-02	6.51E-01	2.81E-01
	acrolein (2-propenal)	3.91E-03	2.68E-03	2.37E-03	2.99E-02	1.29E-02
	Naphthalene	6.38E-03	4.37E-03	3.87E-03	4.88E-02	2.11E-02
	acetaldehyde	2.71E-02	1.86E-02	1.65E-02	2.08E-01	8.96E-02
	ethyl benzene	2.47E-03	1.69E-03	1.50E-03	1.89E-02	8.14E-03
	Acenaphthene	2.06E-05	1.41E-05	1.25E-05	1.57E-04	6.80E-05
	Acenaphthylene	3.34E-05	2.28E-05	2.03E-05	2.55E-04	1.10E-04
	Anthracene	1.64E-05	1.12E-05	9.98E-06	9.93E-05	3.97E-05
	Benz(a)anthracene	2.54E-07	1.74E-07	1.54E-07	1.15E-06	4.01E-07
	Benzo(a)pyrene	5.65E-07	3.86E-07	3.43E-07	1.03E-06	5.42E-08
	Benzo(b)fluoranthene	2.39E-07	1.64E-07	1.45E-07	4.36E-07	2.30E-08
	Benzo(g,h,i)perylene	1.12E-07	7.70E-08	6.83E-08	6.61E-07	2.62E-07
	Benzo(k)fluoranthene	2.39E-07	1.64E-07	1.45E-07	4.36E-07	2.30E-08
	Chrysene	6.23E-07	4.26E-07	3.78E-07	2.28E-06	6.87E-07
	Dibenz(a,h)anthracene	1.71E-07	1.17E-07	1.04E-07	3.12E-07	1.64E-08
	Fluoranthene	2.62E-05	1.79E-05	1.59E-05	1.52E-04	5.99E-05
	Fluorene	8.59E-05	5.88E-05	5.22E-05	6.03E-04	2.54E-04
	Indeno(1,2,3-c,d)pyrene	8.55E-08	5.85E-08	5.19E-08	1.56E-07	8.21E-09
	Phenanthrene	4.06E-04	2.78E-04	2.47E-04	2.68E-03	1.11E-03
	Pyrene	2.28E-05	1.56E-05	1.39E-05	1.28E-04	4.97E-05
	DieselExhPM	1.79E-01	1.22E-01	1.08E-01	3.26E-01	1.71E-02

Notes:

¹ Speciated emissions are calculated using the speciation profiles in Table A-8 and the criteria pollutant emissions in Table A-7.

Abbreviations:

DPM - diesel particulate matter

PM_{2.5} - particulate matter less than 2.5 microns in diameter

ROG - reactive organic gases

Table A-13. Gasoline Transfer and Dispensing Emissions

Tustin Ranch Costco Fuel Station

Orange County, California

		Source Group ID					
		LOADING	BREATH	REFILL			SPILL
		Loading	Breathing	Refueling	Hose Permeation	Total	Spillage
VOC Emission Factor (lb/1,000 gallons)		0.15	0.024	0.32	0.009	--	0.24
Weight Percent	Benzene	0.455%	0.455%	0.455%	0.455%	--	0.707%
	Ethyl Benzene	0.107%	0.107%	0.107%	0.107%	--	1.290%
	Naphthalene	0.0004%	0.0004%	0.0004%	0.0004%	--	0.174%
Emissions (lb/hr)	Benzene	0.0032760	0.0005242	0.0069888	0.0001966	0.0071854	0.0081446
	Ethyl Benzene	0.0007704	0.0001233	0.0016435	0.0000462	0.0016897	0.0148608
	Naphthalene	0.0000029	0.0000005	0.0000061	0.0000002	0.0000063	0.0020045
Emissions (lb/year)	Benzene	16.79	2.69	35.82	1.01	36.83	41.75
	Ethyl Benzene	3.95	0.63	8.42	0.24	8.66	76.18
	Naphthalene	0.01	0.00	0.03	0.00	0.03	10.28

Throughput:

Maximum Hourly	4,800 gallons/hr
Annual	24.6 million gallons/year

Notes:

¹ Emission factors obtained from Table X-1 of SCAQMD Risk Assessment Procedures for Rules 1401, 1401.1, and 212. Available at: <http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12>. Accessed: September 2019.

² Maximum hourly throughput is based on a maximum of 15 vehicles per dispensing position per hour, with an average fill up of 10 gallons per vehicle.

Abbreviations:

hr - hour

lb - pounds

SCAQMD - South Coast Air Quality Management District

VOC - volatile organic compounds

**APPENDIX B
AERMOD INPUTS**

Table B-1. Modeled Source Parameters - Mobile Sources

Tustin Ranch Costco Fuel Station
Orange County, California

Source Parameters	Fuel Delivery Truck Travel	Passenger Vehicle Travel	Fuel Delivery Truck Idling	Passenger Vehicle Idling
Source Type	Line-Area	Line-Area	Areapoly	Areapoly
Width (m)	3.3 per lane	3.3 per lane	N/A	N/A
Initial Vertical Dimension ² (m)	6.8	2.6	6.8	2.60
Initial Vertical Dispersion Coefficient ^{3,4} (m)	3.16	1.21	0.79	0.30
Release Height ⁵ (m)	3.4	1.3	3.4	1.3

Notes:

¹ Road width is estimated as a product of the number of lanes and width of a lane. The width of the lane is defined as 3.3 meters based on the USEPA Transportation Conformity Guidance.

² The initial vertical dimension for truck exhaust is assumed to be equal to 1.7 times the vehicle height. Vehicle height is based on the USEPA Transportation Conformity Guidance.

³ The initial vertical dispersion coefficient for vehicle travel is estimated as the initial vertical dimension divided by 2.15 based on the USEPA Transportation Conformity Guidance.

⁴ For on-site idling emission sources, the initial vertical dispersion coefficient is estimated as the initial vertical dimension divided by 4.3, based on the USEPA AERMOD User Guide.

⁵ Release height is estimated as half of the initial vertical dimension based on the USEPA Transportation Conformity Guidance.

Abbreviations:

AERMOD - American Meteorological Society/Environmental Protection Agency Regulatory Model

ft - feet

m - meters

N/A - not applicable

PM - particulate matter

USEPA - United States Environmental Protection Agency

I-215 - Interstate 215

References:

USEPA. 2015. Transportation Conformity Guidance for Quantitative Hot-spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas Appendices. November. Available at: <https://nepis.epa.gov/Exe/ZyPdf.cgi?Dockey=P100NN22.pdf>. Accessed: September 2019.

USEPA. 2019. User's Guide for the AMS/EPA Regulatory Model. August. Available at: https://www3.epa.gov/ttn/scram/models/aermod/aermod_userguide.pdf. Accessed: September 2019.

Table B-2. Modeled Emission Rates - Mobile Sources

Tustin Ranch Costco Fuel Station

Orange County, California

Modeled Roadway Links ¹	Roadway Link Description	Source Group ID ¹	Total Area of Source in Source Group (m ²)	Source ID ²	Modeled Emission Rate (g/s/m ²)
Passenger Vehicle Off-Site Travel	Tustin Ranch Rd. (s/o El Camino Real)	LDV_01	7,068	A0000012	1.415E-04
				A0000013	1.415E-04
	Tustin Ranch Rd. (btwn. Bryan Ave. and El Camino Real)	LDV_02	4,837	A0000020	2.067E-04
				A0000021	2.067E-04
	Bryan Ave. (btwn. Tustin Ranch Rd. and Market St.)	LDV_03	2,862	A0000016	3.494E-04
				A0000017	3.494E-04
	Bryan Ave. (btwn. Market St. and Myford Rd.)	LDV_04	4,002	A0000038	2.499E-04
				A0000039	2.499E-04
				A0000040	2.499E-04
	Bryan Ave. (e/o Myford Rd.)	LDV_05	4,667	A0000056	2.143E-04
				A0000057	2.143E-04
				A0000058	2.143E-04
	Myford Rd. (n/o Bryan Ave.)	LDV_06	2,897	A0000059	3.452E-04
				A0000060	3.452E-04
				A0000061	3.452E-04
				A0000062	3.452E-04
				A0000063	3.452E-04
	Myford Rd. (btwn. Bryan Ave. and El Camino Real)	LDV_07	3,251	A0000064	3.452E-04
				A0000008	3.076E-04
				A0000009	3.076E-04
				A0000010	3.076E-04
				A0000011	3.076E-04
	El Camino Real (e/o Myford Rd.)	LDV_08	5,216	A0000043	1.917E-04
				A0000044	1.917E-04
				A0000045	1.917E-04
				A0000046	1.917E-04
				A0000047	1.917E-04
				A0000048	1.917E-04
				A0000049	1.917E-04
				A0000050	1.917E-04
				A0000051	1.917E-04
				A0000052	1.917E-04
	El Camino Real (btwn. Auto Center Dr. and Myford Rd.)	LDV_09	2,186	A0000053	1.917E-04
				A0000054	1.917E-04
	El Camino Real (btwn. Tustin Ranch Rd. and Auto Center Dr.)	LDV_10	4,622	A0000055	1.917E-04
				A0000041	4.574E-04
				A0000042	4.574E-04
				A0000005	2.163E-04
				A0000006	2.163E-04
				A0000007	2.163E-04

Table B-2. Modeled Emission Rates - Mobile Sources

Tustin Ranch Costco Fuel Station

Orange County, California

Modeled Roadway Links ¹	Roadway Link Description	Source Group ID ¹	Total Area of Source in Source Group (m ²)	Source ID ²	Modeled Emission Rate (g/s/m ²)
Passenger Vehicle On-Site Driveway Travel	Market St. (Project Driveway)	LDV_11	1,903	A0000024	5.256E-04
				A0000025	5.256E-04
				A0000026	5.256E-04
				A0000027	5.256E-04
				A0000028	5.256E-04
				A0000029	5.256E-04
				A0000030	5.256E-04
				A0000031	5.256E-04
	Auto Center Dr. (Project Driveway)	LDV_12	481	A0000001	2.077E-03
				A0000002	2.077E-03
				A0000003	2.077E-03
				A0000004	2.077E-03
	Entry from Tustin Ranch Road (Project Driveway)	LDV_13	2,417	A0000065	4.138E-04
				A0000066	4.138E-04
				A0000067	4.138E-04
				A0000068	4.138E-04
				A0000069	4.138E-04
				A0000070	4.138E-04
				A0000071	4.138E-04
				A0000072	4.138E-04
				A0000073	4.138E-04
				A0000074	4.138E-04
Fuel Delivery Truck Off-Site Travel	Tustin Ranch Rd. (s/o El Camino Real)	HDV_01	7,068	A0000014	1.415E-04
				A0000015	1.415E-04
	Tustin Ranch Rd. (btwn. Bryan Ave. and El Camino Real)	HDV_02	4,837	A0000022	2.067E-04
				A0000023	2.067E-04
	Bryan Ave. (btwn. Tustin Ranch Rd. and Market St.)	HDV_03	2,862	A0000018	3.494E-04
				A0000019	3.494E-04
Fuel Delivery Truck On-Site Driveway Travel	Market St. (Project Driveway)	HDV_11	1,903	A0000032	5.256E-04
				A0000033	5.256E-04
				A0000034	5.256E-04
				A0000035	5.256E-04
				A0000036	5.256E-04
Passenger Vehicle Idling, Starting, and Evaporative Emissions	On-Site Idling, Starting, and Evaporative	IDLING01	4,340	IDLING01	2.304E-04
Fuel Delivery Truck Idling	On-Site Idling	IDLING02	4,340	IDLING02	2.304E-04

Notes:¹ Refer to Figure 1 for spatial location of modeled roadways.² Since the roadways are not always a straight line, they are represented by a series of line (area) sources.**Abbreviations:**

Ave - avenue

btwn - between

g/s/m² - grams per second per square meter

e/o - east of

m² - square meters

n/o - north of

Rd - road

s/o - south of

St - street

Table B-3. Modeled Source Parameters - Point Sources

Tustin Ranch Costco Fuel Station

Orange County, California

Model ID	Description	Stack Height ¹ (m)	Stack Temperature ¹ (K)	Exit Velocity ¹ (m/s)	Stack Diameter ¹ (m)	Emission Rate (g/s)
LOADING	GDF loading emissions	3.66	291.48	0.00063	0.051	1
BREATH	GDF breathing emissions	3.66	288.71	0.00010	0.051	1

Notes:

¹ Stack parameters are based on SCAQMD Risk Assessment Procedures, Appendix X and Appendix XIII - Exhibit X. Available at: <http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12>. Accessed: September 2019.

Abbreviations:

GDF - gasoline dispensing facility

K - Kelvin

m - meters

s - second

SCAQMD - South Coast Air Quality Management District

Table B-4. Modeled Source Parameters - Volume Sources

Tustin Ranch Costco Fuel Station

Orange County, California

Model ID	Description	Release Height¹ (m)	Initial Lateral Dimension, Sigma Y² (m)	Initial Vertical Dimension, Sigma Z¹ (m)	Emission Rate (g/s)
REFILL	Refueling and Hose Permeation	1.00	8.56	2.33	1
SPILL	Spillage	0.00	8.56	2.33	1

Notes:

¹ Release height and Sigma Z are based on SCAQMD Risk Assessment Procedures, Appendix X. Available at: <http://www.aqmd.gov/docs/default-source/permitting/rule-1401-risk-assessment/riskassessproc-v8-1.pdf?sfvrsn=12>. Accessed: August 2019.

² Initial lateral dimension is based on the dimensions of the gas station canopy.

Abbreviations:

m - meters

SCAQMD - South Coast Air Quality Management District

**APPENDIX C
HARP2 RESULTS**

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
1	425805.03	3732920.28	Sensitive	0.21	6.70E-04	5.63E-03
2	426394.07	3731599.40	Worker	0.02	7.43E-04	7.15E-03
3	426419.07	3731599.40	Worker	0.02	7.29E-04	7.06E-03
4	426444.07	3731599.40	Worker	0.02	7.14E-04	7.17E-03
5	426469.07	3731599.40	Worker	0.02	6.98E-04	7.12E-03
6	426494.07	3731599.40	Worker	0.02	6.81E-04	6.89E-03
7	426519.07	3731599.40	Worker	0.02	6.64E-04	6.77E-03
8	426544.07	3731599.40	Worker	0.02	6.46E-04	6.75E-03
9	426344.07	3731624.40	Worker	0.03	8.21E-04	7.93E-03
10	426369.07	3731624.40	Worker	0.03	8.08E-04	7.77E-03
11	426394.07	3731624.40	Worker	0.03	7.93E-04	7.49E-03
12	426419.07	3731624.40	Worker	0.03	7.76E-04	7.50E-03
13	426444.07	3731624.40	Worker	0.02	7.59E-04	7.57E-03
14	426469.07	3731624.40	Worker	0.02	7.40E-04	7.48E-03
15	426494.07	3731624.40	Worker	0.02	7.22E-04	7.20E-03
16	426519.07	3731624.40	Worker	0.02	7.02E-04	7.15E-03
17	426544.07	3731624.40	Worker	0.02	6.82E-04	7.10E-03
18	426569.07	3731624.40	Worker	0.02	6.62E-04	6.87E-03
19	426594.07	3731624.40	Worker	0.02	6.42E-04	6.51E-03
20	426319.07	3731649.40	Worker	0.03	8.93E-04	8.26E-03
21	426344.07	3731649.40	Worker	0.03	8.80E-04	8.41E-03
22	426369.07	3731649.40	Worker	0.03	8.65E-04	8.15E-03
23	426394.07	3731649.40	Worker	0.03	8.47E-04	7.95E-03
24	426419.07	3731649.40	Worker	0.03	8.28E-04	8.01E-03
25	426444.07	3731649.40	Worker	0.03	8.09E-04	7.98E-03
26	426469.07	3731649.40	Worker	0.03	7.88E-04	7.78E-03
27	426494.07	3731649.40	Worker	0.02	7.66E-04	7.60E-03
28	426519.07	3731649.40	Worker	0.02	7.44E-04	7.57E-03
29	426544.07	3731649.40	Worker	0.02	7.22E-04	7.42E-03
30	426569.07	3731649.40	Worker	0.02	6.99E-04	7.08E-03
31	426594.07	3731649.40	Worker	0.02	6.77E-04	6.74E-03
32	426619.07	3731649.40	Worker	0.02	6.54E-04	6.61E-03
33	426294.07	3731674.40	Worker	0.03	9.75E-04	9.06E-03
34	426319.07	3731674.40	Worker	0.03	9.62E-04	8.83E-03
35	426344.07	3731674.40	Worker	0.03	9.46E-04	8.89E-03
36	426369.07	3731674.40	Worker	0.03	9.28E-04	8.56E-03
37	426394.07	3731674.40	Worker	0.03	9.08E-04	8.42E-03
38	426419.07	3731674.40	Worker	0.03	8.87E-04	8.55E-03
39	426444.07	3731674.40	Worker	0.03	8.64E-04	8.46E-03
40	426469.07	3731674.40	Worker	0.03	8.40E-04	8.12E-03
41	426494.07	3731674.40	Worker	0.03	8.15E-04	8.07E-03
42	426519.07	3731674.40	Worker	0.03	7.90E-04	7.98E-03
43	426544.07	3731674.40	Worker	0.02	7.65E-04	7.70E-03
44	426569.07	3731674.40	Worker	0.02	7.39E-04	7.26E-03
45	426594.07	3731674.40	Worker	0.02	7.14E-04	7.10E-03
46	426619.07	3731674.40	Worker	0.02	6.89E-04	6.79E-03
47	426294.07	3731699.40	Worker	0.03	1.05E-03	9.59E-03
48	426319.07	3731699.40	Worker	0.03	1.04E-03	9.46E-03
49	426344.07	3731699.40	Worker	0.03	1.02E-03	9.39E-03
50	426369.07	3731699.40	Worker	0.03	9.99E-04	9.00E-03
51	426394.07	3731699.40	Worker	0.03	9.77E-04	9.02E-03
52	426419.07	3731699.40	Worker	0.03	9.52E-04	9.07E-03
53	426444.07	3731699.40	Worker	0.03	9.25E-04	8.88E-03
54	426469.07	3731699.40	Worker	0.03	8.98E-04	8.63E-03
55	426494.07	3731699.40	Worker	0.03	8.69E-04	8.59E-03
56	426519.07	3731699.40	Worker	0.03	8.40E-04	8.37E-03
57	426544.07	3731699.40	Worker	0.03	8.11E-04	7.90E-03
58	426569.07	3731699.40	Worker	0.03	7.82E-04	7.63E-03
59	426594.07	3731699.40	Worker	0.02	7.54E-04	7.35E-03
60	426619.07	3731699.40	Worker	0.02	7.26E-04	7.17E-03
61	426644.07	3731699.40	Worker	0.02	6.98E-04	7.00E-03
62	426269.07	3731724.40	Worker	0.04	1.16E-03	1.05E-02
63	426294.07	3731724.40	Worker	0.04	1.14E-03	1.02E-02
64	426319.07	3731724.40	Worker	0.04	1.13E-03	1.01E-02
65	426344.07	3731724.40	Worker	0.04	1.10E-03	9.94E-03
66	426369.07	3731724.40	Worker	0.03	1.08E-03	9.63E-03
67	426394.07	3731724.40	Worker	0.03	1.05E-03	9.73E-03
68	426419.07	3731724.40	Worker	0.03	1.03E-03	9.68E-03
69	426444.07	3731724.40	Worker	0.03	9.96E-04	9.29E-03
70	426469.07	3731724.40	Worker	0.03	9.63E-04	9.26E-03

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
71	426494.07	3731724.40	Worker	0.03	9.29E-04	9.10E-03
72	426519.07	3731724.40	Worker	0.03	8.95E-04	8.70E-03
73	426544.07	3731724.40	Worker	0.03	8.62E-04	8.20E-03
74	426569.07	3731724.40	Worker	0.03	8.29E-04	7.99E-03
75	426594.07	3731724.40	Worker	0.03	7.97E-04	7.68E-03
76	426619.07	3731724.40	Worker	0.02	7.65E-04	7.54E-03
77	426644.07	3731724.40	Worker	0.02	7.34E-04	7.18E-03
78	426269.07	3731749.40	Worker	0.04	1.26E-03	1.12E-02
79	426294.07	3731749.40	Worker	0.04	1.25E-03	1.08E-02
80	426319.07	3731749.40	Worker	0.04	1.22E-03	1.09E-02
81	426344.07	3731749.40	Worker	0.04	1.20E-03	1.05E-02
82	426369.07	3731749.40	Worker	0.04	1.17E-03	1.03E-02
83	426394.07	3731749.40	Worker	0.04	1.14E-03	1.05E-02
84	426419.07	3731749.40	Worker	0.04	1.11E-03	1.03E-02
85	426444.07	3731749.40	Worker	0.03	1.08E-03	9.95E-03
86	426469.07	3731749.40	Worker	0.03	1.04E-03	9.94E-03
87	426494.07	3731749.40	Worker	0.03	9.97E-04	9.57E-03
88	426519.07	3731749.40	Worker	0.03	9.57E-04	8.96E-03
89	426544.07	3731749.40	Worker	0.03	9.18E-04	8.68E-03
90	426569.07	3731749.40	Worker	0.03	8.80E-04	8.25E-03
91	426594.07	3731749.40	Worker	0.03	8.43E-04	8.15E-03
92	426619.07	3731749.40	Worker	0.03	8.07E-04	7.77E-03
93	426644.07	3731749.40	Worker	0.02	7.72E-04	7.30E-03
94	426244.07	3731774.40	Worker	0.05	1.40E-03	1.18E-02
95	426269.07	3731774.40	Worker	0.04	1.39E-03	1.21E-02
96	426294.07	3731774.40	Worker	0.04	1.36E-03	1.16E-02
97	426319.07	3731774.40	Worker	0.04	1.34E-03	1.17E-02
98	426344.07	3731774.40	Worker	0.04	1.31E-03	1.12E-02
99	426369.07	3731774.40	Worker	0.04	1.28E-03	1.12E-02
100	426394.07	3731774.40	Worker	0.04	1.24E-03	1.12E-02
101	426419.07	3731774.40	Worker	0.04	1.21E-03	1.08E-02
102	426444.07	3731774.40	Worker	0.04	1.18E-03	1.08E-02
103	426494.07	3731774.40	Worker	0.03	1.08E-03	9.94E-03
104	426519.07	3731774.40	Worker	0.03	1.03E-03	9.44E-03
105	426544.07	3731774.40	Worker	0.03	9.79E-04	8.99E-03
106	426569.07	3731774.40	Worker	0.03	9.35E-04	8.82E-03
107	426594.07	3731774.40	Worker	0.03	8.93E-04	8.46E-03
108	426619.07	3731774.40	Worker	0.03	8.52E-04	7.87E-03
109	426644.07	3731774.40	Worker	0.03	8.13E-04	7.83E-03
110	426244.07	3731799.40	Worker	0.05	1.55E-03	1.28E-02
111	426269.07	3731799.40	Worker	0.05	1.53E-03	1.30E-02
112	426294.07	3731799.40	Worker	0.05	1.50E-03	1.26E-02
113	426319.07	3731799.40	Worker	0.05	1.47E-03	1.25E-02
114	426344.07	3731799.40	Worker	0.05	1.43E-03	1.20E-02
115	426369.07	3731799.40	Worker	0.04	1.39E-03	1.22E-02
116	426394.07	3731799.40	Worker	0.04	1.36E-03	1.20E-02
117	426419.07	3731799.40	Worker	0.04	1.32E-03	1.16E-02
118	426469.07	3731799.40	Worker	0.05	1.37E-03	1.11E-02
119	426494.07	3731799.40	Worker	0.04	1.19E-03	1.03E-02
120	426519.07	3731799.40	Worker	0.04	1.11E-03	9.91E-03
121	426544.07	3731799.40	Worker	0.03	1.05E-03	9.58E-03
122	426569.07	3731799.40	Worker	0.03	9.96E-04	9.23E-03
123	426594.07	3731799.40	Worker	0.03	9.47E-04	8.54E-03
124	426619.07	3731799.40	Worker	0.03	9.00E-04	8.48E-03
125	426644.07	3731799.40	Worker	0.03	8.56E-04	8.20E-03
126	426219.07	3731824.40	Worker	0.06	1.74E-03	1.38E-02
127	426244.07	3731824.40	Worker	0.06	1.72E-03	1.40E-02
128	426269.07	3731824.40	Worker	0.05	1.70E-03	1.41E-02
129	426294.07	3731824.40	Worker	0.05	1.66E-03	1.38E-02
130	426319.07	3731824.40	Worker	0.05	1.62E-03	1.34E-02
131	426344.07	3731824.40	Worker	0.05	1.58E-03	1.30E-02
132	426369.07	3731824.40	Worker	0.05	1.53E-03	1.31E-02
133	426394.07	3731824.40	Worker	0.05	1.49E-03	1.27E-02
134	426419.07	3731824.40	Worker	0.05	1.47E-03	1.27E-02
135	426444.07	3731824.40	Worker	0.06	1.65E-03	1.25E-02
136	426469.07	3731824.40	Worker	0.05	1.40E-03	1.14E-02
137	426494.07	3731824.40	Worker	0.04	1.28E-03	1.09E-02
138	426519.07	3731824.40	Worker	0.04	1.19E-03	1.05E-02
139	426544.07	3731824.40	Worker	0.04	1.12E-03	1.01E-02
140	426569.07	3731824.40	Worker	0.03	1.06E-03	9.39E-03

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (In a million)	Chronic Hazard Index	Acute Hazard Index
141	426594.07	3731824.40	Worker	0.03	1.01E-03	9.23E-03
142	426619.07	3731824.40	Worker	0.03	9.52E-04	8.90E-03
143	426644.07	3731824.40	Worker	0.03	9.02E-04	8.44E-03
144	426219.07	3731849.40	Worker	0.06	1.95E-03	1.51E-02
145	426244.07	3731849.40	Worker	0.06	1.93E-03	1.54E-02
146	426269.07	3731849.40	Worker	0.06	1.89E-03	1.53E-02
147	426294.07	3731849.40	Worker	0.06	1.85E-03	1.51E-02
148	426319.07	3731849.40	Worker	0.06	1.80E-03	1.45E-02
149	426344.07	3731849.40	Worker	0.06	1.75E-03	1.43E-02
150	426369.07	3731849.40	Worker	0.05	1.69E-03	1.43E-02
151	426394.07	3731849.40	Worker	0.05	1.65E-03	1.38E-02
152	426444.07	3731849.40	Worker	0.05	1.63E-03	1.29E-02
153	426469.07	3731849.40	Worker	0.05	1.48E-03	1.21E-02
154	426494.07	3731849.40	Worker	0.04	1.37E-03	1.14E-02
155	426519.07	3731849.40	Worker	0.04	1.28E-03	1.12E-02
156	426544.07	3731849.40	Worker	0.04	1.20E-03	1.04E-02
157	426569.07	3731849.40	Worker	0.04	1.13E-03	1.01E-02
158	426594.07	3731849.40	Worker	0.03	1.07E-03	9.72E-03
159	426619.07	3731849.40	Worker	0.03	1.01E-03	9.20E-03
160	426644.07	3731849.40	Worker	0.03	9.51E-04	9.03E-03
161	426219.07	3731874.40	Worker	0.07	2.20E-03	1.66E-02
162	426244.07	3731874.40	Worker	0.07	2.17E-03	1.70E-02
163	426269.07	3731874.40	Worker	0.07	2.13E-03	1.67E-02
164	426294.07	3731874.40	Worker	0.07	2.08E-03	1.66E-02
165	426319.07	3731874.40	Worker	0.06	2.02E-03	1.57E-02
166	426344.07	3731874.40	Worker	0.06	1.95E-03	1.58E-02
167	426369.07	3731874.40	Worker	0.06	1.88E-03	1.54E-02
168	426394.07	3731874.40	Worker	0.06	1.83E-03	1.51E-02
169	426419.07	3731874.40	Worker	0.07	1.98E-03	1.48E-02
170	426444.07	3731874.40	Worker	0.06	1.71E-03	1.34E-02
171	426469.07	3731874.40	Worker	0.05	1.58E-03	1.28E-02
172	426494.07	3731874.40	Worker	0.05	1.47E-03	1.24E-02
173	426519.07	3731874.40	Worker	0.04	1.37E-03	1.16E-02
174	426544.07	3731874.40	Worker	0.04	1.29E-03	1.11E-02
175	426569.07	3731874.40	Worker	0.04	1.21E-03	1.07E-02
176	426594.07	3731874.40	Worker	0.04	1.13E-03	1.01E-02
177	426619.07	3731874.40	Worker	0.03	1.06E-03	9.89E-03
178	426669.07	3731874.40	Worker	0.03	9.44E-04	8.77E-03
179	426694.07	3731874.40	Worker	0.03	8.91E-04	8.29E-03
180	426719.07	3731874.40	Worker	0.03	8.42E-04	7.93E-03
181	426194.07	3731899.40	Worker	0.08	2.53E-03	1.94E-02
182	426219.07	3731899.40	Worker	0.08	2.51E-03	1.84E-02
183	426244.07	3731899.40	Worker	0.08	2.47E-03	1.89E-02
184	426269.07	3731899.40	Worker	0.08	2.42E-03	1.82E-02
185	426294.07	3731899.40	Worker	0.08	2.35E-03	1.82E-02
186	426319.07	3731899.40	Worker	0.07	2.27E-03	1.74E-02
187	426344.07	3731899.40	Worker	0.07	2.18E-03	1.75E-02
188	426369.07	3731899.40	Worker	0.07	2.10E-03	1.67E-02
189	426394.07	3731899.40	Worker	0.07	2.07E-03	1.67E-02
190	426419.07	3731899.40	Worker	0.07	2.06E-03	1.54E-02
191	426444.07	3731899.40	Worker	0.06	1.84E-03	1.44E-02
192	426469.07	3731899.40	Worker	0.05	1.70E-03	1.38E-02
193	426494.07	3731899.40	Worker	0.05	1.58E-03	1.30E-02
194	426519.07	3731899.40	Worker	0.05	1.47E-03	1.23E-02
195	426544.07	3731899.40	Worker	0.04	1.37E-03	1.18E-02
196	426569.07	3731899.40	Worker	0.04	1.28E-03	1.12E-02
197	426594.07	3731899.40	Worker	0.04	1.20E-03	1.09E-02
198	426619.07	3731899.40	Worker	0.04	1.12E-03	1.02E-02
199	426644.07	3731899.40	Worker	0.03	1.06E-03	9.52E-03
200	426669.07	3731899.40	Worker	0.03	9.92E-04	8.95E-03
201	426694.07	3731899.40	Worker	0.03	9.33E-04	8.68E-03
202	426719.07	3731899.40	Worker	0.03	8.79E-04	8.38E-03
203	426744.07	3731899.40	Worker	0.03	8.29E-04	8.01E-03
204	426769.07	3731899.40	Worker	0.03	7.85E-04	7.55E-03
205	426794.07	3731899.40	Worker	0.02	7.43E-04	7.27E-03
206	426169.07	3731924.40	Worker	0.10	2.92E-03	2.15E-02
207	426194.07	3731924.40	Worker	0.09	2.91E-03	2.18E-02
208	426219.07	3731924.40	Worker	0.09	2.89E-03	2.06E-02
209	426244.07	3731924.40	Worker	0.09	2.84E-03	2.11E-02
210	426269.07	3731924.40	Worker	0.09	2.77E-03	2.04E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
211	426294.07	3731924.40	Worker	0.09	2.69E-03	2.00E-02
212	426319.07	3731924.40	Worker	0.08	2.58E-03	1.96E-02
213	426344.07	3731924.40	Worker	0.08	2.47E-03	1.92E-02
214	426369.07	3731924.40	Worker	0.08	2.36E-03	1.86E-02
215	426419.07	3731924.40	Worker	0.07	2.19E-03	1.64E-02
216	426444.07	3731924.40	Worker	0.06	1.99E-03	1.55E-02
217	426469.07	3731924.40	Worker	0.06	1.84E-03	1.47E-02
218	426494.07	3731924.40	Worker	0.05	1.70E-03	1.38E-02
219	426519.07	3731924.40	Worker	0.05	1.58E-03	1.32E-02
220	426544.07	3731924.40	Worker	0.05	1.47E-03	1.25E-02
221	426569.07	3731924.40	Worker	0.04	1.37E-03	1.20E-02
222	426594.07	3731924.40	Worker	0.04	1.27E-03	1.12E-02
223	426619.07	3731924.40	Worker	0.04	1.19E-03	1.04E-02
224	426644.07	3731924.40	Worker	0.04	1.11E-03	9.84E-03
225	426669.07	3731924.40	Worker	0.03	1.04E-03	9.52E-03
226	426694.07	3731924.40	Worker	0.03	9.77E-04	9.12E-03
227	426719.07	3731924.40	Worker	0.03	9.18E-04	8.61E-03
228	426744.07	3731924.40	Worker	0.03	8.64E-04	8.19E-03
229	426769.07	3731924.40	Worker	0.03	8.16E-04	7.84E-03
230	426794.07	3731924.40	Worker	0.02	7.71E-04	7.47E-03
231	426819.07	3731924.40	Worker	0.02	7.31E-04	7.03E-03
232	426169.07	3731949.40	Worker	0.11	3.40E-03	2.38E-02
233	426194.07	3731949.40	Worker	0.11	3.40E-03	2.47E-02
234	426219.07	3731949.40	Worker	0.11	3.37E-03	2.32E-02
235	426244.07	3731949.40	Worker	0.11	3.30E-03	2.38E-02
236	426269.07	3731949.40	Worker	0.10	3.21E-03	2.32E-02
237	426294.07	3731949.40	Worker	0.10	3.10E-03	2.20E-02
238	426319.07	3731949.40	Worker	0.09	2.96E-03	2.21E-02
239	426344.07	3731949.40	Worker	0.09	2.81E-03	2.10E-02
240	426369.07	3731949.40	Worker	0.09	2.69E-03	2.06E-02
241	426394.07	3731949.40	Worker	0.09	2.69E-03	1.89E-02
242	426419.07	3731949.40	Worker	0.08	2.37E-03	1.75E-02
243	426444.07	3731949.40	Worker	0.07	2.17E-03	1.67E-02
244	426469.07	3731949.40	Worker	0.06	1.99E-03	1.56E-02
245	426494.07	3731949.40	Worker	0.06	1.84E-03	1.48E-02
246	426519.07	3731949.40	Worker	0.05	1.70E-03	1.40E-02
247	426544.07	3731949.40	Worker	0.05	1.57E-03	1.34E-02
248	426569.07	3731949.40	Worker	0.05	1.45E-03	1.23E-02
249	426594.07	3731949.40	Worker	0.04	1.35E-03	1.14E-02
250	426619.07	3731949.40	Worker	0.04	1.26E-03	1.09E-02
251	426644.07	3731949.40	Worker	0.04	1.17E-03	1.05E-02
252	426669.07	3731949.40	Worker	0.04	1.09E-03	9.91E-03
253	426694.07	3731949.40	Worker	0.03	1.02E-03	9.31E-03
254	426719.07	3731949.40	Worker	0.03	9.58E-04	8.91E-03
255	426744.07	3731949.40	Worker	0.03	9.00E-04	8.45E-03
256	426769.07	3731949.40	Worker	0.03	8.48E-04	7.91E-03
257	426794.07	3731949.40	Worker	0.03	8.01E-04	7.51E-03
258	426819.07	3731949.40	Worker	0.02	7.58E-04	7.20E-03
259	426844.07	3731949.40	Worker	0.02	7.18E-04	6.86E-03
260	426144.07	3731974.40	Worker	0.13	3.98E-03	2.59E-02
261	426169.07	3731974.40	Worker	0.13	4.03E-03	2.65E-02
262	426194.07	3731974.40	Worker	0.13	4.02E-03	2.82E-02
263	426219.07	3731974.40	Worker	0.13	3.98E-03	2.65E-02
264	426244.07	3731974.40	Worker	0.13	3.90E-03	2.70E-02
265	426269.07	3731974.40	Worker	0.12	3.77E-03	2.64E-02
266	426294.07	3731974.40	Worker	0.12	3.61E-03	2.51E-02
267	426319.07	3731974.40	Worker	0.11	3.42E-03	2.49E-02
268	426344.07	3731974.40	Worker	0.10	3.22E-03	2.39E-02
269	426394.07	3731974.40	Worker	0.09	2.89E-03	2.05E-02
270	426419.07	3731974.40	Worker	0.08	2.60E-03	1.93E-02
271	426444.07	3731974.40	Worker	0.08	2.37E-03	1.78E-02
272	426469.07	3731974.40	Worker	0.07	2.17E-03	1.68E-02
273	426494.07	3731974.40	Worker	0.06	1.99E-03	1.59E-02
274	426519.07	3731974.40	Worker	0.06	1.82E-03	1.50E-02
275	426544.07	3731974.40	Worker	0.05	1.68E-03	1.37E-02
276	426569.07	3731974.40	Worker	0.05	1.55E-03	1.27E-02
277	426594.07	3731974.40	Worker	0.05	1.43E-03	1.22E-02
278	426619.07	3731974.40	Worker	0.04	1.33E-03	1.16E-02
279	426644.07	3731974.40	Worker	0.04	1.23E-03	1.07E-02
280	426669.07	3731974.40	Worker	0.04	1.15E-03	1.02E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
281	426694.07	3731974.40	Worker	0.03	1.07E-03	9.67E-03
282	426719.07	3731974.40	Worker	0.03	1.00E-03	9.02E-03
283	426744.07	3731974.40	Worker	0.03	9.39E-04	8.52E-03
284	426769.07	3731974.40	Worker	0.03	8.83E-04	8.13E-03
285	426794.07	3731974.40	Worker	0.03	8.33E-04	7.71E-03
286	426819.07	3731974.40	Worker	0.03	7.86E-04	7.33E-03
287	426844.07	3731974.40	Worker	0.02	7.44E-04	7.02E-03
288	426869.07	3731974.40	Worker	0.02	7.03E-04	6.69E-03
289	425569.07	3731999.40	Worker	0.03	7.63E-04	6.91E-03
290	425594.07	3731999.40	Worker	0.03	8.10E-04	7.28E-03
291	425619.07	3731999.40	Worker	0.03	8.62E-04	7.70E-03
292	425644.07	3731999.40	Worker	0.03	9.21E-04	8.17E-03
293	425669.07	3731999.40	Worker	0.03	9.86E-04	8.61E-03
294	425694.07	3731999.40	Worker	0.04	1.06E-03	8.98E-03
295	425719.07	3731999.40	Worker	0.04	1.14E-03	9.46E-03
296	426119.07	3731999.40	Worker	0.15	4.52E-03	2.71E-02
297	426144.07	3731999.40	Worker	0.15	4.68E-03	2.91E-02
298	426169.07	3731999.40	Worker	0.16	4.85E-03	2.97E-02
299	426194.07	3731999.40	Worker	0.16	4.85E-03	3.26E-02
300	426219.07	3731999.40	Worker	0.15	4.80E-03	3.07E-02
301	426244.07	3731999.40	Worker	0.15	4.68E-03	3.10E-02
302	426269.07	3731999.40	Worker	0.14	4.50E-03	3.01E-02
303	426294.07	3731999.40	Worker	0.14	4.27E-03	2.92E-02
304	426319.07	3731999.40	Worker	0.13	4.01E-03	2.77E-02
305	426344.07	3731999.40	Worker	0.12	3.76E-03	2.68E-02
306	426369.07	3731999.40	Worker	0.12	3.62E-03	2.43E-02
307	426394.07	3731999.40	Worker	0.10	3.19E-03	2.27E-02
308	426419.07	3731999.40	Worker	0.09	2.87E-03	2.06E-02
309	426444.07	3731999.40	Worker	0.08	2.60E-03	1.94E-02
310	426469.07	3731999.40	Worker	0.08	2.36E-03	1.83E-02
311	426494.07	3731999.40	Worker	0.07	2.15E-03	1.70E-02
312	426519.07	3731999.40	Worker	0.06	1.96E-03	1.54E-02
313	426544.07	3731999.40	Worker	0.06	1.79E-03	1.44E-02
314	426569.07	3731999.40	Worker	0.05	1.65E-03	1.37E-02
315	426594.07	3731999.40	Worker	0.05	1.52E-03	1.27E-02
316	426619.07	3731999.40	Worker	0.05	1.40E-03	1.20E-02
317	426644.07	3731999.40	Worker	0.04	1.30E-03	1.12E-02
318	426669.07	3731999.40	Worker	0.04	1.20E-03	1.04E-02
319	426694.07	3731999.40	Worker	0.04	1.12E-03	9.79E-03
320	426719.07	3731999.40	Worker	0.03	1.05E-03	9.29E-03
321	426744.07	3731999.40	Worker	0.03	9.82E-04	8.78E-03
322	426769.07	3731999.40	Worker	0.03	9.22E-04	8.32E-03
323	426794.07	3731999.40	Worker	0.03	8.67E-04	7.93E-03
324	426819.07	3731999.40	Worker	0.03	8.18E-04	7.50E-03
325	426844.07	3731999.40	Worker	0.03	7.73E-04	7.14E-03
326	426869.07	3731999.40	Worker	0.02	7.31E-04	6.82E-03
327	425519.07	3732024.40	Worker	0.02	6.90E-04	6.32E-03
328	425544.07	3732024.40	Worker	0.03	7.31E-04	6.59E-03
329	425569.07	3732024.40	Worker	0.03	7.76E-04	6.93E-03
330	425594.07	3732024.40	Worker	0.03	8.26E-04	7.30E-03
331	425619.07	3732024.40	Worker	0.03	8.81E-04	7.72E-03
332	425644.07	3732024.40	Worker	0.03	9.43E-04	8.20E-03
333	425669.07	3732024.40	Worker	0.04	1.01E-03	8.70E-03
334	425694.07	3732024.40	Worker	0.04	1.09E-03	9.30E-03
335	425719.07	3732024.40	Worker	0.04	1.17E-03	9.88E-03
336	425744.07	3732024.40	Worker	0.04	1.26E-03	1.04E-02
337	425769.07	3732024.40	Worker	0.05	1.37E-03	1.10E-02
338	426069.07	3732024.40	Worker	0.15	4.59E-03	2.81E-02
339	426094.07	3732024.40	Worker	0.17	5.05E-03	3.00E-02
340	426119.07	3732024.40	Worker	0.18	5.47E-03	3.21E-02
341	426144.07	3732024.40	Worker	0.18	5.65E-03	3.31E-02
342	426169.07	3732024.40	Worker	0.19	5.91E-03	3.33E-02
343	426194.07	3732024.40	Worker	0.19	6.00E-03	3.83E-02
344	426219.07	3732024.40	Worker	0.19	5.92E-03	3.62E-02
345	426244.07	3732024.40	Worker	0.18	5.75E-03	3.61E-02
346	426269.07	3732024.40	Worker	0.18	5.49E-03	3.46E-02
347	426294.07	3732024.40	Worker	0.16	5.14E-03	3.41E-02
348	426319.07	3732024.40	Worker	0.15	4.76E-03	3.25E-02
349	426369.07	3732024.40	Worker	0.13	4.02E-03	2.70E-02
350	426394.07	3732024.40	Worker	0.11	3.57E-03	2.44E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
351	426419.07	3732024.40	Worker	0.10	3.19E-03	2.27E-02
352	426444.07	3732024.40	Worker	0.09	2.86E-03	2.14E-02
353	426469.07	3732024.40	Worker	0.08	2.57E-03	1.93E-02
354	426494.07	3732024.40	Worker	0.07	2.32E-03	1.74E-02
355	426519.07	3732024.40	Worker	0.07	2.11E-03	1.65E-02
356	426544.07	3732024.40	Worker	0.06	1.92E-03	1.54E-02
357	426569.07	3732024.40	Worker	0.06	1.75E-03	1.42E-02
358	426594.07	3732024.40	Worker	0.05	1.61E-03	1.33E-02
359	426619.07	3732024.40	Worker	0.05	1.48E-03	1.22E-02
360	426644.07	3732024.40	Worker	0.04	1.37E-03	1.14E-02
361	426669.07	3732024.40	Worker	0.04	1.27E-03	1.07E-02
362	426694.07	3732024.40	Worker	0.04	1.18E-03	1.01E-02
363	426719.07	3732024.40	Worker	0.04	1.10E-03	9.58E-03
364	426744.07	3732024.40	Worker	0.03	1.03E-03	9.03E-03
365	426769.07	3732024.40	Residential	0.27	9.63E-04	8.52E-03
366	426794.07	3732024.40	Residential	0.25	9.03E-04	8.08E-03
367	426819.07	3732024.40	Residential	0.24	8.51E-04	7.65E-03
368	426844.07	3732024.40	Worker	0.03	8.04E-04	7.25E-03
369	426869.07	3732024.40	Worker	0.02	7.61E-04	6.94E-03
370	425494.07	3732049.40	Worker	0.02	6.61E-04	6.17E-03
371	425519.07	3732049.40	Worker	0.03	7.00E-04	6.44E-03
372	425544.07	3732049.40	Worker	0.03	7.42E-04	6.74E-03
373	425569.07	3732049.40	Worker	0.03	7.89E-04	7.06E-03
374	425594.07	3732049.40	Worker	0.03	8.41E-04	7.42E-03
375	425619.07	3732049.40	Worker	0.03	8.99E-04	7.79E-03
376	425644.07	3732049.40	Worker	0.03	9.63E-04	8.22E-03
377	425669.07	3732049.40	Worker	0.04	1.03E-03	8.73E-03
378	425694.07	3732049.40	Worker	0.04	1.11E-03	9.29E-03
379	425719.07	3732049.40	Worker	0.04	1.20E-03	9.92E-03
380	425744.07	3732049.40	Worker	0.05	1.30E-03	1.06E-02
381	425769.07	3732049.40	Worker	0.05	1.41E-03	1.15E-02
382	425794.07	3732049.40	Worker	0.05	1.54E-03	1.22E-02
383	426044.07	3732049.40	Worker	0.15	4.69E-03	2.83E-02
384	426069.07	3732049.40	Worker	0.17	5.32E-03	3.12E-02
385	426094.07	3732049.40	Worker	0.20	6.00E-03	3.45E-02
386	426119.07	3732049.40	Worker	0.22	6.64E-03	3.69E-02
387	426144.07	3732049.40	Worker	0.23	7.18E-03	3.93E-02
388	426169.07	3732049.40	Worker	0.23	7.20E-03	3.83E-02
389	426194.07	3732049.40	Worker	0.24	7.56E-03	4.50E-02
390	426219.07	3732049.40	Worker	0.24	7.53E-03	4.37E-02
391	426244.07	3732049.40	Worker	0.23	7.28E-03	4.29E-02
392	426269.07	3732049.40	Worker	0.22	6.84E-03	4.11E-02
393	426294.07	3732049.40	Worker	0.20	6.30E-03	3.93E-02
394	426344.07	3732049.40	Worker	0.17	5.24E-03	3.29E-02
395	426369.07	3732049.40	Worker	0.15	4.57E-03	2.95E-02
396	426394.07	3732049.40	Worker	0.13	4.02E-03	2.72E-02
397	426419.07	3732049.40	Worker	0.11	3.55E-03	2.53E-02
398	426444.07	3732049.40	Worker	0.10	3.15E-03	2.24E-02
399	426469.07	3732049.40	Worker	0.09	2.81E-03	2.05E-02
400	426494.07	3732049.40	Worker	0.08	2.51E-03	1.90E-02
401	426519.07	3732049.40	Worker	0.07	2.27E-03	1.73E-02
402	426544.07	3732049.40	Worker	0.07	2.05E-03	1.60E-02
403	426569.07	3732049.40	Worker	0.06	1.87E-03	1.46E-02
404	426594.07	3732049.40	Worker	0.06	1.71E-03	1.35E-02
405	426619.07	3732049.40	Worker	0.05	1.57E-03	1.26E-02
406	426644.07	3732049.40	Worker	0.05	1.45E-03	1.18E-02
407	426669.07	3732049.40	Worker	0.04	1.35E-03	1.11E-02
408	426694.07	3732049.40	Worker	0.04	1.25E-03	1.05E-02
409	426719.07	3732049.40	Worker	0.04	1.16E-03	9.88E-03
410	426744.07	3732049.40	Residential	0.30	1.08E-03	9.24E-03
411	426769.07	3732049.40	Residential	0.28	1.01E-03	8.67E-03
412	426794.07	3732049.40	Residential	0.26	9.45E-04	8.24E-03
413	426819.07	3732049.40	Residential	0.25	8.89E-04	7.81E-03
414	426844.07	3732049.40	Residential	0.23	8.39E-04	7.40E-03
415	426869.07	3732049.40	Worker	0.03	7.93E-04	7.04E-03
416	426894.07	3732049.40	Worker	0.02	7.50E-04	6.76E-03
417	425494.07	3732074.40	Worker	0.02	6.69E-04	6.17E-03
418	425519.07	3732074.40	Worker	0.03	7.09E-04	6.46E-03
419	425544.07	3732074.40	Worker	0.03	7.52E-04	6.81E-03
420	425569.07	3732074.40	Worker	0.03	8.02E-04	7.22E-03

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
421	425594.07	3732074.40	Worker	0.03	8.54E-04	7.59E-03
422	425619.07	3732074.40	Worker	0.03	9.15E-04	7.99E-03
423	425644.07	3732074.40	Worker	0.04	9.81E-04	8.42E-03
424	425669.07	3732074.40	Worker	0.04	1.05E-03	8.89E-03
425	425694.07	3732074.40	Worker	0.04	1.14E-03	9.41E-03
426	425719.07	3732074.40	Worker	0.04	1.23E-03	9.94E-03
427	425744.07	3732074.40	Worker	0.05	1.33E-03	1.07E-02
428	425769.07	3732074.40	Worker	0.05	1.45E-03	1.15E-02
429	425794.07	3732074.40	Worker	0.05	1.59E-03	1.24E-02
430	425819.07	3732074.40	Worker	0.06	1.75E-03	1.35E-02
431	426019.07	3732074.40	Worker	0.15	4.59E-03	2.73E-02
432	426044.07	3732074.40	Worker	0.17	5.33E-03	3.10E-02
433	426069.07	3732074.40	Worker	0.20	6.18E-03	3.49E-02
434	426094.07	3732074.40	Worker	0.23	7.17E-03	3.90E-02
435	426119.07	3732074.40	Worker	0.27	8.21E-03	4.38E-02
436	426144.07	3732074.40	Worker	0.30	9.14E-03	4.75E-02
437	426169.07	3732074.40	Worker	0.32	9.80E-03	5.16E-02
438	426194.07	3732074.40	Worker	0.31	9.51E-03	5.07E-02
439	426219.07	3732074.40	Worker	0.32	9.90E-03	5.37E-02
440	426244.07	3732074.40	Worker	0.30	9.51E-03	5.31E-02
441	426269.07	3732074.40	Worker	0.28	8.79E-03	5.08E-02
442	426294.07	3732074.40	Worker	0.25	7.95E-03	4.80E-02
443	426319.07	3732074.40	Worker	0.23	7.13E-03	4.20E-02
444	426344.07	3732074.40	Worker	0.20	6.09E-03	3.72E-02
445	426369.07	3732074.40	Worker	0.17	5.25E-03	3.35E-02
446	426394.07	3732074.40	Worker	0.15	4.54E-03	3.07E-02
447	426419.07	3732074.40	Worker	0.13	3.96E-03	2.65E-02
448	426444.07	3732074.40	Worker	0.11	3.47E-03	2.44E-02
449	426469.07	3732074.40	Worker	0.10	3.06E-03	2.19E-02
450	426494.07	3732074.40	Worker	0.09	2.72E-03	2.00E-02
451	426519.07	3732074.40	Worker	0.08	2.44E-03	1.79E-02
452	426544.07	3732074.40	Worker	0.07	2.20E-03	1.65E-02
453	426569.07	3732074.40	Worker	0.06	1.99E-03	1.51E-02
454	426594.07	3732074.40	Worker	0.06	1.82E-03	1.40E-02
455	426619.07	3732074.40	Worker	0.05	1.67E-03	1.30E-02
456	426644.07	3732074.40	Worker	0.05	1.55E-03	1.22E-02
457	426669.07	3732074.40	Worker	0.05	1.46E-03	1.15E-02
458	426719.07	3732074.40	Residential	0.35	1.25E-03	1.02E-02
459	426744.07	3732074.40	Residential	0.32	1.14E-03	9.42E-03
460	426769.07	3732074.40	Residential	0.30	1.06E-03	8.87E-03
461	426794.07	3732074.40	Residential	0.28	9.94E-04	8.44E-03
462	426819.07	3732074.40	Residential	0.26	9.32E-04	8.01E-03
463	426844.07	3732074.40	Residential	0.25	8.78E-04	7.60E-03
464	426869.07	3732074.40	Residential	0.23	8.29E-04	7.20E-03
465	426894.07	3732074.40	Worker	0.03	7.84E-04	6.82E-03
466	425469.07	3732099.40	Worker	0.02	6.39E-04	6.11E-03
467	425494.07	3732099.40	Worker	0.02	6.76E-04	6.38E-03
468	425519.07	3732099.40	Worker	0.03	7.16E-04	6.64E-03
469	425544.07	3732099.40	Worker	0.03	7.62E-04	6.96E-03
470	425569.07	3732099.40	Worker	0.03	7.70E-04	8.23E-03
471	425594.07	3732099.40	Worker	0.03	8.25E-04	8.62E-03
472	425619.07	3732099.40	Worker	0.04	9.29E-04	8.05E-03
473	425644.07	3732099.40	Worker	0.04	9.98E-04	8.53E-03
474	425669.07	3732099.40	Worker	0.04	1.07E-03	9.09E-03
475	425694.07	3732099.40	Worker	0.04	1.16E-03	9.67E-03
476	425719.07	3732099.40	Worker	0.05	1.26E-03	1.03E-02
477	425744.07	3732099.40	Worker	0.05	1.36E-03	1.09E-02
478	425769.07	3732099.40	Worker	0.05	1.49E-03	1.17E-02
479	425794.07	3732099.40	Worker	0.06	1.63E-03	1.24E-02
480	425819.07	3732099.40	Worker	0.06	1.80E-03	1.35E-02
481	425994.07	3732099.40	Worker	0.14	4.35E-03	2.73E-02
482	426019.07	3732099.40	Worker	0.17	5.11E-03	3.05E-02
483	426044.07	3732099.40	Worker	0.20	6.02E-03	3.39E-02
484	426069.07	3732099.40	Worker	0.23	7.20E-03	3.90E-02
485	426094.07	3732099.40	Worker	0.28	8.62E-03	4.51E-02
486	426119.07	3732099.40	Worker	0.33	1.03E-02	5.15E-02
487	426144.07	3732099.40	Worker	0.39	1.20E-02	5.75E-02
488	426169.07	3732099.40	Worker	0.43	1.33E-02	6.43E-02
489	426194.07	3732099.40	Worker	0.45	1.40E-02	6.95E-02
490	426219.07	3732099.40	Worker	0.42	1.29E-02	6.27E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
491	426244.07	3732099.40	Worker	0.42	1.30E-02	6.71E-02
492	426269.07	3732099.40	Worker	0.38	1.17E-02	6.33E-02
493	426294.07	3732099.40	Worker	0.33	1.03E-02	5.60E-02
494	426319.07	3732099.40	Worker	0.27	8.59E-03	4.89E-02
495	426344.07	3732099.40	Worker	0.23	7.18E-03	4.27E-02
496	426369.07	3732099.40	Worker	0.19	6.04E-03	3.79E-02
497	426394.07	3732099.40	Worker	0.16	5.15E-03	3.27E-02
498	426419.07	3732099.40	Worker	0.14	4.42E-03	2.93E-02
499	426444.07	3732099.40	Worker	0.12	3.83E-03	2.60E-02
500	426469.07	3732099.40	Worker	0.11	3.35E-03	2.29E-02
501	426494.07	3732099.40	Worker	0.10	2.96E-03	2.07E-02
502	426519.07	3732099.40	Worker	0.09	2.64E-03	1.87E-02
503	426544.07	3732099.40	Worker	0.08	2.36E-03	1.71E-02
504	426569.07	3732099.40	Worker	0.07	2.14E-03	1.57E-02
505	426594.07	3732099.40	Worker	0.06	1.95E-03	1.45E-02
506	426619.07	3732099.40	Worker	0.06	1.80E-03	1.35E-02
507	426644.07	3732099.40	Worker	0.06	1.69E-03	1.27E-02
508	426694.07	3732099.40	Residential	0.48	1.58E-03	1.11E-02
509	426719.07	3732099.40	Residential	0.39	1.35E-03	1.04E-02
510	426744.07	3732099.40	Residential	0.35	1.22E-03	9.67E-03
511	426769.07	3732099.40	Residential	0.32	1.13E-03	9.06E-03
512	426794.07	3732099.40	Residential	0.30	1.05E-03	8.51E-03
513	426819.07	3732099.40	Residential	0.28	9.81E-04	8.08E-03
514	426844.07	3732099.40	Residential	0.26	9.21E-04	7.66E-03
515	426869.07	3732099.40	Residential	0.24	8.68E-04	7.28E-03
516	426894.07	3732099.40	Worker	0.03	8.20E-04	6.91E-03
517	425469.07	3732124.40	Worker	0.02	6.44E-04	6.09E-03
518	425494.07	3732124.40	Worker	0.02	6.82E-04	6.41E-03
519	425519.07	3732124.40	Worker	0.03	7.24E-04	6.75E-03
520	425544.07	3732124.40	Worker	0.03	7.70E-04	7.11E-03
521	425569.07	3732124.40	Worker	0.03	8.20E-04	7.50E-03
522	425594.07	3732124.40	Worker	0.03	8.42E-04	8.74E-03
523	425619.07	3732124.40	Worker	0.04	9.37E-04	8.57E-03
524	425644.07	3732124.40	Worker	0.04	1.01E-03	8.84E-03
525	425669.07	3732124.40	Worker	0.04	1.09E-03	9.30E-03
526	425694.07	3732124.40	Worker	0.04	1.18E-03	9.83E-03
527	425719.07	3732124.40	Worker	0.05	1.28E-03	1.04E-02
528	425744.07	3732124.40	Worker	0.05	1.39E-03	1.10E-02
529	425769.07	3732124.40	Worker	0.05	1.52E-03	1.19E-02
530	425794.07	3732124.40	Worker	0.06	1.67E-03	1.29E-02
531	425819.07	3732124.40	Worker	0.06	1.85E-03	1.39E-02
532	425844.07	3732124.40	Worker	0.07	2.06E-03	1.50E-02
533	425969.07	3732124.40	Worker	0.13	3.98E-03	2.57E-02
534	425994.07	3732124.40	Worker	0.15	4.69E-03	2.86E-02
535	426019.07	3732124.40	Worker	0.18	5.60E-03	3.32E-02
536	426044.07	3732124.40	Worker	0.22	6.76E-03	3.77E-02
537	426069.07	3732124.40	Worker	0.27	8.29E-03	4.34E-02
538	426094.07	3732124.40	Worker	0.33	1.03E-02	5.10E-02
539	426119.07	3732124.40	Worker	0.42	1.30E-02	6.16E-02
540	426144.07	3732124.40	Worker	0.52	1.62E-02	7.25E-02
541	426169.07	3732124.40	Worker	0.62	1.91E-02	8.16E-02
542	426194.07	3732124.40	Worker	0.68	2.10E-02	8.98E-02
543	426219.07	3732124.40	Worker	0.67	2.09E-02	9.41E-02
544	426244.07	3732124.40	Worker	0.61	1.90E-02	8.66E-02
545	426269.07	3732124.40	Worker	0.53	1.65E-02	8.20E-02
546	426294.07	3732124.40	Worker	0.43	1.33E-02	6.84E-02
547	426319.07	3732124.40	Worker	0.34	1.06E-02	5.77E-02
548	426344.07	3732124.40	Worker	0.27	8.54E-03	4.84E-02
549	426369.07	3732124.40	Worker	0.22	7.00E-03	4.19E-02
550	426394.07	3732124.40	Worker	0.19	5.84E-03	3.61E-02
551	426419.07	3732124.40	Worker	0.16	4.95E-03	3.08E-02
552	426444.07	3732124.40	Worker	0.14	4.24E-03	2.71E-02
553	426469.07	3732124.40	Worker	0.12	3.69E-03	2.41E-02
554	426494.07	3732124.40	Worker	0.10	3.23E-03	2.16E-02
555	426519.07	3732124.40	Worker	0.09	2.87E-03	1.94E-02
556	426544.07	3732124.40	Worker	0.08	2.56E-03	1.77E-02
557	426569.07	3732124.40	Worker	0.08	2.32E-03	1.62E-02
558	426594.07	3732124.40	Worker	0.07	2.12E-03	1.51E-02
559	426619.07	3732124.40	Worker	0.07	1.98E-03	1.42E-02
560	426669.07	3732124.40	Residential	0.54	1.77E-03	1.20E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
561	426694.07	3732124.40	Residential	0.46	1.57E-03	1.11E-02
562	426719.07	3732124.40	Residential	0.41	1.42E-03	1.04E-02
563	426744.07	3732124.40	Residential	0.37	1.30E-03	9.75E-03
564	426769.07	3732124.40	Residential	0.34	1.19E-03	9.15E-03
565	426794.07	3732124.40	Residential	0.32	1.11E-03	8.65E-03
566	426819.07	3732124.40	Residential	0.29	1.03E-03	8.20E-03
567	426844.07	3732124.40	Residential	0.28	9.69E-04	7.77E-03
568	426869.07	3732124.40	Residential	0.26	9.13E-04	7.39E-03
569	425469.07	3732149.40	Worker	0.02	6.49E-04	6.03E-03
570	425494.07	3732149.40	Worker	0.02	6.88E-04	6.34E-03
571	425519.07	3732149.40	Worker	0.03	7.30E-04	6.67E-03
572	425544.07	3732149.40	Worker	0.03	7.78E-04	7.04E-03
573	425569.07	3732149.40	Worker	0.03	8.30E-04	7.44E-03
574	425594.07	3732149.40	Worker	0.03	8.85E-04	7.97E-03
575	425619.07	3732149.40	Worker	0.04	9.50E-04	8.52E-03
576	425644.07	3732149.40	Worker	0.05	1.03E-03	8.88E-03
577	425669.07	3732149.40	Worker	0.05	1.11E-03	9.45E-03
578	425694.07	3732149.40	Worker	0.05	1.20E-03	1.01E-02
579	425719.07	3732149.40	Worker	0.05	1.30E-03	1.08E-02
580	425744.07	3732149.40	Worker	0.05	1.42E-03	1.15E-02
581	425769.07	3732149.40	Worker	0.06	1.55E-03	1.24E-02
582	425794.07	3732149.40	Worker	0.06	1.71E-03	1.33E-02
583	425819.07	3732149.40	Worker	0.07	1.89E-03	1.42E-02
584	425844.07	3732149.40	Worker	0.07	2.12E-03	1.55E-02
585	425869.07	3732149.40	Worker	0.08	2.38E-03	1.69E-02
586	425944.07	3732149.40	Worker	0.12	3.58E-03	2.32E-02
587	425969.07	3732149.40	Worker	0.14	4.20E-03	2.60E-02
588	425994.07	3732149.40	Worker	0.16	4.99E-03	2.99E-02
589	426019.07	3732149.40	Worker	0.20	6.03E-03	3.51E-02
590	426044.07	3732149.40	Worker	0.24	7.45E-03	4.07E-02
591	426069.07	3732149.40	Worker	0.31	9.45E-03	4.91E-02
592	426094.07	3732149.40	Worker	0.39	1.22E-02	5.81E-02
593	426119.07	3732149.40	Worker	0.52	1.63E-02	7.05E-02
594	426144.07	3732149.40	Worker	0.71	2.22E-02	8.89E-02
595	426169.07	3732149.40	Worker	0.94	2.93E-02	1.08E-01
596	426194.07	3732149.40	Worker	1.13	3.52E-02	1.29E-01
597	426244.07	3732149.40	Worker	1.00	3.08E-02	1.28E-01
598	426269.07	3732149.40	Worker	0.73	2.26E-02	9.59E-02
599	426319.07	3732149.40	Worker	0.43	1.33E-02	6.68E-02
600	426344.07	3732149.40	Worker	0.33	1.03E-02	5.51E-02
601	426369.07	3732149.40	Worker	0.26	8.20E-03	4.51E-02
602	426394.07	3732149.40	Worker	0.22	6.70E-03	3.81E-02
603	426419.07	3732149.40	Worker	0.18	5.59E-03	3.28E-02
604	426444.07	3732149.40	Worker	0.15	4.75E-03	2.85E-02
605	426469.07	3732149.40	Worker	0.13	4.09E-03	2.53E-02
606	426494.07	3732149.40	Worker	0.12	3.57E-03	2.27E-02
607	426519.07	3732149.40	Worker	0.10	3.15E-03	2.05E-02
608	426544.07	3732149.40	Worker	0.09	2.81E-03	1.84E-02
609	426569.07	3732149.40	Worker	0.08	2.54E-03	1.68E-02
610	426594.07	3732149.40	Worker	0.08	2.37E-03	1.57E-02
611	426619.07	3732149.40	Residential	0.75	2.39E-03	1.45E-02
612	426644.07	3732149.40	Residential	0.61	2.02E-03	1.31E-02
613	426669.07	3732149.40	Residential	0.53	1.80E-03	1.22E-02
614	426694.07	3732149.40	Residential	0.48	1.64E-03	1.13E-02
615	426719.07	3732149.40	Residential	0.43	1.49E-03	1.06E-02
616	426744.07	3732149.40	Residential	0.40	1.37E-03	9.88E-03
617	426769.07	3732149.40	Residential	0.36	1.27E-03	9.24E-03
618	426794.07	3732149.40	Residential	0.34	1.17E-03	8.65E-03
619	426819.07	3732149.40	Residential	0.31	1.09E-03	8.15E-03
620	426844.07	3732149.40	Residential	0.29	1.02E-03	7.70E-03
621	426869.07	3732149.40	Residential	0.27	9.61E-04	7.30E-03
622	425469.07	3732174.40	Worker	0.02	6.53E-04	6.13E-03
623	425494.07	3732174.40	Worker	0.03	6.93E-04	6.42E-03
624	425519.07	3732174.40	Worker	0.03	7.36E-04	6.74E-03
625	425544.07	3732174.40	Worker	0.03	7.84E-04	7.09E-03
626	425569.07	3732174.40	Worker	0.03	8.37E-04	7.47E-03
627	425594.07	3732174.40	Worker	0.04	8.94E-04	7.87E-03
628	425619.07	3732174.40	Worker	0.04	9.64E-04	8.36E-03
629	425669.07	3732174.40	Worker	0.06	1.14E-03	9.40E-03
630	425694.07	3732174.40	Worker	0.05	1.22E-03	9.95E-03

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
631	425719.07	3732174.40	Worker	0.05	1.32E-03	1.06E-02
632	425744.07	3732174.40	Worker	0.06	1.44E-03	1.14E-02
633	425769.07	3732174.40	Worker	0.06	1.58E-03	1.23E-02
634	425794.07	3732174.40	Worker	0.06	1.74E-03	1.33E-02
635	425819.07	3732174.40	Worker	0.07	1.93E-03	1.44E-02
636	425844.07	3732174.40	Worker	0.08	2.16E-03	1.59E-02
637	425869.07	3732174.40	Worker	0.08	2.44E-03	1.76E-02
638	425894.07	3732174.40	Worker	0.09	2.78E-03	1.95E-02
639	425919.07	3732174.40	Worker	0.11	3.19E-03	2.17E-02
640	425944.07	3732174.40	Worker	0.12	3.71E-03	2.42E-02
641	425969.07	3732174.40	Worker	0.15	4.38E-03	2.72E-02
642	425994.07	3732174.40	Worker	0.17	5.25E-03	3.11E-02
643	426019.07	3732174.40	Worker	0.21	6.42E-03	3.64E-02
644	426044.07	3732174.40	Worker	0.26	8.10E-03	4.29E-02
645	426069.07	3732174.40	Worker	0.34	1.05E-02	5.25E-02
646	426094.07	3732174.40	Worker	0.45	1.41E-02	6.55E-02
647	426119.07	3732174.40	Worker	0.64	1.99E-02	8.32E-02
648	426144.07	3732174.40	Worker	0.97	3.03E-02	1.09E-01
649	426169.07	3732174.40	Worker	1.53	4.78E-02	1.49E-01
650	426244.07	3732174.40	Worker	1.97	5.94E-02	2.03E-01
651	426269.07	3732174.40	Worker	1.17	3.58E-02	1.32E-01
652	426294.07	3732174.40	Worker	0.78	2.41E-02	9.93E-02
653	426344.07	3732174.40	Worker	0.41	1.27E-02	6.01E-02
654	426369.07	3732174.40	Worker	0.32	9.84E-03	4.88E-02
655	426394.07	3732174.40	Worker	0.25	7.85E-03	4.10E-02
656	426419.07	3732174.40	Worker	0.21	6.45E-03	3.50E-02
657	426444.07	3732174.40	Worker	0.18	5.41E-03	2.99E-02
658	426469.07	3732174.40	Worker	0.15	4.62E-03	2.62E-02
659	426494.07	3732174.40	Worker	0.13	4.00E-03	2.34E-02
660	426519.07	3732174.40	Worker	0.12	3.51E-03	2.10E-02
661	426544.07	3732174.40	Worker	0.10	3.12E-03	1.90E-02
662	426594.07	3732174.40	Residential	0.84	2.75E-03	1.58E-02
663	426619.07	3732174.40	Residential	0.70	2.36E-03	1.42E-02
664	426644.07	3732174.40	Residential	0.62	2.10E-03	1.30E-02
665	426669.07	3732174.40	Residential	0.56	1.90E-03	1.21E-02
666	426694.07	3732174.40	Residential	0.50	1.73E-03	1.12E-02
667	426719.07	3732174.40	Residential	0.46	1.58E-03	1.04E-02
668	426744.07	3732174.40	Residential	0.42	1.46E-03	9.75E-03
669	426769.07	3732174.40	Residential	0.39	1.34E-03	9.16E-03
670	426794.07	3732174.40	Residential	0.36	1.24E-03	8.64E-03
671	426819.07	3732174.40	Residential	0.33	1.16E-03	8.18E-03
672	426844.07	3732174.40	Residential	0.31	1.08E-03	7.75E-03
673	426869.07	3732174.40	Residential	0.29	1.01E-03	7.36E-03
674	425469.07	3732199.40	Worker	0.02	6.57E-04	6.14E-03
675	425494.07	3732199.40	Worker	0.03	6.97E-04	6.44E-03
676	425519.07	3732199.40	Worker	0.03	7.40E-04	6.77E-03
677	425544.07	3732199.40	Worker	0.03	7.88E-04	7.12E-03
678	425569.07	3732199.40	Worker	0.03	8.40E-04	7.50E-03
679	425594.07	3732199.40	Worker	0.04	9.01E-04	7.93E-03
680	425619.07	3732199.40	Worker	0.04	9.73E-04	8.42E-03
681	425644.07	3732199.40	Residential	0.53	1.08E-03	9.03E-03
682	425694.07	3732199.40	Worker	0.07	1.26E-03	1.02E-02
683	425719.07	3732199.40	Worker	0.06	1.35E-03	1.08E-02
684	425744.07	3732199.40	Worker	0.06	1.46E-03	1.16E-02
685	425769.07	3732199.40	Worker	0.06	1.60E-03	1.25E-02
686	425794.07	3732199.40	Worker	0.07	1.77E-03	1.35E-02
687	425819.07	3732199.40	Worker	0.07	1.96E-03	1.46E-02
688	425844.07	3732199.40	Worker	0.08	2.20E-03	1.59E-02
689	425869.07	3732199.40	Worker	0.09	2.48E-03	1.75E-02
690	425894.07	3732199.40	Worker	0.10	2.83E-03	1.94E-02
691	425919.07	3732199.40	Worker	0.11	3.26E-03	2.16E-02
692	425944.07	3732199.40	Worker	0.13	3.81E-03	2.43E-02
693	425969.07	3732199.40	Worker	0.15	4.51E-03	2.76E-02
694	425994.07	3732199.40	Worker	0.18	5.45E-03	3.20E-02
695	426019.07	3732199.40	Worker	0.22	6.75E-03	3.79E-02
696	426044.07	3732199.40	Worker	0.28	8.61E-03	4.60E-02
697	426069.07	3732199.40	Worker	0.37	1.14E-02	5.68E-02
698	426094.07	3732199.40	Worker	0.50	1.56E-02	6.95E-02
699	426119.07	3732199.40	Worker	0.75	2.33E-02	9.28E-02
700	426144.07	3732199.40	Worker	1.25	3.90E-02	1.33E-01

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
701	426269.07	3732199.40	Worker	2.19	6.45E-02	1.83E-01
702	426294.07	3732199.40	Worker	1.14	3.40E-02	1.10E-01
703	426319.07	3732199.40	Worker	0.77	2.32E-02	8.59E-02
704	426369.07	3732199.40	Worker	0.40	1.21E-02	5.22E-02
705	426394.07	3732199.40	Worker	0.31	9.43E-03	4.26E-02
706	426419.07	3732199.40	Worker	0.25	7.59E-03	3.55E-02
707	426444.07	3732199.40	Worker	0.21	6.27E-03	3.03E-02
708	426469.07	3732199.40	Worker	0.17	5.28E-03	2.64E-02
709	426494.07	3732199.40	Worker	0.15	4.53E-03	2.34E-02
710	426519.07	3732199.40	Worker	0.13	3.95E-03	2.10E-02
711	426569.07	3732199.40	Residential	0.99	3.28E-03	1.73E-02
712	426594.07	3732199.40	Residential	0.84	2.82E-03	1.56E-02
713	426619.07	3732199.40	Residential	0.74	2.50E-03	1.43E-02
714	426644.07	3732199.40	Residential	0.66	2.24E-03	1.31E-02
715	426669.07	3732199.40	Residential	0.59	2.03E-03	1.21E-02
716	426694.07	3732199.40	Residential	0.54	1.84E-03	1.12E-02
717	426719.07	3732199.40	Residential	0.49	1.68E-03	1.05E-02
718	426744.07	3732199.40	Residential	0.45	1.54E-03	9.92E-03
719	426769.07	3732199.40	Residential	0.41	1.42E-03	9.17E-03
720	426794.07	3732199.40	Residential	0.38	1.32E-03	8.64E-03
721	426819.07	3732199.40	Residential	0.36	1.23E-03	8.15E-03
722	426844.07	3732199.40	Residential	0.33	1.14E-03	7.71E-03
723	425469.07	3732224.40	Worker	0.02	6.60E-04	6.05E-03
724	425494.07	3732224.40	Worker	0.03	7.00E-04	6.35E-03
725	425519.07	3732224.40	Worker	0.03	7.43E-04	6.66E-03
726	425544.07	3732224.40	Worker	0.03	7.92E-04	7.01E-03
727	425569.07	3732224.40	Worker	0.03	8.45E-04	7.39E-03
728	425594.07	3732224.40	Worker	0.04	9.08E-04	7.81E-03
729	425619.07	3732224.40	Worker	0.04	9.79E-04	8.29E-03
730	425644.07	3732224.40	Residential	0.45	1.07E-03	8.83E-03
731	425669.07	3732224.40	Residential	0.70	1.22E-03	9.51E-03
732	425719.07	3732224.40	Worker	0.08	1.39E-03	1.07E-02
733	425744.07	3732224.40	Worker	0.07	1.49E-03	1.15E-02
734	425769.07	3732224.40	Worker	0.07	1.62E-03	1.23E-02
735	425794.07	3732224.40	Worker	0.07	1.79E-03	1.33E-02
736	425819.07	3732224.40	Worker	0.07	1.99E-03	1.45E-02
737	425844.07	3732224.40	Worker	0.08	2.22E-03	1.58E-02
738	425869.07	3732224.40	Worker	0.09	2.51E-03	1.73E-02
739	425894.07	3732224.40	Worker	0.10	2.87E-03	1.92E-02
740	425919.07	3732224.40	Worker	0.11	3.31E-03	2.15E-02
741	425944.07	3732224.40	Worker	0.13	3.87E-03	2.43E-02
742	425969.07	3732224.40	Worker	0.15	4.61E-03	2.78E-02
743	425994.07	3732224.40	Worker	0.19	5.59E-03	3.23E-02
744	426019.07	3732224.40	Worker	0.23	6.96E-03	3.83E-02
745	426044.07	3732224.40	Worker	0.29	8.92E-03	4.61E-02
746	426069.07	3732224.40	Worker	0.39	1.18E-02	5.65E-02
747	426094.07	3732224.40	Worker	0.54	1.67E-02	7.23E-02
748	426119.07	3732224.40	Worker	0.82	2.55E-02	9.77E-02
749	426294.07	3732224.40	Worker	1.85	5.42E-02	1.61E-01
750	426319.07	3732224.40	Worker	1.02	3.01E-02	1.02E-01
751	426344.07	3732224.40	Worker	0.71	2.13E-02	7.61E-02
752	426394.07	3732224.40	Worker	0.38	1.15E-02	4.73E-02
753	426419.07	3732224.40	Worker	0.30	9.02E-03	3.87E-02
754	426444.07	3732224.40	Worker	0.24	7.31E-03	3.22E-02
755	426469.07	3732224.40	Worker	0.20	6.08E-03	2.76E-02
756	426494.07	3732224.40	Worker	0.17	5.17E-03	2.43E-02
757	426544.07	3732224.40	Residential	1.21	4.02E-03	1.93E-02
758	426569.07	3732224.40	Residential	1.02	3.45E-03	1.73E-02
759	426594.07	3732224.40	Residential	0.89	3.02E-03	1.57E-02
760	426619.07	3732224.40	Residential	0.79	2.69E-03	1.44E-02
761	426644.07	3732224.40	Residential	0.71	2.41E-03	1.33E-02
762	426669.07	3732224.40	Residential	0.64	2.17E-03	1.23E-02
763	426694.07	3732224.40	Residential	0.58	1.97E-03	1.14E-02
764	426719.07	3732224.40	Residential	0.53	1.80E-03	1.06E-02
765	426744.07	3732224.40	Residential	0.48	1.64E-03	1.01E-02
766	426769.07	3732224.40	Residential	0.44	1.51E-03	9.36E-03
767	426794.07	3732224.40	Residential	0.41	1.40E-03	8.81E-03
768	426819.07	3732224.40	Residential	0.38	1.30E-03	8.32E-03
769	425469.07	3732249.40	Residential	0.20	6.63E-04	6.17E-03
770	425494.07	3732249.40	Residential	0.22	7.02E-04	6.47E-03

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
771	425519.07	3732249.40	Worker	0.03	7.48E-04	6.80E-03
772	425544.07	3732249.40	Worker	0.03	7.97E-04	7.15E-03
773	425569.07	3732249.40	Worker	0.03	8.51E-04	7.53E-03
774	425594.07	3732249.40	Residential	0.31	9.14E-04	7.96E-03
775	425619.07	3732249.40	Residential	0.35	9.85E-04	8.43E-03
776	425644.07	3732249.40	Residential	0.41	1.07E-03	8.95E-03
777	425669.07	3732249.40	Residential	0.53	1.17E-03	9.55E-03
778	425744.07	3732249.40	Worker	0.08	1.52E-03	1.17E-02
779	425769.07	3732249.40	Worker	0.07	1.65E-03	1.26E-02
780	425794.07	3732249.40	Worker	0.07	1.81E-03	1.36E-02
781	425819.07	3732249.40	Worker	0.08	2.01E-03	1.48E-02
782	425844.07	3732249.40	Worker	0.08	2.25E-03	1.61E-02
783	425869.07	3732249.40	Worker	0.09	2.54E-03	1.76E-02
784	425894.07	3732249.40	Worker	0.10	2.90E-03	1.95E-02
785	425919.07	3732249.40	Worker	0.12	3.35E-03	2.17E-02
786	425944.07	3732249.40	Worker	0.13	3.93E-03	2.45E-02
787	425969.07	3732249.40	Worker	0.16	4.69E-03	2.81E-02
788	425994.07	3732249.40	Worker	0.19	5.69E-03	3.25E-02
789	426019.07	3732249.40	Worker	0.24	7.08E-03	3.86E-02
790	426044.07	3732249.40	Worker	0.30	9.07E-03	4.65E-02
791	426069.07	3732249.40	Worker	0.40	1.21E-02	5.70E-02
792	426094.07	3732249.40	Worker	0.55	1.69E-02	7.07E-02
793	426319.07	3732249.40	Worker	1.38	4.07E-02	1.00E-01
794	426344.07	3732249.40	Worker	0.85	2.52E-02	7.56E-02
795	426369.07	3732249.40	Worker	0.62	1.86E-02	6.33E-02
796	426419.07	3732249.40	Worker	0.36	1.06E-02	4.38E-02
797	426444.07	3732249.40	Worker	0.28	8.46E-03	3.67E-02
798	426469.07	3732249.40	Worker	0.24	7.00E-03	3.07E-02
799	426519.07	3732249.40	Residential	1.53	5.09E-03	2.27E-02
800	426544.07	3732249.40	Residential	1.28	4.31E-03	1.99E-02
801	426569.07	3732249.40	Residential	1.11	3.74E-03	1.76E-02
802	426594.07	3732249.40	Residential	0.97	3.28E-03	1.57E-02
803	426619.07	3732249.40	Residential	0.86	2.91E-03	1.43E-02
804	426644.07	3732249.40	Residential	0.77	2.60E-03	1.32E-02
805	426669.07	3732249.40	Residential	0.69	2.33E-03	1.21E-02
806	426694.07	3732249.40	Residential	0.62	2.11E-03	1.12E-02
807	426719.07	3732249.40	Residential	0.57	1.92E-03	1.05E-02
808	426744.07	3732249.40	Residential	0.52	1.75E-03	9.79E-03
809	426769.07	3732249.40	Residential	0.47	1.61E-03	9.35E-03
810	426794.07	3732249.40	Residential	0.44	1.48E-03	8.81E-03
811	425494.07	3732274.40	Residential	0.22	7.06E-04	6.49E-03
812	425519.07	3732274.40	Residential	0.23	7.51E-04	6.81E-03
813	425544.07	3732274.40	Residential	0.25	8.01E-04	7.15E-03
814	425569.07	3732274.40	Residential	0.28	8.57E-04	7.53E-03
815	425594.07	3732274.40	Residential	0.30	9.18E-04	7.94E-03
816	425619.07	3732274.40	Residential	0.34	9.88E-04	8.38E-03
817	425644.07	3732274.40	Residential	0.39	1.07E-03	8.87E-03
818	425669.07	3732274.40	Residential	0.47	1.17E-03	9.43E-03
819	425694.07	3732274.40	Residential	0.61	1.29E-03	1.01E-02
820	425744.07	3732274.40	Worker	0.11	1.60E-03	1.17E-02
821	425769.07	3732274.40	Worker	0.09	1.68E-03	1.25E-02
822	425794.07	3732274.40	Worker	0.08	1.84E-03	1.35E-02
823	425819.07	3732274.40	Worker	0.08	2.04E-03	1.47E-02
824	425844.07	3732274.40	Worker	0.09	2.28E-03	1.61E-02
825	425869.07	3732274.40	Worker	0.09	2.57E-03	1.77E-02
826	425894.07	3732274.40	Worker	0.10	2.94E-03	1.97E-02
827	425919.07	3732274.40	Worker	0.12	3.39E-03	2.19E-02
828	425944.07	3732274.40	Worker	0.14	3.98E-03	2.45E-02
829	425969.07	3732274.40	Worker	0.16	4.73E-03	2.75E-02
830	425994.07	3732274.40	Worker	0.19	5.73E-03	3.15E-02
831	426019.07	3732274.40	Worker	0.24	7.08E-03	3.69E-02
832	426044.07	3732274.40	Worker	0.30	9.03E-03	4.42E-02
833	426069.07	3732274.40	Worker	0.40	1.18E-02	5.44E-02
834	426344.07	3732274.40	Worker	1.01	2.98E-02	6.01E-02
835	426369.07	3732274.40	Worker	0.69	2.03E-02	4.60E-02
836	426394.07	3732274.40	Worker	0.53	1.57E-02	4.13E-02
837	426419.07	3732274.40	Worker	0.41	1.21E-02	3.66E-02
838	426444.07	3732274.40	Worker	0.33	9.68E-03	3.28E-02
839	426494.07	3732274.40	Residential	1.99	6.62E-03	2.65E-02
840	426519.07	3732274.40	Residential	1.66	5.53E-03	2.37E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
841	426544.07	3732274.40	Residential	1.40	4.71E-03	2.14E-02
842	426569.07	3732274.40	Residential	1.21	4.06E-03	1.92E-02
843	426594.07	3732274.40	Residential	1.06	3.56E-03	1.72E-02
844	426619.07	3732274.40	Residential	0.93	3.14E-03	1.55E-02
845	426644.07	3732274.40	Residential	0.83	2.80E-03	1.40E-02
846	426669.07	3732274.40	Residential	0.75	2.51E-03	1.26E-02
847	426694.07	3732274.40	Residential	0.67	2.26E-03	1.15E-02
848	426719.07	3732274.40	Residential	0.61	2.05E-03	1.07E-02
849	426744.07	3732274.40	Residential	0.55	1.86E-03	1.00E-02
850	426769.07	3732274.40	Residential	0.51	1.71E-03	9.28E-03
851	425494.07	3732299.40	Residential	0.22	7.10E-04	6.41E-03
852	425519.07	3732299.40	Residential	0.23	7.55E-04	6.74E-03
853	425544.07	3732299.40	Residential	0.25	8.05E-04	7.10E-03
854	425569.07	3732299.40	Residential	0.28	8.60E-04	7.50E-03
855	425594.07	3732299.40	Residential	0.30	9.22E-04	7.92E-03
856	425619.07	3732299.40	Residential	0.34	9.93E-04	8.39E-03
857	425644.07	3732299.40	Residential	0.38	1.07E-03	8.93E-03
858	425669.07	3732299.40	Residential	0.44	1.17E-03	9.53E-03
859	425694.07	3732299.40	Residential	0.53	1.28E-03	1.02E-02
860	425719.07	3732299.40	Residential	0.69	1.42E-03	1.10E-02
861	425769.07	3732299.40	Worker	0.11	1.75E-03	1.27E-02
862	425794.07	3732299.40	Worker	0.09	1.87E-03	1.35E-02
863	425819.07	3732299.40	Worker	0.09	2.06E-03	1.45E-02
864	425844.07	3732299.40	Worker	0.09	2.30E-03	1.57E-02
865	425869.07	3732299.40	Worker	0.10	2.59E-03	1.71E-02
866	425894.07	3732299.40	Worker	0.11	2.96E-03	1.89E-02
867	425919.07	3732299.40	Worker	0.12	3.41E-03	2.10E-02
868	425944.07	3732299.40	Worker	0.14	3.98E-03	2.35E-02
869	425969.07	3732299.40	Worker	0.16	4.71E-03	2.67E-02
870	425994.07	3732299.40	Worker	0.19	5.67E-03	3.07E-02
871	426019.07	3732299.40	Worker	0.24	6.95E-03	3.59E-02
872	426369.07	3732299.40	Worker	0.75	2.22E-02	4.51E-02
873	426394.07	3732299.40	Worker	0.57	1.69E-02	3.84E-02
874	426419.07	3732299.40	Worker	0.45	1.32E-02	3.37E-02
875	426444.07	3732299.40	Worker	0.37	1.08E-02	2.93E-02
876	426469.07	3732299.40	Residential	2.61	8.66E-03	2.54E-02
877	426494.07	3732299.40	Residential	2.15	7.14E-03	2.27E-02
878	426519.07	3732299.40	Residential	1.80	6.00E-03	2.05E-02
879	426544.07	3732299.40	Residential	1.53	5.10E-03	1.88E-02
880	426569.07	3732299.40	Residential	1.32	4.40E-03	1.73E-02
881	426594.07	3732299.40	Residential	1.15	3.83E-03	1.60E-02
882	426619.07	3732299.40	Residential	1.01	3.38E-03	1.47E-02
883	426644.07	3732299.40	Residential	0.89	2.99E-03	1.41E-02
884	426669.07	3732299.40	Residential	0.80	2.68E-03	1.29E-02
885	426694.07	3732299.40	Residential	0.72	2.41E-03	1.18E-02
886	426719.07	3732299.40	Residential	0.65	2.17E-03	1.14E-02
887	425519.07	3732324.40	Residential	0.24	7.58E-04	6.81E-03
888	425544.07	3732324.40	Residential	0.25	8.09E-04	7.17E-03
889	425569.07	3732324.40	Residential	0.28	8.64E-04	7.55E-03
890	425594.07	3732324.40	Residential	0.30	9.27E-04	7.97E-03
891	425619.07	3732324.40	Residential	0.33	9.97E-04	8.42E-03
892	425644.07	3732324.40	Residential	0.37	1.08E-03	8.90E-03
893	425669.07	3732324.40	Residential	0.42	1.17E-03	9.40E-03
894	425694.07	3732324.40	Residential	0.49	1.28E-03	9.97E-03
895	425719.07	3732324.40	Residential	0.59	1.40E-03	1.06E-02
896	425744.07	3732324.40	Residential	0.78	1.57E-03	1.14E-02
897	425794.07	3732324.40	Worker	0.12	1.93E-03	1.31E-02
898	425819.07	3732324.40	Worker	0.10	2.09E-03	1.42E-02
899	425844.07	3732324.40	Worker	0.10	2.31E-03	1.54E-02
900	425869.07	3732324.40	Worker	0.10	2.60E-03	1.68E-02
901	425894.07	3732324.40	Worker	0.11	2.95E-03	1.84E-02
902	425919.07	3732324.40	Worker	0.12	3.39E-03	2.05E-02
903	425944.07	3732324.40	Worker	0.14	3.93E-03	2.30E-02
904	425969.07	3732324.40	Worker	0.16	4.61E-03	2.58E-02
905	425994.07	3732324.40	Worker	0.19	5.49E-03	2.95E-02
906	426044.07	3732324.40	Worker	0.29	8.19E-03	3.91E-02
907	426369.07	3732324.40	Worker	0.73	2.17E-02	4.15E-02
908	426419.07	3732324.40	Worker	0.47	1.38E-02	3.13E-02
909	426469.07	3732324.40	Residential	2.74	9.10E-03	2.44E-02
910	426494.07	3732324.40	Residential	2.27	7.55E-03	2.17E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
911	426519.07	3732324.40	Residential	1.92	6.38E-03	1.95E-02
912	426544.07	3732324.40	Residential	1.64	5.44E-03	1.76E-02
913	426569.07	3732324.40	Residential	1.42	4.71E-03	1.61E-02
914	426594.07	3732324.40	Residential	1.23	4.09E-03	1.48E-02
915	426619.07	3732324.40	Residential	1.08	3.60E-03	1.38E-02
916	426644.07	3732324.40	Residential	0.96	3.19E-03	1.29E-02
917	426669.07	3732324.40	Residential	0.86	2.85E-03	1.23E-02
918	426694.07	3732324.40	Residential	0.77	2.55E-03	1.15E-02
919	425544.07	3732349.40	Residential	0.25	8.12E-04	7.03E-03
920	425569.07	3732349.40	Residential	0.27	8.68E-04	7.38E-03
921	425594.07	3732349.40	Residential	0.30	9.31E-04	7.76E-03
922	425619.07	3732349.40	Residential	0.33	1.00E-03	8.15E-03
923	425644.07	3732349.40	Residential	0.36	1.08E-03	8.57E-03
924	425669.07	3732349.40	Residential	0.41	1.17E-03	9.11E-03
925	425694.07	3732349.40	Residential	0.46	1.28E-03	9.73E-03
926	425719.07	3732349.40	Residential	0.54	1.40E-03	1.04E-02
927	425744.07	3732349.40	Residential	0.66	1.54E-03	1.12E-02
928	425769.07	3732349.40	Residential	0.90	1.74E-03	1.20E-02
929	425819.07	3732349.40	Worker	0.12	2.12E-03	1.39E-02
930	425844.07	3732349.40	Worker	0.11	2.32E-03	1.51E-02
931	425869.07	3732349.40	Worker	0.11	2.59E-03	1.65E-02
932	425894.07	3732349.40	Worker	0.11	2.92E-03	1.81E-02
933	425919.07	3732349.40	Worker	0.12	3.33E-03	1.98E-02
934	425944.07	3732349.40	Worker	0.14	3.82E-03	2.21E-02
935	425969.07	3732349.40	Worker	0.16	4.45E-03	2.46E-02
936	426019.07	3732349.40	Worker	0.22	6.24E-03	3.13E-02
937	426044.07	3732349.40	Worker	0.26	7.27E-03	3.58E-02
938	426069.07	3732349.40	Worker	0.34	8.84E-03	4.61E-02
939	426394.07	3732349.40	Worker	0.57	1.66E-02	3.34E-02
940	426419.07	3732349.40	Residential	4.06	1.35E-02	2.93E-02
941	426444.07	3732349.40	Residential	3.34	1.11E-02	2.60E-02
942	426494.07	3732349.40	Residential	2.35	7.79E-03	2.07E-02
943	426519.07	3732349.40	Residential	2.00	6.62E-03	1.89E-02
944	426544.07	3732349.40	Residential	1.72	5.69E-03	1.72E-02
945	426569.07	3732349.40	Residential	1.49	4.93E-03	1.57E-02
946	426594.07	3732349.40	Residential	1.30	4.31E-03	1.44E-02
947	426619.07	3732349.40	Residential	1.15	3.79E-03	1.35E-02
948	426644.07	3732349.40	Residential	1.02	3.36E-03	1.25E-02
949	426669.07	3732349.40	Residential	0.91	3.00E-03	1.17E-02
950	426694.07	3732349.40	Residential	0.82	2.69E-03	1.10E-02
951	425569.07	3732374.40	Residential	0.27	8.71E-04	7.21E-03
952	425594.07	3732374.40	Residential	0.30	9.34E-04	7.62E-03
953	425619.07	3732374.40	Residential	0.33	1.00E-03	8.06E-03
954	425644.07	3732374.40	Residential	0.36	1.08E-03	8.54E-03
955	425669.07	3732374.40	Residential	0.40	1.17E-03	9.03E-03
956	425694.07	3732374.40	Residential	0.45	1.27E-03	9.58E-03
957	425719.07	3732374.40	Residential	0.51	1.39E-03	1.02E-02
958	425744.07	3732374.40	Residential	0.60	1.53E-03	1.09E-02
959	425769.07	3732374.40	Residential	0.73	1.69E-03	1.17E-02
960	425794.07	3732374.40	Residential	1.02	1.93E-03	1.28E-02
961	425844.07	3732374.40	Worker	0.12	2.32E-03	1.48E-02
962	425869.07	3732374.40	Worker	0.11	2.55E-03	1.59E-02
963	425894.07	3732374.40	Worker	0.12	2.85E-03	1.75E-02
964	425919.07	3732374.40	Worker	0.12	3.22E-03	1.91E-02
965	425944.07	3732374.40	Worker	0.14	3.69E-03	2.11E-02
966	425994.07	3732374.40	Worker	0.18	4.91E-03	2.58E-02
967	426019.07	3732374.40	Worker	0.20	5.56E-03	2.89E-02
968	426044.07	3732374.40	Worker	0.24	6.43E-03	3.54E-02
969	426069.07	3732374.40	Worker	0.30	7.62E-03	3.86E-02
970	426094.07	3732374.40	Worker	0.53	1.08E-02	4.60E-02
971	426369.07	3732374.40	Worker	0.62	1.83E-02	3.36E-02
972	426394.07	3732374.40	Worker	0.52	1.53E-02	3.06E-02
973	426419.07	3732374.40	Residential	3.87	1.29E-02	2.73E-02
974	426444.07	3732374.40	Residential	3.26	1.08E-02	2.43E-02
975	426469.07	3732374.40	Residential	2.77	9.19E-03	2.21E-02
976	426519.07	3732374.40	Residential	2.04	6.73E-03	1.80E-02
977	426544.07	3732374.40	Residential	1.76	5.83E-03	1.65E-02
978	426569.07	3732374.40	Residential	1.54	5.08E-03	1.52E-02
979	426594.07	3732374.40	Residential	1.35	4.46E-03	1.41E-02
980	426619.07	3732374.40	Residential	1.20	3.94E-03	1.30E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
981	426644.07	3732374.40	Residential	1.06	3.50E-03	1.23E-02
982	426669.07	3732374.40	Residential	0.95	3.14E-03	1.13E-02
983	426694.07	3732374.40	Residential	0.86	2.82E-03	1.07E-02
984	425594.07	3732399.40	Residential	0.30	9.36E-04	7.53E-03
985	425619.07	3732399.40	Residential	0.32	1.01E-03	7.92E-03
986	425644.07	3732399.40	Residential	0.35	1.08E-03	8.39E-03
987	425669.07	3732399.40	Residential	0.39	1.17E-03	8.83E-03
988	425694.07	3732399.40	Residential	0.43	1.27E-03	9.42E-03
989	425719.07	3732399.40	Residential	0.49	1.38E-03	1.01E-02
990	425744.07	3732399.40	Residential	0.56	1.51E-03	1.08E-02
991	425769.07	3732399.40	Residential	0.66	1.66E-03	1.15E-02
992	425794.07	3732399.40	Residential	0.81	1.84E-03	1.23E-02
993	425819.07	3732399.40	Residential	1.16	2.11E-03	1.34E-02
994	425869.07	3732399.40	Worker	0.13	2.51E-03	1.55E-02
995	425894.07	3732399.40	Worker	0.12	2.77E-03	1.68E-02
996	425919.07	3732399.40	Worker	0.13	3.13E-03	1.85E-02
997	425969.07	3732399.40	Worker	0.15	3.98E-03	2.18E-02
998	425994.07	3732399.40	Worker	0.16	4.42E-03	2.41E-02
999	426019.07	3732399.40	Worker	0.19	4.97E-03	2.81E-02
1000	426044.07	3732399.40	Worker	0.21	5.64E-03	2.99E-02
1001	426069.07	3732399.40	Worker	0.26	6.48E-03	3.26E-02
1002	426094.07	3732399.40	Worker	0.35	7.90E-03	3.72E-02
1003	426244.07	3732399.40	Worker	0.56	1.61E-02	4.33E-02
1004	426344.07	3732399.40	Worker	0.61	1.80E-02	3.31E-02
1005	426369.07	3732399.40	Worker	0.53	1.55E-02	2.89E-02
1006	426394.07	3732399.40	Residential	4.18	1.39E-02	2.73E-02
1007	426419.07	3732399.40	Residential	3.61	1.20E-02	2.53E-02
1008	426444.07	3732399.40	Residential	3.12	1.04E-02	2.30E-02
1009	426469.07	3732399.40	Residential	2.69	8.90E-03	2.07E-02
1010	426494.07	3732399.40	Residential	2.34	7.72E-03	1.91E-02
1011	426519.07	3732399.40	Residential	2.04	6.71E-03	1.75E-02
1012	426544.07	3732399.40	Residential	1.77	5.84E-03	1.59E-02
1013	426569.07	3732399.40	Residential	1.56	5.14E-03	1.46E-02
1014	426594.07	3732399.40	Residential	1.38	4.54E-03	1.35E-02
1015	426619.07	3732399.40	Residential	1.23	4.04E-03	1.26E-02
1016	426644.07	3732399.40	Residential	1.10	3.60E-03	1.20E-02
1017	426669.07	3732399.40	Residential	0.99	3.24E-03	1.12E-02
1018	426694.07	3732399.40	Residential	0.89	2.91E-03	1.06E-02
1019	426719.07	3732399.40	Residential	0.81	2.64E-03	9.91E-03
1020	425594.07	3732424.40	Residential	0.29	9.36E-04	7.38E-03
1021	425619.07	3732424.40	Residential	0.32	1.00E-03	7.80E-03
1022	425644.07	3732424.40	Residential	0.35	1.08E-03	8.27E-03
1023	425669.07	3732424.40	Residential	0.38	1.16E-03	8.77E-03
1024	425694.07	3732424.40	Residential	0.42	1.26E-03	9.28E-03
1025	425719.07	3732424.40	Residential	0.47	1.36E-03	9.88E-03
1026	425744.07	3732424.40	Residential	0.53	1.49E-03	1.04E-02
1027	425769.07	3732424.40	Residential	0.60	1.62E-03	1.12E-02
1028	425794.07	3732424.40	Residential	0.71	1.78E-03	1.20E-02
1029	425819.07	3732424.40	Residential	0.88	1.98E-03	1.29E-02
1030	425894.07	3732424.40	Worker	0.13	2.73E-03	1.64E-02
1031	425919.07	3732424.40	Worker	0.14	3.15E-03	1.76E-02
1032	425944.07	3732424.40	Worker	0.13	3.31E-03	1.88E-02
1033	425969.07	3732424.40	Worker	0.14	3.61E-03	2.05E-02
1034	425994.07	3732424.40	Worker	0.15	3.99E-03	2.31E-02
1035	426019.07	3732424.40	Worker	0.17	4.43E-03	2.44E-02
1036	426044.07	3732424.40	Worker	0.19	4.95E-03	2.64E-02
1037	426069.07	3732424.40	Worker	0.22	5.63E-03	2.92E-02
1038	426094.07	3732424.40	Worker	0.28	6.66E-03	3.24E-02
1039	426119.07	3732424.40	Worker	0.41	8.25E-03	3.62E-02
1040	426194.07	3732424.40	Worker	0.39	9.77E-03	3.77E-02
1041	426219.07	3732424.40	Worker	0.40	1.09E-02	3.77E-02
1042	426244.07	3732424.40	Worker	0.45	1.25E-02	3.66E-02
1043	426294.07	3732424.40	Worker	0.54	1.55E-02	3.44E-02
1044	426319.07	3732424.40	Worker	0.54	1.56E-02	3.24E-02
1045	426344.07	3732424.40	Worker	0.50	1.46E-02	2.80E-02
1046	426369.07	3732424.40	Residential	4.17	1.39E-02	2.74E-02
1047	426394.07	3732424.40	Residential	3.75	1.24E-02	2.50E-02
1048	426419.07	3732424.40	Residential	3.33	1.10E-02	2.29E-02
1049	426444.07	3732424.40	Residential	2.93	9.70E-03	2.15E-02
1050	426469.07	3732424.40	Residential	2.58	8.51E-03	1.98E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
1051	426494.07	3732424.40	Residential	2.26	7.45E-03	1.80E-02
1052	426544.07	3732424.40	Residential	1.77	5.80E-03	1.54E-02
1053	426569.07	3732424.40	Residential	1.57	5.13E-03	1.43E-02
1054	426594.07	3732424.40	Residential	1.39	4.56E-03	1.32E-02
1055	426619.07	3732424.40	Residential	1.24	4.07E-03	1.25E-02
1056	426644.07	3732424.40	Residential	1.12	3.65E-03	1.17E-02
1057	426669.07	3732424.40	Residential	1.01	3.29E-03	1.09E-02
1058	426694.07	3732424.40	Residential	0.91	2.98E-03	1.03E-02
1059	426719.07	3732424.40	Residential	0.83	2.71E-03	9.72E-03
1060	425619.07	3732449.40	Residential	0.32	9.98E-04	7.72E-03
1061	425644.07	3732449.40	Residential	0.34	1.07E-03	8.15E-03
1062	425669.07	3732449.40	Residential	0.37	1.15E-03	8.59E-03
1063	425694.07	3732449.40	Residential	0.41	1.24E-03	9.01E-03
1064	425719.07	3732449.40	Residential	0.45	1.34E-03	9.63E-03
1065	425744.07	3732449.40	Residential	0.50	1.45E-03	1.02E-02
1066	425769.07	3732449.40	Residential	0.57	1.58E-03	1.09E-02
1067	425794.07	3732449.40	Residential	0.65	1.72E-03	1.16E-02
1068	425819.07	3732449.40	Residential	0.76	1.88E-03	1.24E-02
1069	425844.07	3732449.40	Residential	0.94	2.08E-03	1.34E-02
1070	425894.07	3732449.40	Worker	0.16	2.72E-03	1.56E-02
1071	425919.07	3732449.40	Worker	0.13	2.81E-03	1.65E-02
1072	425944.07	3732449.40	Worker	0.13	3.02E-03	1.78E-02
1073	425969.07	3732449.40	Worker	0.13	3.29E-03	1.94E-02
1074	425994.07	3732449.40	Worker	0.14	3.60E-03	2.06E-02
1075	426019.07	3732449.40	Worker	0.16	3.97E-03	2.22E-02
1076	426044.07	3732449.40	Worker	0.18	4.47E-03	2.43E-02
1077	426069.07	3732449.40	Worker	0.20	5.04E-03	2.63E-02
1078	426094.07	3732449.40	Worker	0.23	5.48E-03	2.85E-02
1079	426119.07	3732449.40	Worker	0.29	6.30E-03	3.04E-02
1080	426144.07	3732449.40	Worker	0.45	8.32E-03	3.35E-02
1081	426169.07	3732449.40	Worker	0.56	1.00E-02	3.48E-02
1082	426194.07	3732449.40	Worker	0.38	8.56E-03	3.31E-02
1083	426219.07	3732449.40	Worker	0.36	9.02E-03	3.28E-02
1084	426269.07	3732449.40	Worker	0.41	1.14E-02	3.09E-02
1085	426294.07	3732449.40	Worker	0.43	1.23E-02	2.99E-02
1086	426319.07	3732449.40	Worker	0.43	1.25E-02	2.78E-02
1087	426344.07	3732449.40	Residential	3.82	1.26E-02	2.65E-02
1088	426369.07	3732449.40	Residential	3.62	1.19E-02	2.45E-02
1089	426394.07	3732449.40	Residential	3.35	1.10E-02	2.30E-02
1090	426419.07	3732449.40	Residential	3.04	1.00E-02	2.11E-02
1091	426444.07	3732449.40	Residential	2.73	8.98E-03	1.95E-02
1092	426469.07	3732449.40	Residential	2.43	8.00E-03	1.85E-02
1093	426494.07	3732449.40	Residential	2.17	7.13E-03	1.72E-02
1094	426519.07	3732449.40	Residential	1.94	6.35E-03	1.59E-02
1095	426544.07	3732449.40	Residential	1.73	5.66E-03	1.47E-02
1096	426569.07	3732449.40	Residential	1.54	5.05E-03	1.39E-02
1097	426594.07	3732449.40	Residential	1.38	4.52E-03	1.28E-02
1098	426619.07	3732449.40	Residential	1.24	4.06E-03	1.21E-02
1099	426644.07	3732449.40	Residential	1.12	3.66E-03	1.14E-02
1100	426669.07	3732449.40	Residential	1.02	3.31E-03	1.07E-02
1101	426694.07	3732449.40	Residential	0.92	3.01E-03	1.01E-02
1102	426719.07	3732449.40	Residential	0.85	2.75E-03	9.42E-03
1103	425644.07	3732474.40	Residential	0.34	1.06E-03	7.92E-03
1104	425669.07	3732474.40	Residential	0.36	1.13E-03	8.42E-03
1105	425694.07	3732474.40	Residential	0.40	1.22E-03	8.87E-03
1106	425719.07	3732474.40	Residential	0.43	1.31E-03	9.36E-03
1107	425744.07	3732474.40	Residential	0.48	1.41E-03	9.88E-03
1108	425769.07	3732474.40	Residential	0.53	1.52E-03	1.05E-02
1109	425794.07	3732474.40	Residential	0.60	1.65E-03	1.12E-02
1110	425819.07	3732474.40	Residential	0.68	1.79E-03	1.19E-02
1111	425844.07	3732474.40	Residential	0.80	1.96E-03	1.28E-02
1112	425869.07	3732474.40	Residential	1.00	2.15E-03	1.37E-02
1113	425919.07	3732474.40	Worker	0.15	2.58E-03	1.57E-02
1114	425944.07	3732474.40	Worker	0.13	2.77E-03	1.67E-02
1115	425969.07	3732474.40	Worker	0.13	3.00E-03	1.78E-02
1116	425994.07	3732474.40	Worker	0.14	3.29E-03	1.91E-02
1117	426044.07	3732474.40	Worker	0.16	4.05E-03	2.21E-02
1118	426069.07	3732474.40	Worker	0.17	4.29E-03	2.37E-02
1119	426094.07	3732474.40	Worker	0.19	4.66E-03	2.52E-02
1120	426119.07	3732474.40	Worker	0.23	5.20E-03	2.64E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
1121	426144.07	3732474.40	Worker	0.30	6.07E-03	2.79E-02
1122	426169.07	3732474.40	Worker	0.50	8.58E-03	3.18E-02
1123	426194.07	3732474.40	Worker	0.47	8.77E-03	3.10E-02
1124	426244.07	3732474.40	Worker	0.34	8.57E-03	2.81E-02
1125	426269.07	3732474.40	Worker	0.34	9.26E-03	2.72E-02
1126	426294.07	3732474.40	Worker	0.36	9.90E-03	2.56E-02
1127	426319.07	3732474.40	Residential	3.27	1.05E-02	2.54E-02
1128	426344.07	3732474.40	Residential	3.26	1.06E-02	2.42E-02
1129	426369.07	3732474.40	Residential	3.16	1.03E-02	2.21E-02
1130	426394.07	3732474.40	Residential	2.97	9.74E-03	2.08E-02
1131	426419.07	3732474.40	Residential	2.75	9.01E-03	1.97E-02
1132	426444.07	3732474.40	Residential	2.51	8.22E-03	1.81E-02
1133	426469.07	3732474.40	Residential	2.28	7.46E-03	1.69E-02
1134	426494.07	3732474.40	Residential	2.06	6.73E-03	1.61E-02
1135	426519.07	3732474.40	Residential	1.85	6.05E-03	1.54E-02
1136	426569.07	3732474.40	Residential	1.51	4.91E-03	1.33E-02
1137	426594.07	3732474.40	Residential	1.36	4.44E-03	1.25E-02
1138	426619.07	3732474.40	Residential	1.23	4.01E-03	1.18E-02
1139	426644.07	3732474.40	Residential	1.12	3.64E-03	1.11E-02
1140	426669.07	3732474.40	Residential	1.02	3.31E-03	1.04E-02
1141	426694.07	3732474.40	Residential	0.93	3.01E-03	9.88E-03
1142	426719.07	3732474.40	Residential	0.85	2.77E-03	9.25E-03
1143	426744.07	3732474.40	Residential	0.78	2.53E-03	8.83E-03
1144	425669.07	3732499.40	Residential	0.35	1.11E-03	8.20E-03
1145	425694.07	3732499.40	Residential	0.38	1.19E-03	8.60E-03
1146	425719.07	3732499.40	Residential	0.42	1.27E-03	9.09E-03
1147	425744.07	3732499.40	Residential	0.46	1.36E-03	9.64E-03
1148	425769.07	3732499.40	Residential	0.50	1.47E-03	1.02E-02
1149	425794.07	3732499.40	Residential	0.56	1.58E-03	1.08E-02
1150	425819.07	3732499.40	Residential	0.62	1.70E-03	1.14E-02
1151	425844.07	3732499.40	Residential	0.71	1.84E-03	1.22E-02
1152	425869.07	3732499.40	Residential	0.83	1.99E-03	1.30E-02
1153	425894.07	3732499.40	Residential	1.05	2.17E-03	1.39E-02
1154	425944.07	3732499.40	Worker	0.14	2.55E-03	1.57E-02
1155	425969.07	3732499.40	Worker	0.13	2.78E-03	1.67E-02
1156	426019.07	3732499.40	Worker	0.14	3.35E-03	1.89E-02
1157	426044.07	3732499.40	Worker	0.15	3.50E-03	2.00E-02
1158	426069.07	3732499.40	Worker	0.15	3.74E-03	2.15E-02
1159	426094.07	3732499.40	Worker	0.17	4.04E-03	2.23E-02
1160	426119.07	3732499.40	Worker	0.19	4.42E-03	2.34E-02
1161	426144.07	3732499.40	Worker	0.23	4.96E-03	2.44E-02
1162	426169.07	3732499.40	Worker	0.30	5.87E-03	2.60E-02
1163	426219.07	3732499.40	Worker	0.36	7.35E-03	2.69E-02
1164	426244.07	3732499.40	Worker	0.30	7.21E-03	2.49E-02
1165	426269.07	3732499.40	Worker	0.29	7.68E-03	2.40E-02
1166	426294.07	3732499.40	Residential	2.72	8.26E-03	2.31E-02
1167	426319.07	3732499.40	Residential	2.79	8.75E-03	2.26E-02
1168	426344.07	3732499.40	Residential	2.81	8.97E-03	2.19E-02
1169	426369.07	3732499.40	Residential	2.76	8.90E-03	2.05E-02
1170	426394.07	3732499.40	Residential	2.64	8.57E-03	1.91E-02
1171	426419.07	3732499.40	Residential	2.48	8.08E-03	1.80E-02
1172	426444.07	3732499.40	Residential	2.30	7.51E-03	1.71E-02
1173	426469.07	3732499.40	Residential	2.12	6.91E-03	1.58E-02
1174	426494.07	3732499.40	Residential	1.94	6.31E-03	1.49E-02
1175	426519.07	3732499.40	Residential	1.77	5.75E-03	1.42E-02
1176	426544.07	3732499.40	Residential	1.61	5.25E-03	1.36E-02
1177	426569.07	3732499.40	Residential	1.46	4.76E-03	1.29E-02
1178	426594.07	3732499.40	Residential	1.33	4.33E-03	1.20E-02
1179	426619.07	3732499.40	Residential	1.21	3.94E-03	1.13E-02
1180	426644.07	3732499.40	Residential	1.10	3.58E-03	1.08E-02
1181	426669.07	3732499.40	Residential	1.01	3.28E-03	1.02E-02
1182	426694.07	3732499.40	Residential	0.93	3.01E-03	9.58E-03
1183	426719.07	3732499.40	Residential	0.85	2.76E-03	9.11E-03
1184	426744.07	3732499.40	Residential	0.78	2.54E-03	8.65E-03
1185	425694.07	3732524.40	Residential	0.37	1.15E-03	8.40E-03
1186	425719.07	3732524.40	Residential	0.40	1.23E-03	8.87E-03
1187	425744.07	3732524.40	Residential	0.44	1.31E-03	9.31E-03
1188	425769.07	3732524.40	Residential	0.48	1.40E-03	9.84E-03
1189	425794.07	3732524.40	Residential	0.52	1.50E-03	1.04E-02
1190	425819.07	3732524.40	Residential	0.58	1.61E-03	1.10E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
1191	425844.07	3732524.40	Residential	0.64	1.73E-03	1.17E-02
1192	425869.07	3732524.40	Residential	0.73	1.86E-03	1.24E-02
1193	425894.07	3732524.40	Residential	0.86	2.01E-03	1.31E-02
1194	425919.07	3732524.40	Residential	1.11	2.17E-03	1.39E-02
1195	425969.07	3732524.40	Worker	0.15	2.83E-03	1.59E-02
1196	425994.07	3732524.40	Worker	0.13	2.81E-03	1.65E-02
1197	426019.07	3732524.40	Worker	0.13	2.93E-03	1.74E-02
1198	426044.07	3732524.40	Worker	0.13	3.09E-03	1.85E-02
1199	426069.07	3732524.40	Worker	0.14	3.30E-03	1.94E-02
1200	426094.07	3732524.40	Worker	0.15	3.55E-03	2.02E-02
1201	426119.07	3732524.40	Worker	0.17	3.85E-03	2.09E-02
1202	426144.07	3732524.40	Worker	0.21	4.25E-03	2.19E-02
1203	426194.07	3732524.40	Worker	0.29	5.52E-03	2.37E-02
1204	426219.07	3732524.40	Worker	0.27	5.81E-03	2.31E-02
1205	426244.07	3732524.40	Worker	0.26	6.13E-03	2.24E-02
1206	426269.07	3732524.40	Residential	2.35	6.50E-03	2.17E-02
1207	426294.07	3732524.40	Residential	2.36	6.97E-03	2.08E-02
1208	426319.07	3732524.40	Residential	2.41	7.39E-03	2.03E-02
1209	426344.07	3732524.40	Residential	2.44	7.65E-03	1.99E-02
1210	426369.07	3732524.40	Residential	2.42	7.70E-03	1.89E-02
1211	426394.07	3732524.40	Residential	2.35	7.55E-03	1.75E-02
1212	426419.07	3732524.40	Residential	2.24	7.24E-03	1.67E-02
1213	426444.07	3732524.40	Residential	2.11	6.82E-03	1.59E-02
1214	426469.07	3732524.40	Residential	1.96	6.35E-03	1.50E-02
1215	426494.07	3732524.40	Residential	1.81	5.89E-03	1.40E-02
1216	426519.07	3732524.40	Residential	1.67	5.42E-03	1.32E-02
1217	426544.07	3732524.40	Residential	1.54	4.99E-03	1.27E-02
1218	426569.07	3732524.40	Residential	1.41	4.58E-03	1.22E-02
1219	426594.07	3732524.40	Residential	1.29	4.18E-03	1.17E-02
1220	426619.07	3732524.40	Residential	1.18	3.83E-03	1.10E-02
1221	426644.07	3732524.40	Residential	1.09	3.51E-03	1.03E-02
1222	426669.07	3732524.40	Residential	1.00	3.23E-03	9.83E-03
1223	426694.07	3732524.40	Residential	0.92	2.97E-03	9.37E-03
1224	426719.07	3732524.40	Residential	0.85	2.74E-03	8.86E-03
1225	425719.07	3732549.40	Residential	0.38	1.18E-03	8.56E-03
1226	425744.07	3732549.40	Residential	0.41	1.26E-03	8.97E-03
1227	425769.07	3732549.40	Residential	0.45	1.34E-03	9.48E-03
1228	425794.07	3732549.40	Residential	0.49	1.43E-03	9.99E-03
1229	425819.07	3732549.40	Residential	0.53	1.52E-03	1.06E-02
1230	425844.07	3732549.40	Residential	0.59	1.63E-03	1.11E-02
1231	425869.07	3732549.40	Residential	0.66	1.74E-03	1.18E-02
1232	425894.07	3732549.40	Residential	0.75	1.86E-03	1.24E-02
1233	425919.07	3732549.40	Residential	0.88	1.99E-03	1.30E-02
1234	425944.07	3732549.40	Residential	1.18	2.15E-03	1.38E-02
1235	425994.07	3732549.40	Worker	0.13	2.48E-03	1.53E-02
1236	426019.07	3732549.40	Worker	0.13	2.61E-03	1.61E-02
1237	426044.07	3732549.40	Worker	0.13	2.76E-03	1.71E-02
1238	426069.07	3732549.40	Worker	0.13	2.94E-03	1.76E-02
1239	426094.07	3732549.40	Worker	0.15	3.16E-03	1.83E-02
1240	426119.07	3732549.40	Worker	0.17	3.44E-03	1.90E-02
1241	426169.07	3732549.40	Worker	0.21	4.11E-03	2.00E-02
1242	426194.07	3732549.40	Worker	0.21	4.34E-03	2.00E-02
1243	426219.07	3732549.40	Worker	0.22	4.85E-03	2.07E-02
1244	426244.07	3732549.40	Residential	2.04	5.16E-03	2.00E-02
1245	426269.07	3732549.40	Residential	2.03	5.54E-03	1.95E-02
1246	426294.07	3732549.40	Residential	2.05	5.93E-03	1.89E-02
1247	426319.07	3732549.40	Residential	2.09	6.30E-03	1.83E-02
1248	426344.07	3732549.40	Residential	2.13	6.58E-03	1.79E-02
1249	426369.07	3732549.40	Residential	2.13	6.70E-03	1.74E-02
1250	426394.07	3732549.40	Residential	2.10	6.66E-03	1.65E-02
1251	426419.07	3732549.40	Residential	2.02	6.47E-03	1.54E-02
1252	426444.07	3732549.40	Residential	1.92	6.18E-03	1.46E-02
1253	426469.07	3732549.40	Residential	1.82	5.85E-03	1.41E-02
1254	426494.07	3732549.40	Residential	1.69	5.47E-03	1.33E-02
1255	426519.07	3732549.40	Residential	1.58	5.09E-03	1.25E-02
1256	426544.07	3732549.40	Residential	1.46	4.72E-03	1.19E-02
1257	426569.07	3732549.40	Residential	1.35	4.37E-03	1.14E-02
1258	426594.07	3732549.40	Residential	1.25	4.03E-03	1.12E-02
1259	426619.07	3732549.40	Residential	1.15	3.71E-03	1.06E-02
1260	426644.07	3732549.40	Residential	1.06	3.43E-03	1.00E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
1261	426669.07	3732549.40	Residential	0.98	3.16E-03	9.41E-03
1262	426694.07	3732549.40	Residential	0.91	2.92E-03	9.05E-03
1263	426719.07	3732549.40	Residential	0.84	2.70E-03	8.61E-03
1264	425744.07	3732574.40	Residential	0.39	1.20E-03	8.68E-03
1265	425769.07	3732574.40	Residential	0.42	1.28E-03	9.11E-03
1266	425794.07	3732574.40	Residential	0.46	1.36E-03	9.68E-03
1267	425819.07	3732574.40	Residential	0.50	1.44E-03	1.01E-02
1268	425844.07	3732574.40	Residential	0.54	1.53E-03	1.06E-02
1269	425869.07	3732574.40	Residential	0.60	1.63E-03	1.12E-02
1270	425894.07	3732574.40	Residential	0.67	1.73E-03	1.17E-02
1271	425919.07	3732574.40	Residential	0.76	1.84E-03	1.23E-02
1272	425944.07	3732574.40	Residential	0.90	1.96E-03	1.29E-02
1273	425994.07	3732574.40	Worker	0.16	2.24E-03	1.43E-02
1274	426019.07	3732574.40	Worker	0.13	2.35E-03	1.51E-02
1275	426044.07	3732574.40	Worker	0.13	2.49E-03	1.57E-02
1276	426069.07	3732574.40	Worker	0.13	2.66E-03	1.62E-02
1277	426094.07	3732574.40	Worker	0.16	2.91E-03	1.70E-02
1278	426119.07	3732574.40	Worker	0.19	3.25E-03	1.74E-02
1279	426144.07	3732574.40	Worker	0.17	3.32E-03	1.77E-02
1280	426169.07	3732574.40	Worker	0.16	3.45E-03	1.76E-02
1281	426194.07	3732574.40	Worker	0.18	3.79E-03	1.83E-02
1282	426219.07	3732574.40	Residential	1.67	4.09E-03	1.85E-02
1283	426244.07	3732574.40	Residential	1.72	4.42E-03	1.80E-02
1284	426269.07	3732574.40	Residential	1.75	4.75E-03	1.76E-02
1285	426294.07	3732574.40	Residential	1.79	5.09E-03	1.72E-02
1286	426319.07	3732574.40	Residential	1.83	5.43E-03	1.67E-02
1287	426344.07	3732574.40	Residential	1.87	5.69E-03	1.64E-02
1288	426369.07	3732574.40	Residential	1.89	5.85E-03	1.61E-02
1289	426394.07	3732574.40	Residential	1.87	5.88E-03	1.54E-02
1290	426419.07	3732574.40	Residential	1.83	5.79E-03	1.43E-02
1291	426444.07	3732574.40	Residential	1.76	5.61E-03	1.38E-02
1292	426469.07	3732574.40	Residential	1.67	5.35E-03	1.31E-02
1293	426494.07	3732574.40	Residential	1.58	5.06E-03	1.26E-02
1294	426519.07	3732574.40	Residential	1.48	4.76E-03	1.20E-02
1295	426544.07	3732574.40	Residential	1.38	4.45E-03	1.13E-02
1296	426569.07	3732574.40	Residential	1.29	4.15E-03	1.08E-02
1297	426594.07	3732574.40	Residential	1.20	3.86E-03	1.04E-02
1298	426619.07	3732574.40	Residential	1.11	3.57E-03	1.03E-02
1299	426644.07	3732574.40	Residential	1.03	3.31E-03	9.81E-03
1300	426669.07	3732574.40	Residential	0.96	3.08E-03	9.28E-03
1301	426694.07	3732574.40	Residential	0.89	2.86E-03	8.72E-03
1302	426719.07	3732574.40	Residential	0.83	2.65E-03	8.31E-03
1303	425744.07	3732599.40	Residential	0.37	1.15E-03	8.39E-03
1304	425769.07	3732599.40	Residential	0.40	1.21E-03	8.86E-03
1305	425794.07	3732599.40	Residential	0.43	1.29E-03	9.23E-03
1306	425819.07	3732599.40	Residential	0.47	1.36E-03	9.69E-03
1307	425844.07	3732599.40	Residential	0.50	1.44E-03	1.01E-02
1308	425869.07	3732599.40	Residential	0.55	1.52E-03	1.05E-02
1309	425894.07	3732599.40	Residential	0.60	1.61E-03	1.11E-02
1310	425919.07	3732599.40	Residential	0.67	1.70E-03	1.16E-02
1311	425944.07	3732599.40	Residential	0.76	1.80E-03	1.22E-02
1312	425969.07	3732599.40	Residential	0.92	1.90E-03	1.28E-02
1313	426019.07	3732599.40	Worker	0.15	2.15E-03	1.41E-02
1314	426044.07	3732599.40	Worker	0.13	2.29E-03	1.45E-02
1315	426094.07	3732599.40	Worker	0.17	2.75E-03	1.54E-02
1316	426119.07	3732599.40	Worker	0.15	2.78E-03	1.57E-02
1317	426144.07	3732599.40	Worker	0.14	2.87E-03	1.59E-02
1318	426169.07	3732599.40	Residential	1.29	3.07E-03	1.63E-02
1319	426194.07	3732599.40	Residential	1.34	3.29E-03	1.65E-02
1320	426219.07	3732599.40	Residential	1.40	3.54E-03	1.67E-02
1321	426244.07	3732599.40	Residential	1.46	3.82E-03	1.64E-02
1322	426269.07	3732599.40	Residential	1.51	4.11E-03	1.60E-02
1323	426294.07	3732599.40	Residential	1.56	4.42E-03	1.57E-02
1324	426319.07	3732599.40	Residential	1.61	4.70E-03	1.53E-02
1325	426344.07	3732599.40	Residential	1.65	4.96E-03	1.50E-02
1326	426369.07	3732599.40	Residential	1.67	5.13E-03	1.48E-02
1327	426394.07	3732599.40	Residential	1.67	5.20E-03	1.43E-02
1328	426419.07	3732599.40	Residential	1.65	5.19E-03	1.36E-02
1329	426444.07	3732599.40	Residential	1.60	5.07E-03	1.28E-02
1330	426469.07	3732599.40	Residential	1.54	4.90E-03	1.23E-02

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
1331	426494.07	3732599.40	Residential	1.47	4.68E-03	1.18E-02
1332	426519.07	3732599.40	Residential	1.39	4.45E-03	1.14E-02
1333	426544.07	3732599.40	Residential	1.31	4.19E-03	1.08E-02
1334	426569.07	3732599.40	Residential	1.22	3.92E-03	1.04E-02
1335	426594.07	3732599.40	Residential	1.15	3.68E-03	9.82E-03
1336	426619.07	3732599.40	Residential	1.07	3.43E-03	9.64E-03
1337	426644.07	3732599.40	Residential	1.00	3.20E-03	9.40E-03
1338	426669.07	3732599.40	Residential	0.93	2.98E-03	9.04E-03
1339	426694.07	3732599.40	Residential	0.89	2.88E-03	9.13E-03
1340	425769.07	3732624.40	Residential	0.38	1.16E-03	8.48E-03
1341	425794.07	3732624.40	Residential	0.41	1.22E-03	8.89E-03
1342	425819.07	3732624.40	Residential	0.44	1.28E-03	9.24E-03
1343	425844.07	3732624.40	Residential	0.47	1.35E-03	9.60E-03
1344	425869.07	3732624.40	Residential	0.50	1.42E-03	1.00E-02
1345	425894.07	3732624.40	Residential	0.55	1.50E-03	1.05E-02
1346	425919.07	3732624.40	Residential	0.60	1.58E-03	1.10E-02
1347	425944.07	3732624.40	Residential	0.67	1.66E-03	1.15E-02
1348	425969.07	3732624.40	Residential	0.76	1.75E-03	1.20E-02
1349	425994.07	3732624.40	Residential	0.94	1.85E-03	1.27E-02
1350	426069.07	3732624.40	Worker	0.16	2.37E-03	1.39E-02
1351	426094.07	3732624.40	Worker	0.13	2.37E-03	1.40E-02
1352	426119.07	3732624.40	Worker	0.12	2.45E-03	1.43E-02
1353	426144.07	3732624.40	Residential	1.10	2.58E-03	1.47E-02
1354	426169.07	3732624.40	Residential	1.11	2.73E-03	1.49E-02
1355	426194.07	3732624.40	Residential	1.15	2.91E-03	1.50E-02
1356	426219.07	3732624.40	Residential	1.21	3.12E-03	1.52E-02
1357	426244.07	3732624.40	Residential	1.26	3.35E-03	1.50E-02
1358	426269.07	3732624.40	Residential	1.31	3.60E-03	1.46E-02
1359	426294.07	3732624.40	Residential	1.37	3.87E-03	1.44E-02
1360	426319.07	3732624.40	Residential	1.41	4.11E-03	1.41E-02
1361	426344.07	3732624.40	Residential	1.46	4.35E-03	1.38E-02
1362	426419.07	3732624.40	Residential	1.49	4.65E-03	1.28E-02
1363	426444.07	3732624.40	Residential	1.46	4.60E-03	1.21E-02
1364	426469.07	3732624.40	Residential	1.42	4.49E-03	1.16E-02
1365	426494.07	3732624.40	Residential	1.36	4.33E-03	1.11E-02
1366	426519.07	3732624.40	Residential	1.30	4.13E-03	1.08E-02
1367	426544.07	3732624.40	Residential	1.23	3.92E-03	1.05E-02
1368	426569.07	3732624.40	Residential	1.16	3.71E-03	9.98E-03
1369	426594.07	3732624.40	Residential	1.09	3.49E-03	9.52E-03
1370	426619.07	3732624.40	Residential	1.03	3.29E-03	9.14E-03
1371	426644.07	3732624.40	Residential	0.96	3.08E-03	8.85E-03
1372	426669.07	3732624.40	Residential	0.90	2.88E-03	8.67E-03
1373	425794.07	3732649.40	Residential	0.38	1.15E-03	8.48E-03
1374	425819.07	3732649.40	Residential	0.41	1.21E-03	8.80E-03
1375	425844.07	3732649.40	Residential	0.43	1.27E-03	9.17E-03
1376	425869.07	3732649.40	Residential	0.47	1.33E-03	9.54E-03
1377	425894.07	3732649.40	Residential	0.50	1.40E-03	9.93E-03
1378	425919.07	3732649.40	Residential	0.54	1.46E-03	1.04E-02
1379	425944.07	3732649.40	Residential	0.59	1.53E-03	1.09E-02
1380	425969.07	3732649.40	Residential	0.66	1.61E-03	1.14E-02
1381	425994.07	3732649.40	Worker	0.09	1.70E-03	1.19E-02
1382	426019.07	3732649.40	Worker	0.11	1.80E-03	1.23E-02
1383	426044.07	3732649.40	Worker	0.14	1.97E-03	1.26E-02
1384	426069.07	3732649.40	Worker	0.12	2.05E-03	1.28E-02
1385	426094.07	3732649.40	Worker	0.11	2.12E-03	1.30E-02
1386	426119.07	3732649.40	Residential	0.96	2.21E-03	1.33E-02
1387	426144.07	3732649.40	Residential	0.96	2.32E-03	1.35E-02
1388	426169.07	3732649.40	Residential	0.98	2.44E-03	1.37E-02
1389	426194.07	3732649.40	Residential	1.01	2.59E-03	1.38E-02
1390	426219.07	3732649.40	Residential	1.05	2.77E-03	1.38E-02
1391	426244.07	3732649.40	Residential	1.10	2.97E-03	1.38E-02
1392	426269.07	3732649.40	Residential	1.16	3.18E-03	1.35E-02
1393	426294.07	3732649.40	Residential	1.20	3.40E-03	1.33E-02
1394	426319.07	3732649.40	Residential	1.25	3.63E-03	1.30E-02
1395	426444.07	3732649.40	Residential	1.34	4.17E-03	1.16E-02
1396	426469.07	3732649.40	Residential	1.30	4.10E-03	1.09E-02
1397	426494.07	3732649.40	Residential	1.26	3.98E-03	1.06E-02
1398	426519.07	3732649.40	Residential	1.21	3.83E-03	1.03E-02
1399	426544.07	3732649.40	Residential	1.16	3.67E-03	9.88E-03
1400	426569.07	3732649.40	Residential	1.10	3.49E-03	9.62E-03

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
1401	426594.07	3732649.40	Residential	1.04	3.31E-03	9.18E-03
1402	426619.07	3732649.40	Residential	0.98	3.13E-03	8.76E-03
1403	426644.07	3732649.40	Residential	0.93	2.95E-03	8.49E-03
1404	425819.07	3732674.40	Residential	0.38	1.14E-03	8.42E-03
1405	425844.07	3732674.40	Residential	0.40	1.20E-03	8.75E-03
1406	425869.07	3732674.40	Residential	0.43	1.25E-03	9.08E-03
1407	425894.07	3732674.40	Residential	0.46	1.31E-03	9.48E-03
1408	425919.07	3732674.40	Residential	0.49	1.36E-03	9.89E-03
1409	425944.07	3732674.40	Residential	0.53	1.42E-03	1.02E-02
1410	425969.07	3732674.40	Worker	0.07	1.49E-03	1.08E-02
1411	425994.07	3732674.40	Worker	0.08	1.57E-03	1.11E-02
1412	426019.07	3732674.40	Worker	0.08	1.65E-03	1.13E-02
1413	426044.07	3732674.40	Worker	0.09	1.74E-03	1.16E-02
1414	426069.07	3732674.40	Residential	0.84	1.83E-03	1.18E-02
1415	426094.07	3732674.40	Residential	0.84	1.92E-03	1.20E-02
1416	426119.07	3732674.40	Residential	0.84	2.00E-03	1.23E-02
1417	426144.07	3732674.40	Residential	0.85	2.10E-03	1.25E-02
1418	426169.07	3732674.40	Residential	0.86	2.20E-03	1.27E-02
1419	426194.07	3732674.40	Residential	0.89	2.33E-03	1.27E-02
1420	426219.07	3732674.40	Residential	0.93	2.48E-03	1.28E-02
1421	426244.07	3732674.40	Residential	0.98	2.64E-03	1.27E-02
1422	426269.07	3732674.40	Residential	1.02	2.83E-03	1.25E-02
1423	426294.07	3732674.40	Residential	1.07	3.02E-03	1.23E-02
1424	426494.07	3732674.40	Residential	1.16	3.66E-03	1.02E-02
1425	426519.07	3732674.40	Residential	1.13	3.56E-03	9.82E-03
1426	426544.07	3732674.40	Residential	1.08	3.43E-03	9.29E-03
1427	426569.07	3732674.40	Residential	1.04	3.28E-03	9.20E-03
1428	426594.07	3732674.40	Residential	0.99	3.13E-03	8.87E-03
1429	425844.07	3732699.40	Residential	0.38	1.13E-03	8.34E-03
1430	425869.07	3732699.40	Residential	0.40	1.17E-03	8.68E-03
1431	425894.07	3732699.40	Residential	0.42	1.22E-03	9.05E-03
1432	425919.07	3732699.40	Residential	0.45	1.27E-03	9.35E-03
1433	425944.07	3732699.40	Worker	0.06	1.33E-03	9.80E-03
1434	425969.07	3732699.40	Worker	0.06	1.39E-03	1.02E-02
1435	425994.07	3732699.40	Worker	0.07	1.45E-03	1.04E-02
1436	426019.07	3732699.40	Worker	0.07	1.51E-03	1.06E-02
1437	426044.07	3732699.40	Worker	0.08	1.59E-03	1.08E-02
1438	426069.07	3732699.40	Residential	0.70	1.67E-03	1.10E-02
1439	426094.07	3732699.40	Residential	0.72	1.74E-03	1.12E-02
1440	426119.07	3732699.40	Residential	0.73	1.82E-03	1.14E-02
1441	426144.07	3732699.40	Residential	0.75	1.91E-03	1.15E-02
1442	426169.07	3732699.40	Residential	0.77	2.00E-03	1.18E-02
1443	426194.07	3732699.40	Residential	0.80	2.11E-03	1.18E-02
1444	426219.07	3732699.40	Residential	0.83	2.23E-03	1.18E-02
1445	426244.07	3732699.40	Residential	0.87	2.38E-03	1.18E-02
1446	425869.07	3732724.40	Residential	0.37	1.10E-03	8.31E-03
1447	425894.07	3732724.40	Residential	0.39	1.14E-03	8.61E-03
1448	425919.07	3732724.40	Worker	0.05	1.19E-03	8.94E-03
1449	425944.07	3732724.40	Worker	0.05	1.24E-03	9.33E-03
1450	425969.07	3732724.40	Worker	0.05	1.29E-03	9.55E-03
1451	425994.07	3732724.40	Worker	0.06	1.34E-03	9.63E-03
1452	426019.07	3732724.40	Residential	0.53	1.41E-03	9.97E-03
1453	426044.07	3732724.40	Residential	0.57	1.47E-03	1.01E-02
1454	426069.07	3732724.40	Residential	0.60	1.53E-03	1.03E-02
1455	426094.07	3732724.40	Residential	0.63	1.60E-03	1.05E-02
1456	426119.07	3732724.40	Residential	0.65	1.67E-03	1.07E-02
1457	426144.07	3732724.40	Residential	0.67	1.74E-03	1.07E-02
1458	426169.07	3732724.40	Residential	0.69	1.83E-03	1.10E-02
1459	426194.07	3732724.40	Residential	0.72	1.92E-03	1.10E-02
1460	426219.07	3732724.40	Residential	0.75	2.03E-03	1.10E-02
1461	425869.07	3732749.40	Residential	0.35	1.04E-03	7.96E-03
1462	425894.07	3732749.40	Worker	0.04	1.08E-03	8.17E-03
1463	425919.07	3732749.40	Worker	0.04	1.12E-03	8.56E-03
1464	425944.07	3732749.40	Worker	0.05	1.16E-03	8.87E-03
1465	425969.07	3732749.40	Worker	0.05	1.21E-03	8.99E-03
1466	425994.07	3732749.40	Residential	0.45	1.26E-03	9.16E-03
1467	426019.07	3732749.40	Residential	0.47	1.31E-03	9.36E-03
1468	426044.07	3732749.40	Residential	0.50	1.36E-03	9.52E-03
1469	426069.07	3732749.40	Residential	0.53	1.42E-03	9.66E-03
1470	426094.07	3732749.40	Residential	0.56	1.48E-03	9.85E-03

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
1471	426119.07	3732749.40	Residential	0.58	1.54E-03	9.99E-03
1472	426144.07	3732749.40	Residential	0.60	1.60E-03	1.00E-02
1473	426169.07	3732749.40	Residential	0.62	1.68E-03	1.02E-02
1474	426194.07	3732749.40	Residential	0.64	1.75E-03	1.04E-02
1475	425894.07	3732774.40	Worker	0.04	1.01E-03	7.88E-03
1476	425919.07	3732774.40	Worker	0.04	1.05E-03	8.18E-03
1477	425944.07	3732774.40	Worker	0.04	1.09E-03	8.34E-03
1478	425969.07	3732774.40	Residential	0.39	1.13E-03	8.45E-03
1479	425994.07	3732774.40	Residential	0.41	1.17E-03	8.69E-03
1480	426019.07	3732774.40	Residential	0.43	1.22E-03	8.80E-03
1481	426044.07	3732774.40	Residential	0.45	1.27E-03	8.92E-03
1482	426069.07	3732774.40	Residential	0.48	1.32E-03	9.10E-03
1483	426094.07	3732774.40	Residential	0.50	1.37E-03	9.24E-03
1484	426119.07	3732774.40	Residential	0.52	1.42E-03	9.37E-03
1485	426144.07	3732774.40	Residential	0.54	1.48E-03	9.44E-03
1486	426169.07	3732774.40	Residential	0.56	1.55E-03	9.60E-03
1487	425919.07	3732799.40	Worker	0.04	9.92E-04	7.81E-03
1488	425944.07	3732799.40	Residential	0.34	1.02E-03	7.92E-03
1489	425969.07	3732799.40	Residential	0.36	1.06E-03	8.00E-03
1490	425994.07	3732799.40	Residential	0.38	1.10E-03	8.21E-03
1491	426019.07	3732799.40	Residential	0.40	1.14E-03	8.32E-03
1492	426044.07	3732799.40	Residential	0.41	1.18E-03	8.42E-03
1493	426069.07	3732799.40	Residential	0.44	1.23E-03	8.57E-03
1494	426094.07	3732799.40	Residential	0.46	1.27E-03	8.70E-03
1495	426119.07	3732799.40	Residential	0.47	1.32E-03	8.81E-03
1496	426144.07	3732799.40	Residential	0.49	1.37E-03	8.90E-03
1497	425969.07	3732824.40	Residential	0.33	1.00E-03	7.66E-03
1498	425994.07	3732824.40	Residential	0.35	1.03E-03	7.78E-03
1499	426019.07	3732824.40	Residential	0.37	1.07E-03	7.89E-03
1500	426044.07	3732824.40	Residential	0.38	1.11E-03	7.97E-03
1501	426069.07	3732824.40	Residential	0.40	1.15E-03	8.11E-03
1502	426094.07	3732824.40	Residential	0.42	1.19E-03	8.23E-03
1503	426241.74	3731472.06	Worker	0.02	5.83E-04	5.72E-03
1504	426341.74	3731472.06	Worker	0.02	5.66E-04	5.69E-03
1505	426441.74	3731472.06	Worker	0.02	5.37E-04	5.47E-03
1506	426541.74	3731472.06	Worker	0.02	5.00E-04	5.42E-03
1507	426641.74	3731472.06	Worker	0.01	4.59E-04	5.13E-03
1508	426141.74	3731572.06	Worker	0.02	7.55E-04	7.58E-03
1509	426241.74	3731572.06	Worker	0.02	7.43E-04	7.01E-03
1510	426341.74	3731572.06	Worker	0.02	7.16E-04	7.00E-03
1511	426441.74	3731572.06	Worker	0.02	6.70E-04	6.70E-03
1512	426541.74	3731572.06	Worker	0.02	6.11E-04	6.34E-03
1513	426641.74	3731572.06	Worker	0.02	5.48E-04	5.68E-03
1514	426741.74	3731572.06	Worker	0.02	4.86E-04	5.23E-03
1515	426141.74	3731672.06	Worker	0.03	1.01E-03	9.44E-03
1516	426241.74	3731672.06	Worker	0.03	9.89E-04	8.87E-03
1517	426641.74	3731672.06	Worker	0.02	6.64E-04	6.68E-03
1518	426741.74	3731672.06	Worker	0.02	5.72E-04	5.90E-03
1519	426841.74	3731672.06	Worker	0.02	4.92E-04	5.30E-03
1520	426041.74	3731772.06	Worker	0.05	1.38E-03	1.08E-02
1521	426141.74	3731772.06	Worker	0.05	1.42E-03	1.20E-02
1522	426741.74	3731772.06	Worker	0.02	6.75E-04	6.92E-03
1523	426841.74	3731772.06	Worker	0.02	5.65E-04	5.75E-03
1524	426941.74	3731772.06	Worker	0.02	4.77E-04	5.15E-03
1525	425441.74	3731872.06	Worker	0.02	5.29E-04	5.12E-03
1526	425541.74	3731872.06	Worker	0.02	6.43E-04	6.12E-03
1527	425641.74	3731872.06	Worker	0.03	7.97E-04	7.13E-03
1528	425741.74	3731872.06	Worker	0.03	1.01E-03	8.39E-03
1529	425841.74	3731872.06	Worker	0.04	1.29E-03	1.01E-02
1530	425941.74	3731872.06	Worker	0.06	1.65E-03	1.25E-02
1531	426041.74	3731872.06	Worker	0.07	2.02E-03	1.47E-02
1532	426141.74	3731872.06	Worker	0.07	2.20E-03	1.56E-02
1533	426641.74	3731872.06	Worker	0.03	1.00E-03	9.45E-03
1534	426741.74	3731872.06	Worker	0.03	7.98E-04	7.70E-03
1535	426841.74	3731872.06	Worker	0.02	6.47E-04	6.51E-03
1536	426941.74	3731872.06	Worker	0.02	5.36E-04	5.41E-03
1537	427041.74	3731872.06	Worker	0.01	4.52E-04	4.81E-03
1538	425341.74	3731972.06	Residential	0.14	4.68E-04	4.61E-03
1539	425441.74	3731972.06	Worker	0.02	5.64E-04	5.50E-03
1540	425541.74	3731972.06	Worker	0.02	7.01E-04	6.51E-03

Table C-1. Health Risk Assessment Results for All Receptors
Tustin Ranch Costco Fuel Station
Orange County, California

Receptor ID	X-Coordinate (m)	Y-Coordinate (m)	Receptor Type	Cancer Risk (in a million)	Chronic Hazard Index	Acute Hazard Index
1541	425641.74	3731972.06	Worker	0.03	8.91E-04	7.79E-03
1542	425741.74	3731972.06	Worker	0.04	1.17E-03	9.90E-03
1543	425841.74	3731972.06	Worker	0.05	1.60E-03	1.22E-02
1544	425941.74	3731972.06	Worker	0.07	2.24E-03	1.57E-02
1545	426041.74	3731972.06	Worker	0.10	3.17E-03	2.11E-02
1546	426941.74	3731972.06	Worker	0.02	6.05E-04	5.99E-03
1547	427041.74	3731972.06	Worker	0.02	5.05E-04	5.14E-03
1548	425341.74	3732072.06	Worker	0.02	4.87E-04	4.88E-03
1549	425441.74	3732072.06	Worker	0.02	5.95E-04	5.67E-03
1550	425841.74	3732072.06	Worker	0.06	1.91E-03	1.45E-02
1551	425941.74	3732072.06	Worker	0.10	3.01E-03	2.06E-02
1552	426941.74	3732072.06	Worker	0.02	7.02E-04	6.36E-03
1553	427041.74	3732072.06	Worker	0.02	5.78E-04	5.43E-03
1554	425341.74	3732172.06	Worker	0.02	4.99E-04	4.94E-03
1555	425441.74	3732172.06	Worker	0.02	6.14E-04	5.83E-03
1556	426941.74	3732172.06	Worker	0.03	8.45E-04	6.37E-03
1557	427041.74	3732172.06	Worker	0.02	6.80E-04	5.47E-03
1558	425341.74	3732272.06	Residential	0.15	5.06E-04	4.96E-03
1559	425441.74	3732272.06	Residential	0.19	6.25E-04	5.89E-03
1560	426841.74	3732272.06	Residential	0.40	1.35E-03	7.79E-03
1561	426941.74	3732272.06	Worker	0.03	1.02E-03	6.36E-03
1562	427041.74	3732272.06	Worker	0.03	8.04E-04	5.44E-03
1563	425341.74	3732372.06	Residential	0.15	5.14E-04	4.95E-03
1564	425441.74	3732372.06	Residential	0.19	6.35E-04	5.76E-03
1565	425541.74	3732372.06	Residential	0.25	8.10E-04	6.81E-03
1566	426741.74	3732372.06	Residential	0.71	2.32E-03	9.58E-03
1567	426841.74	3732372.06	Worker	0.06	1.64E-03	7.82E-03
1568	426941.74	3732372.06	Worker	0.04	1.22E-03	6.39E-03
1569	425441.74	3732472.06	Residential	0.19	6.43E-04	5.46E-03
1570	425541.74	3732472.06	Residential	0.25	8.12E-04	6.56E-03
1571	426841.74	3732472.06	Worker	0.07	1.96E-03	8.24E-03
1572	426941.74	3732472.06	Worker	0.05	1.45E-03	6.67E-03
1573	425541.74	3732572.06	Residential	0.24	7.68E-04	6.06E-03
1574	425641.74	3732572.06	Residential	0.30	9.55E-04	7.24E-03
1575	426741.74	3732572.06	Residential	0.79	2.57E-03	8.53E-03
1576	426841.74	3732572.06	Residential	0.62	2.04E-03	7.94E-03
1577	425541.74	3732672.06	Residential	0.21	6.94E-04	5.57E-03
1578	425641.74	3732672.06	Residential	0.26	8.30E-04	6.45E-03
1579	425741.74	3732672.06	Residential	0.32	9.98E-04	7.56E-03
1580	426341.74	3732672.06	Residential	1.16	3.42E-03	1.19E-02
1581	426441.74	3732672.06	Residential	1.23	3.82E-03	1.10E-02
1582	426641.74	3732672.06	Residential	0.90	2.85E-03	8.18E-03
1583	426741.74	3732672.06	Residential	0.75	2.42E-03	8.36E-03
1584	426841.74	3732672.06	Residential	0.60	1.96E-03	7.42E-03
1585	425641.74	3732772.06	Residential	0.22	7.12E-04	5.75E-03
1586	425741.74	3732772.06	Residential	0.26	8.25E-04	6.48E-03
1587	425841.74	3732772.06	Residential	0.31	9.47E-04	7.39E-03
1588	426241.74	3732772.06	Residential	0.64	1.79E-03	9.84E-03
1589	426341.74	3732772.06	Residential	0.77	2.25E-03	9.35E-03
1590	426441.74	3732772.06	Residential	0.86	2.63E-03	8.89E-03
1591	426541.74	3732772.06	Residential	0.84	2.62E-03	7.95E-03
1592	426641.74	3732772.06	Residential	0.77	2.45E-03	7.95E-03
1593	426741.74	3732772.06	Residential	0.66	2.14E-03	7.59E-03
1594	425741.74	3732872.06	Worker	0.03	6.84E-04	5.63E-03
1595	425841.74	3732872.06	Worker	0.03	7.67E-04	6.30E-03
1596	425941.74	3732872.06	Residential	0.28	8.66E-04	6.81E-03
1597	426041.74	3732872.06	Residential	0.33	9.82E-04	7.24E-03
1598	426141.74	3732872.06	Residential	0.39	1.12E-03	7.70E-03
1599	426241.74	3732872.06	Residential	0.45	1.31E-03	7.82E-03
1600	426341.74	3732872.06	Residential	0.54	1.59E-03	7.54E-03
1601	426441.74	3732872.06	Residential	0.62	1.88E-03	7.14E-03
1602	426541.74	3732872.06	Residential	0.66	2.08E-03	7.65E-03
1603	426641.74	3732872.06	Residential	0.63	2.01E-03	7.19E-03
1604	425841.74	3732972.06	Residential	0.20	6.35E-04	5.43E-03
1605	425941.74	3732972.06	Residential	0.22	7.07E-04	5.82E-03
1606	426041.74	3732972.06	Residential	0.26	7.85E-04	6.12E-03
1607	426141.74	3732972.06	Residential	0.29	8.76E-04	6.38E-03
1608	426241.74	3732972.06	Residential	0.34	1.01E-03	6.41E-03