



South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4182

(909) 396-2000 • www.aqmd.gov

AB2588 AIR TOXICS DOCUMENT CERTIFICATION & APPLICATION FORM

Please check the appropriate boxes for purpose of submittal:

AIR TOXICS INVENTORY REPORT (ATIR)

FIRST YEAR'S ATIR

UPDATE ATIR

INVENTORY YEAR _____

HEALTH RISK ASSESSMENT (HRA)

INITIAL HRA

REVISED HRA

INVENTORY YEAR 2 0 1 5

Facility name

Carson Distribution Terminal

Company name

Equilon Enterprises LLC dba Shell Oil Products US

Facility address

20945 S. Wilmington Ave.
Carson, CA 90810-1039

Mailing address

20945 S. Wilmington Ave.
Carson, CA 90810-1039

SCAQMD Facility ID#

800372

Facility SIC #

4613

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I SWEAR UNDER PENALTY OF PERJURY THAT THE DATA SUBMITTED WITH THIS DOCUMENT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, AND CONFORM WITH THE INFORMATION REQUESTED BY THE SCAQMD. I FURTHER ACKNOWLEDGE THAT FAILURE TO SUBMIT THE REQUIRED INFORMATION OR KNOWINGLY SUPPLY FALSE INFORMATION IS SUBJECT TO CIVIL PENALTIES PURSUANT TO THE CALIFORNIA HEALTH AND SAFETY CODE SECTIONS 44381(a) AND 44381(b).

Signature Of Responsible Company Official

Sandeep Sharma

Date

11/19/2019

Name Of Responsible Company Official (please print)

Sandeep Sharma

Title

Facilities Manager



**Shell Oil Products US
Carson Distribution Terminal
SCAQMD Facility ID 800372**

**Health Risk Analysis
Rule 1402 Air Toxic Inventory
Calendar Year 2015
Revision: November 2019**

Prepared by:

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Prepared November 2019



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HEALTH RISK ASSESSMENT SUMMARY FORM

(Required in Executive Summary of HRA)

Facility Name : _____

Facility Address: _____

Type of Business: _____

SCAQMD ID No.: _____

A. Cancer Risk

(One in a million means one chance in a million of getting cancer from being constantly exposed to a certain level of a chemical over a period of time)

1. Inventory Reporting Year : _____

2. Maximum Cancer Risk to Receptors : *(Offsite and residence = 30-year exposure, worker = 25-year exposure)*

a. Offsite _____ in a million Location: _____

b. Residence _____ in a million Location: _____

c. Worker _____ in a million Location: _____

3. Substances Accounting for 90% of Cancer Risk: _____

Processes Accounting for 90% of Cancer Risk: _____

4. Cancer Burden for a 70-yr exposure: *(Cancer Burden = [cancer risk] x [# of people exposed to specific cancer risk])*

a. Cancer Burden _____

b. Number of people exposed to >1 per million cancer risk for a 70-yr exposure _____

c. Maximum distance to edge of 70-year, 1 x 10⁻⁶ cancer risk isopleth (meters) _____

B. Hazard Indices

[Long Term Effects (chronic) and Short Term Effects (acute)]

(non-carcinogenic impacts are estimated by comparing calculated concentration to identified Reference Exposure Levels, and expressing this comparison in terms of a "Hazard Index")

1. Maximum Chronic Hazard Indices:

a. Residence HI: _____ Location: _____ toxicological endpoint: _____

b. Worker HI : _____ Location: _____ toxicological endpoint: _____

2. Substances Accounting for 90% of Chronic Hazard Index: _____

3. Maximum 8-hour Chronic Hazard Index:

8-Hour Chronic HI: _____ Location: _____ toxicological endpoint: _____

4. Substances Accounting for 90% of 8-hour Chronic Hazard Index: _____

5. Maximum Acute Hazard Index:

PMI: _____ Location: _____ toxicological endpoint: _____

6. Substances Accounting for 90% of Acute Hazard Index: _____

C. Public Notification and Risk Reduction

1. Public Notification Required? _____ Yes _____ No

a. If 'Yes', estimated population exposed to risks > 10 in a million for a 30-year exposure, or an HI >1

2. Risk Reduction Required? _____ Yes _____ No

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1.0 EXECUTIVE SUMMARY

On May 30, 2018, Equilon Enterprises, LLC dba Shell Oil Products, US (Shell) was issued a Notice to Prepare a Health Risk Assessment under Rule 1402 from the South Coast Air Quality Management District (SCAQMD). Per the Notice, Shell must submit a Health Risk Assessment (HRA) following the procedures in the most current version of SCAQMD “Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics ‘Hot Spots’ Information and Assessment Act.” This HRA has been prepared and was submitted to satisfy this requirement; the HRA was based on calendar year 2015 emissions. The HRA was due on and submitted before August 28, 2018. After review of the initial submittal, AQMD provided comments. Those comments have been addressed and this revision to the initial report has been updated accordingly.

1.1 Facility Information

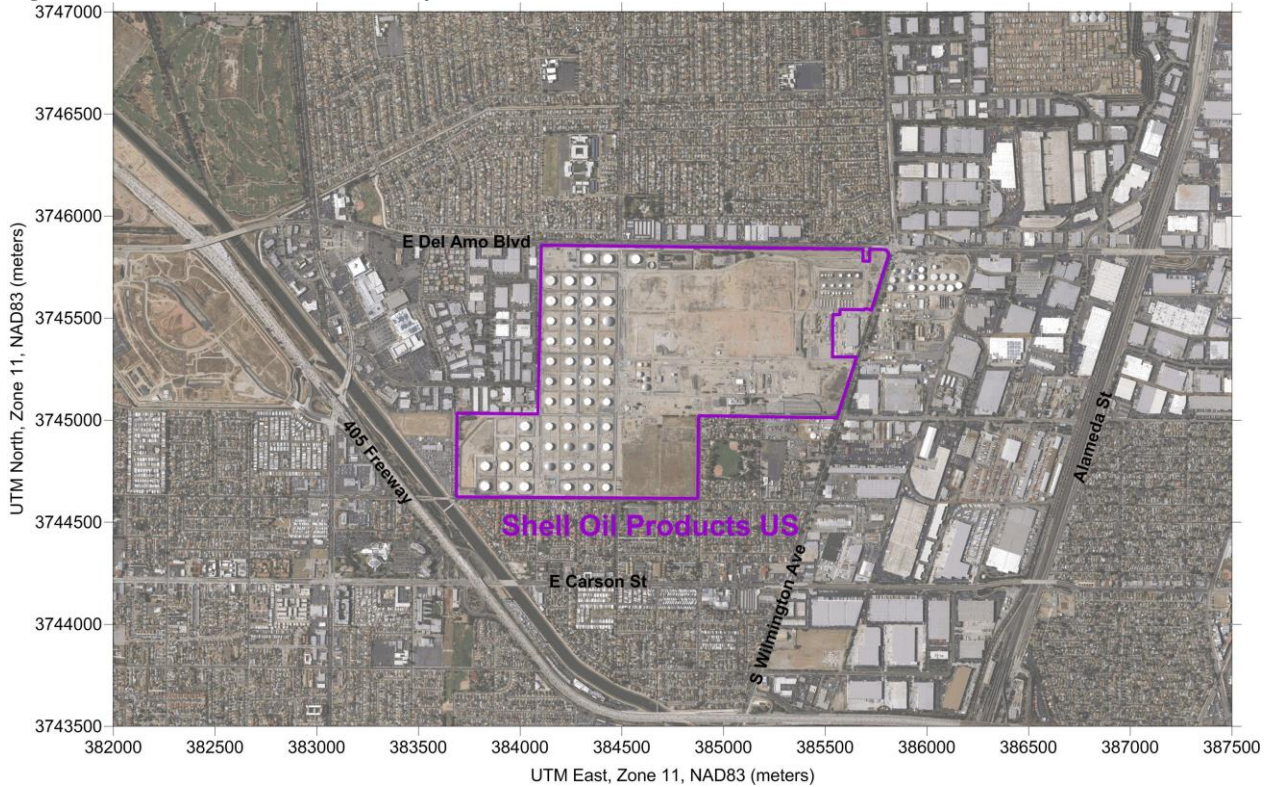
Shell operates a bulk gasoline and chemical distribution terminal facility in the city of Carson. Figures 1 and 2, below, show the facility location. The complete address is as follows:

Equilon Enterprises LLC dba
Shell Oil Product US
20945 South Wilmington Avenue
Carson, CA 90810
SCAQMD Facility ID #800372

Figure 1. General Location Map



Figure 2. Detailed Location Map



1.2 Substances Emitted

Emission sources at the Shell Carson facility include petroleum and chemical storage tanks, truck load racks, fugitive emissions from piping components, a soil vapor extraction system, a bioreactor, wastewater treatment, painting of storage tanks and piping, a diesel fire pump, and portable gasoline and diesel internal combustion engines used by contractors onsite. Substances emitted, and their respective annual and maximum hourly emissions are shown in Table A-1, Table D-1 and Table D-2 of the Appendices. In the Air Toxic Inventory Report (ATIR) for 2015 emissions submitted in March 2018, both diesel exhaust particulate (DPM) and speciated emissions were reported for diesel internal combustion engines (ICEs). Based on SCAQMD guidance, DPM is a surrogate for all toxic emissions from diesel combustion, therefore only DPM emissions from diesel ICEs were modeled in this analysis to avoid double counting.

1.3 Pathways and Target Organs

All substances emitted were evaluated for risk based on inhalation exposure. Additionally, there was one substance, PAHs, for which exposure was evaluated for pathways other than inhalation. Those substances are listed below:

Specific pathways affected by these PAHs are shown in Table 1, below.

Table 1. Pathway and Target Organ Systems by Pollutant

Substance	CAS #	Inhalation	Soil Ingestion	Dermal	Homegrown Produce	Mother's Milk
PAHs	1151	X	X	X	X	X

1.4 Dispersion Modeling and Exposure Assessment

This health risk assessment was performed following the SCAQMD and Office of Environmental Health Hazard Assessment (OEHHA) guidelines¹. As recommended by these guidelines, the California Air Resources Board (CARB) Hotspots Analysis and Reporting Program Version 2 (HARP) was used to perform a refined health risk assessment for the project's emission sources. The AMS/EPA Regulatory Model (AERMOD, v 18081) was used as the air dispersion model for this analysis. HARP includes AERMOD but also allows model runs to be performed with AERMOD outside of HARP. For this project, AERMOD was run outside of HARP, and the results were imported into HARP to complete the risk analysis.

Source locations, dimensions, and operating parameters were entered into AERMOD to estimate normalized ground level concentrations from each source based on an emission rate of one gram per second (χ/Q or Chi over Q). Since ambient concentration is directly related to emission rate, the χ/Q is then multiplied in HARP by the emission rate for each substance to obtain a ground level concentration (GLC) resulting from each substance. Potential pathways of exposure to potential offsite receptors by each substance are identified (e.g., inhalation, dermal) and the appropriate algorithms are then used together with the χ/Q to estimate the concentration in air, soil, water, vegetation, and animals. The potential exposure levels to receptors are then estimated for each substance. For this analysis, the dermal absorption, soil ingestion, mother's milk, and home grown produce ingestion pathways, along with inhalation, were considered to be viable exposure pathways for the area of impact.

1.5 Dose-Response Assessment

As described in the OEHHA risk assessment guidelines, the dose-response assessment describes the quantitative relationship between the amount of exposure of a person to a substance (the dose) and the incidence or occurrence of an adverse health impact (the response). For carcinogens, this information is quantified as a cancer potency slope. For non-carcinogens, dose-response information is characterized as a reference exposure level (REL).

¹ South Coast Air Quality Management District, [AB 2588 and Rule 1402 Supplemental Guidelines \(Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act\)](#), July 2018, Table 6

California Office of Environmental Health Hazard Assessment (OEHHA) 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments, February 2015.

1.5.1 Carcinogens

OEHHA has developed cancer potency factors for inhalation and non-inhalation pathways. The cancer potency factors represent an upper bound probability of developing cancer based on a continuous lifetime exposure to one milligram per kilogram of body weight of a substance. The cancer potency factor does not represent a threshold under which a person would not develop cancer but instead is used to estimate the probability of developing cancer. OEHHA regularly updates cancer potency factors as new information becomes available. This assessment is based on the latest health tables made available by OEHHA.

1.5.2 Non-Carcinogens

OEHHA has developed RELs for acute and chronic non-carcinogenic impacts. Unlike cancer potency factors, these RELs represent concentration thresholds at which no adverse non-cancer health effects are anticipated. Since a substance may affect multiple organs or endpoints, each substance may have multiple RELs to represent each toxicological endpoint. However, the REL for the most sensitive endpoint is used to ensure the REL considers the most adverse potential impacts. The chronic RELs are based on continuous exposure over a significant fraction of a lifetime and the 8-hr chronic RELs are based on repeated 8-hour exposures over a significant fraction of a lifetime. The acute RELs are typically based on a 1-hour exposure. Chronic RELs have been developed for inhalation and non-inhalation pathways while 8-hr chronic and acute RELs have been developed only for the inhalation pathway. OEHHA regularly updates the RELs and this health risk assessment is based on the latest HARP health tables made available by OEHHA. Table B-1 of the Appendices shows target organ systems for chronic and acute impacts for each of the substances emitted in 2015.

1.6 Summary of Results

The predicted health risks at maximally exposed offsite receptors are summarized by category in Table 2, below.

Table 2. Summary of Results

Location	Risk/HI Value	Receptor Number	UTM Coordinates (NAD83)	
			Easting (m)	Northing (m)
Cancer Risk (Per Million)				
Point of maximum impact (PMI)	75.0	112	385537	3745425
Maximum exposed individual resident (MEIR)	22.0	696	384025	3744600
Maximum exposed individual worker (MEIW) ²	6.2	112	385537	3745425
Highest sensitive receptor	6.0	7829	385247	3744738
Chronic Hazard Index				
Point of maximum impact (PMI)	0.069	112	385537	3745425
Residential receptor	0.035	707	384300	3744600

² Onsite workers were not considered in this analysis; MEIW refers to the maximum exposed *offsite* worker.

Location	Risk/HI Value	Receptor Number	UTM Coordinates (NAD83)	
			Easting (m)	Northing (m)
Offsite workplace receptor	0.069	112	385537	3745425
Sensitive Receptor	0.0074	7829	385247	3744738
8-Hr Chronic Hazard Index				
Point of maximum impact (PMI)	0.056	262	384037	3745031
Residential receptor	0.035	707	384300	3744600
Offsite workplace receptor	0.056	262	384037	3745031
Sensitive Receptor	0.0074	7829	385247	3744738
Acute Hazard Index				
Point of maximum impact (PMI)	1.3	264	384087	3745030
Residential receptor	0.86	2801	384425	3745900
Offsite workplace receptor	1.3	264	384087	3745030
Sensitive Receptor	0.11	7828	384293	3746322

1.6.1 Cancer Risk

The cancer risk at the point of maximum impact³ was 75.0 per million, at a fenceline receptor (#112) on the eastern boundary of the facility. The highest cancer risk at a residential receptor (#696) was a cancer risk value of 22.0 in one million. The receptor was located just south of the fenceline of the southwestern portion of the facility near the fuels tank farm. The receptor with the highest calculated worker exposure cancer risk was the same receptor as the PMI as the fenceline at that location is adjacent to the neighboring Nexeo Solutions facility. The worst-case worker cancer risk at this receptor was 6.2 per million.

The highest calculated cancer risk at a sensitive receptor was 6.0 per million, at Del Amo Elementary School (receptor #7829) located about 300 meters south of the eastern portion of the Shell Carson terminal. Table 8 provides a list of all sensitive receptors with a cancer risk above one per million.

Cancer risk at each of these receptors was primarily due to exposure to diesel particulate matter (DPM) and PAHs from contractor-operated portable diesel engines and to a lesser extent benzene from storage tanks and pipeline component fugitive emissions.

Table I-1 and Table J-1 of the Appendices show the cancer risk by substance and by emission source. A map showing the location of the PMI, MEIR, and MEIW is included as Figure L-1 of the Appendices. Contour maps showing the 30-yr residential cancer risk, the 25-yr worker cancer risk, and the 70-yr cancer burden are included as Figure M-1, Figure M-2 and Figure M-3 of the Appendices.

1.6.2 Chronic Risk

The chronic hazard index was below one at all receptors. The chronic hazard index at the point of maximum impact was 0.069, at receptor #112 located on the eastern boundary of the facility

³ Based on 30-yr residential exposure.

adjacent to the neighboring Nexeo Solutions facility. This receptor was also the location of the maximum offsite workplace chronic risk. The maximum chronic risk at a residential receptor was a hazard index of 0.035, at receptor #707 located just south of the fenceline of the southwestern portion of the facility near the fuel tank farm, about 300 meters east of the cancer MEIR. The maximum chronic risk at a sensitive receptor was a hazard index of 0.0074 at receptor #7829 (Del Amo Elementary School).

The substance contributing most to chronic risk at the PMI and WEIW was hexamethylene diisocyanate monomer from coatings used by contractors at the facility. Most of the remainder of the chronic risk at the PMI and MEIW resulted from DPM emissions. The associated target organ/system was the respiratory system

The substance contributing most to chronic risk at the MEIR and maximum sensitive receptor was benzene. The associated target organ/system was the hematologic system. Most of the risk could be attributed to emissions from gasoline and transmix storage tanks in the fuels side tank farm. Truck loading fugitive emissions at the fuels side ethanol load rack were also significant contributors to chronic risk at the MEIR and maximum sensitive receptor.

Table I-2 and Table J-2 of the Appendices show the chronic risk by substance and by emission source. As the maximum chronic risk was below 0.5 at all receptors, no contour map was generated.

1.6.3 8-Hr Chronic Risk

The 8-hr chronic hazard index was below one at all receptors. The 8-hr chronic hazard index at the point of maximum impact and at the MEIW was 0.056, at receptor #262 located on the western boundary of the facility adjacent to the Environmental Water Solutions facility. The maximum 8-hr chronic risk at a residential receptor was a hazard index of 0.035, at receptor #707 located just south of the fenceline of the southwestern portion of the facility near the fuel tank farm (same location as the chronic risk MEIR). The maximum 8-hr chronic risk at a sensitive receptor was a hazard index of 0.0074 at receptor #7829 (Del Amo Elementary School).

The source of all of the 8-hr chronic risk at each of these receptors was benzene, primarily from the ethanol load rack truck loading fugitives and storage tank emissions in the fuels side tank farm. The associated target organ/system was the hematologic system.

Table I-3 and Table J-3 of the Appendices show the 8-hr chronic risk by substance and by emission source. As the maximum 8-hr chronic risk was below 0.5 at all receptors, no contour map was generated.

1.6.4 Acute Risk

The acute hazard index at the point of maximum impact and at the MEIW was 1.3, at receptor #264 located on the western boundary of the facility adjacent to the Environmental Water Solutions facility. The maximum acute risk at a residential receptor was a hazard index of 0.86, at receptor #2801 located about 50 meters north of the northern fenceline near the fuels tank farm. The

maximum acute risk at a sensitive receptor was a hazard index of 0.11 at receptor #7828 located about 500 meters north of the northern fenceline near the fuels tank farm (Curtiss Middle School).

At the PMI, MEIR, MEIW, and maximum sensitive receptor, over 97% of the acute risk was from benzene primarily emitted from storage tanks in the fuels side tank farm. The target organ/system for the highest acute risk at those receptors was the reproductive/developmental system. Note that the acute hazard index at each receptor was calculated based on the conservative assumption that all emission sources were emitting at their respective maximum rates simultaneously, 24 hours per day and 365 days per year.

Table I-4 and Table J-4 of the Appendices show the acute risk by substance and by emission source.

1.6.5 Population Exposure

To determine population exposure, dispersion modeling was performed at receptors located at the centroid of all census tracts whose centroid was located within the modeling domain. 30-yr and 70-yr residential cancer risk was calculated at each of these receptors. For any receptor with a cancer risk greater than one per million, the population of the census tract represented by that receptor was summed to determine the total exposure to various levels of cancer risk. The results of these calculations are provided in Table 3, below.

Table 3. Population Exposure

Cancer Risk	Population	
	70-yr exposure	30-yr exposure
1 to <10 in a million	43,195	35,038
10 to <25 in a million	949	466
25 to <100 in a million	0	0
100 to <1000 in a million	0	0
>=1000 in a million	0	0
Total >= 1 in a million	44,144	35,504

Additionally, cancer burden was calculated based on the total population exposed to 70-yr cancer risk above one per million. The population of each census tract was multiplied by the 70-yr cancer risk calculated at the representative receptor. These products were summed, and the cancer burden was determined to be 0.26.

2.0 HAZARD IDENTIFICATION

Shell operations emits the following type of compounds:

Storage Tanks: Volatile organic compounds (VOCs)

Storage Tank Degassing (controlled by thermal oxidizers): VOCs and combustion products including metals

Truck Loading Racks (controlled by thermal oxidizers): VOCs and combustion products including metals

Diesel and Gasoline Internal Combustion Engines (mostly operated by contractors): Combustion products including VOCs, metals, and diesel particulate matter (diesel engines only)

Pipeline component Fugitive Emissions: VOCs

Bioreactor: VOCs

Soil Vapor Extraction System (controlled by thermal oxidizer): VOCs and combustion products including metals

Wastewater Treatment System (controlled by thermal oxidizer): VOCs and combustion products including metals

CPI Separator: VOCs

Coating of Storage Tanks and Piping: VOCs

Miscellaneous Natural Gas Combustion Sources: VOCs

A complete list of substances emitted is provided in Table A-1 of the Appendices.

Emissions of these substances were evaluated for cancer risks, as well as non-cancer acute and chronic health impacts. Table B-1 of the Appendices shows the target organs for all emitted substances that impact acute or chronic health risk. Some of these substances present a potential cancer risk or chronic non-cancer hazard via non-inhalation pathways; those substances are listed in Table 4, below.

Table 4. Pathway by Pollutant

Substance	CAS #	Inhalation	Soil Ingestion	Dermal	Homegrown Produce	Mother's Milk
PAHs	1151	X	X	X	X	X

Annual and maximum hourly emission rates are provided in Appendix D.

3.0 EXPOSURE ASSESSMENT

The exposure assessment includes air dispersion modeling, identification of exposure routes, and estimation of exposure levels. In a typical exposure assessment, the air dispersion modeling is used to estimate normalized ground level concentrations based on an emission rate of one gram per second (χ/Q or Chi over Q). Since ambient concentration is directly related to emission rate, the χ/Q is then multiplied by the emission rate for each substance to obtain a ground level concentration (GLC) resulting from each substance. Potential pathways of exposure to potential offsite receptors by each substance are identified (e.g., inhalation, dermal) and the appropriate algorithms are then used together with the χ/Q to estimate the concentration in air, soil, water, vegetation, and animals. The potential exposure levels to receptors are then estimated for each substance.

3.1 Facility Description

Shell Oil Product US (SCAQMD ID #800372) operates a bulk gasoline and chemical distribution terminal facility in the city of Carson. Petroleum products such as gasoline, Jet A, diesel, and

denatured ethanol are stored in storage tanks located in the western portion of the facility known as fuels side tank farm. Denatured ethanol is loaded at the fuels side ethanol truck loading rack as well. Loading emissions are controlled by a thermal oxidizer. The eastern portion of the facility is the chemicals side which contains a tank farm where various chemicals are stored, plus a truck loading rack where diesel fuel is loaded. The chemicals side thermal oxidizer controls emissions from the load rack as well as emissions from several fixed roof storage tanks in the chemical side tank farm. In 2015, contractors operated numerous gasoline and diesel engines to assist in performing maintenance tasks onsite, such as tank degassing and coating/painting of tanks and piping. The facility address is:

Equilon Enterprises LLC dba
Shell Oil Product US
20945 South Wilmington Avenue
Carson, CA 90810

The facility is located in a mixed commercial and residential urban area with residential neighborhoods immediately north and south of the facility boundaries. The terrain surrounding the facility is relatively flat, with one hill rising from about 8 meters elevation to about 60 meters elevation about one to two kilometers to the north.

Figures 3 and 4 below shows the facility boundaries as well as emission source locations. Figure 5 shows the location of downwash structures considered in the modeling. Table N-1 and Table N-2 (Pages 155 and 157, respectively) in the Appendices provide the downwash structure dimensions and heights.

A description of site/route dependent exposure pathways is included in Section 4.0 below.

Figure 3. Emission Source and Building Location Diagram

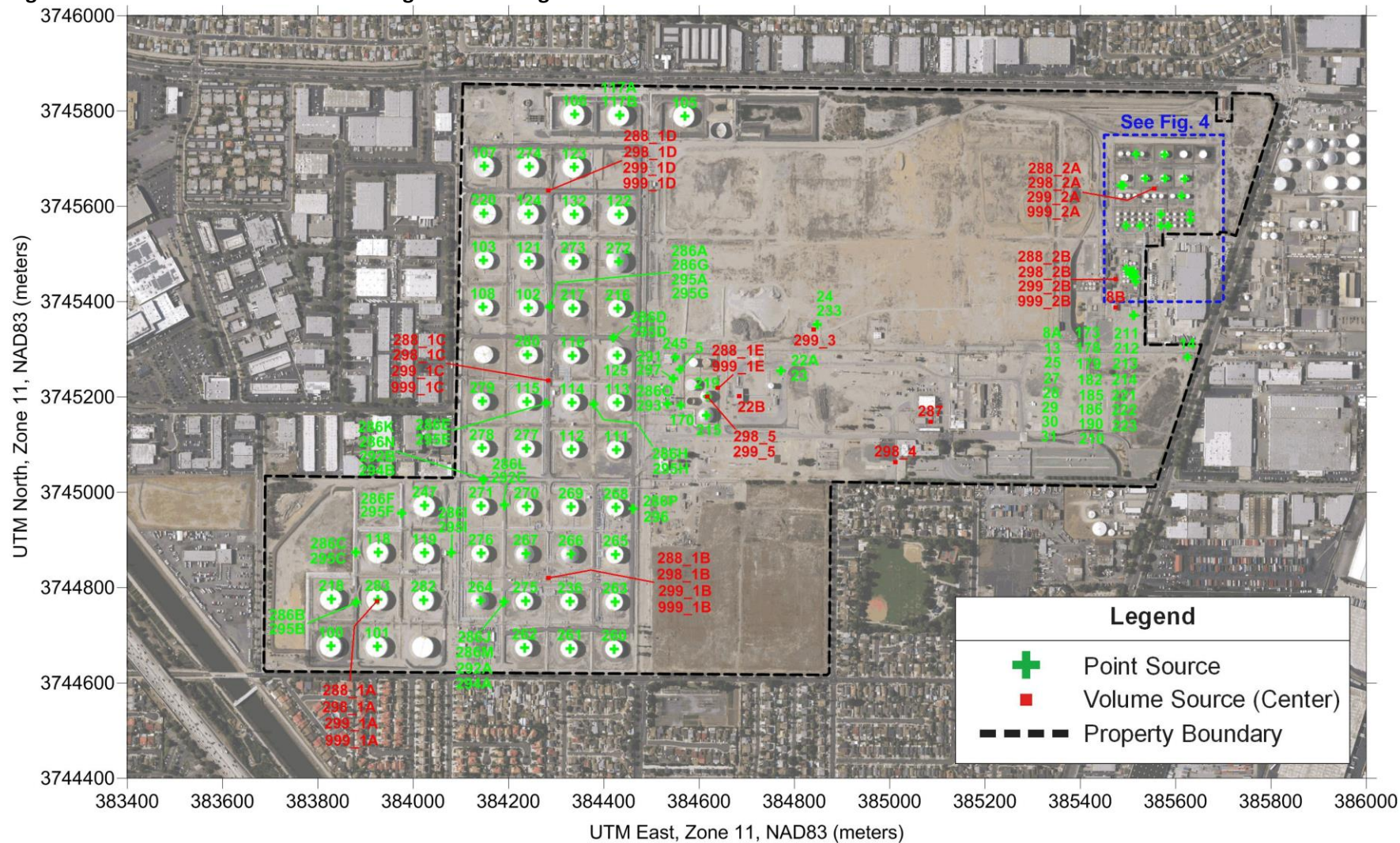


Figure 4. Emission Source and Building Location Diagram (Chemical Side Zoom)

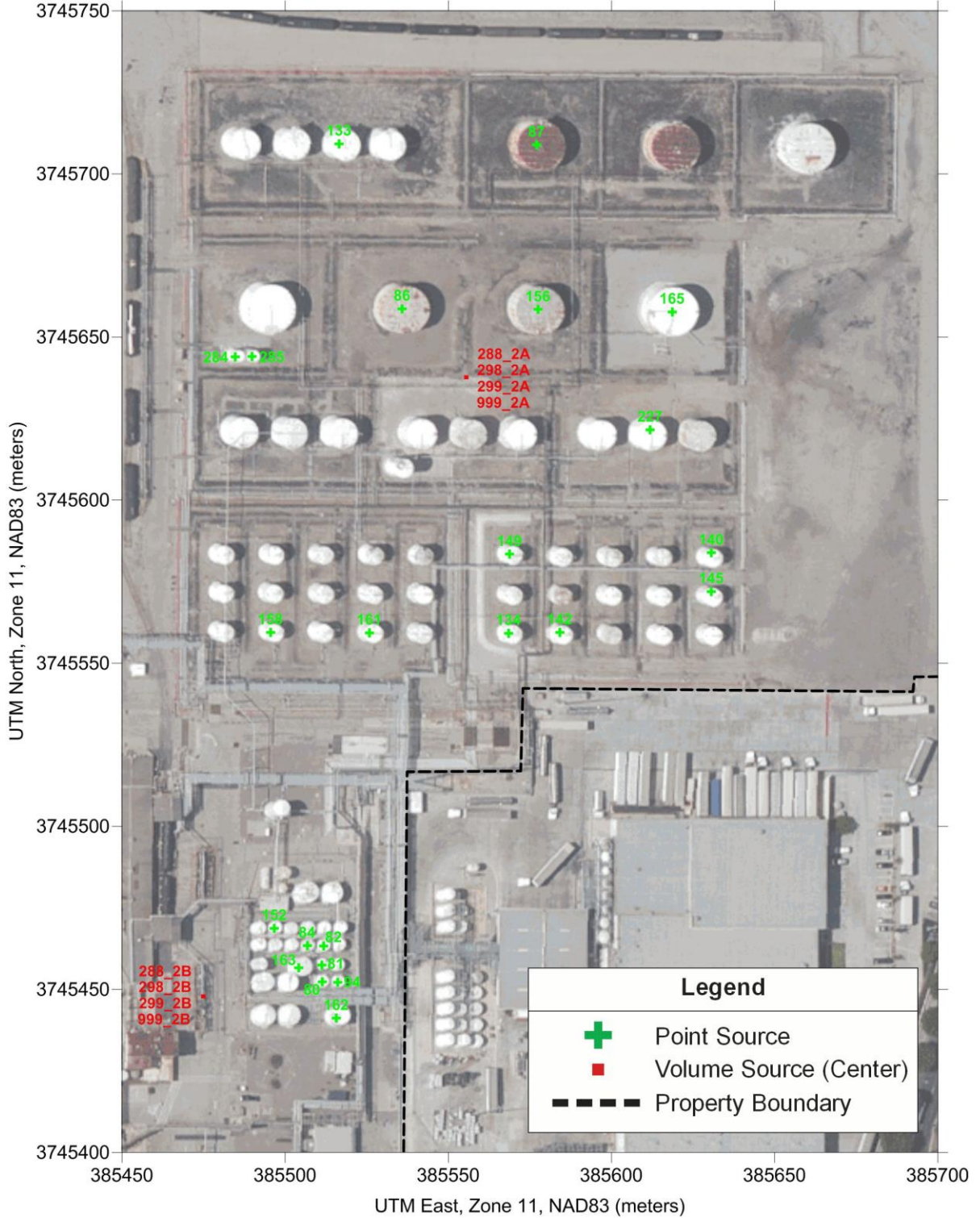
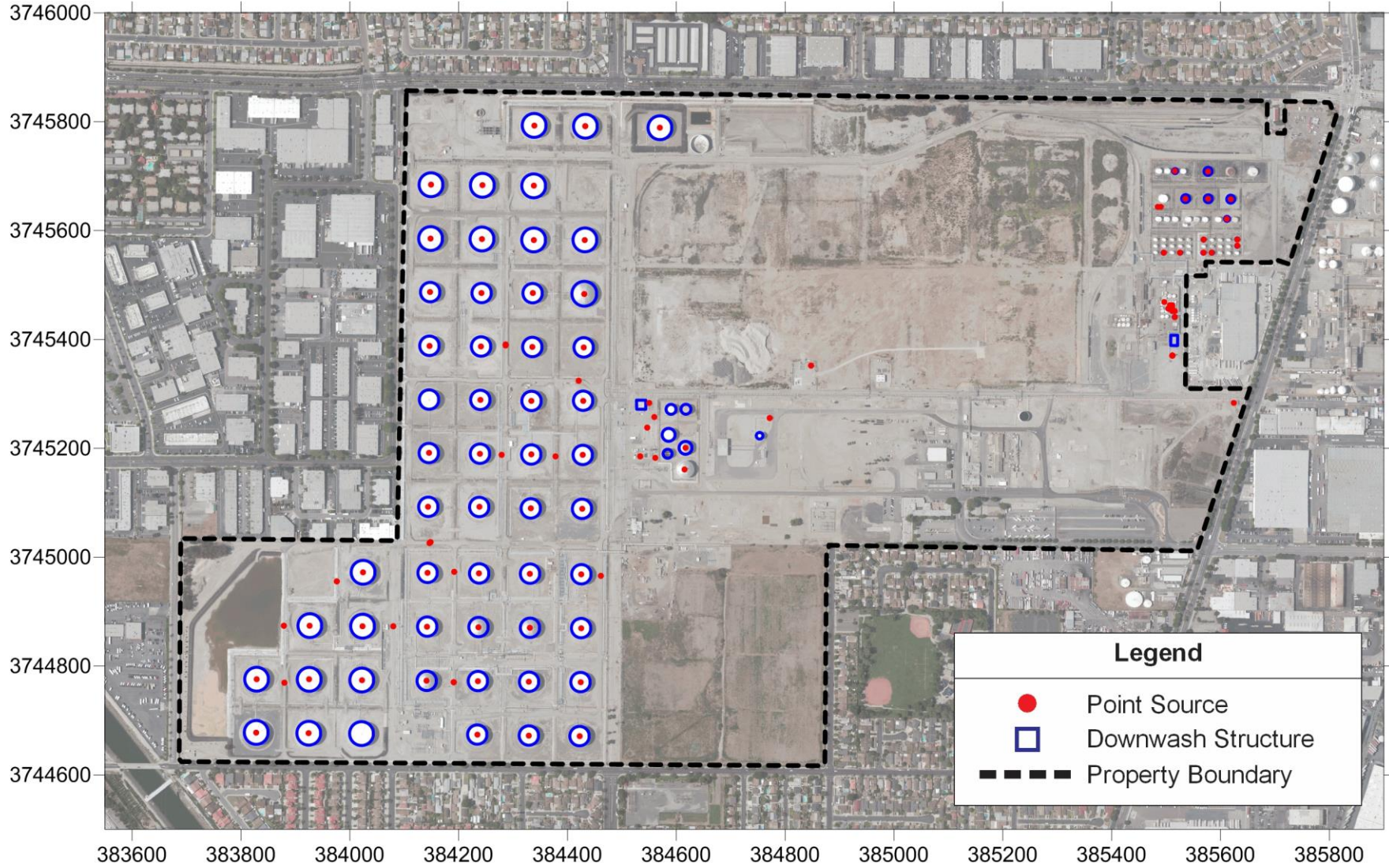


Figure 5. Downwash Structures Diagram



3.2 Emissions Inventory

The following operations at Shell emitted toxic substances in 2015:

- Storage Tanks
- Storage Tank Degassing
- Truck Loading Racks
- Diesel and Gasoline Internal Combustion Engines
- Pipeline Component Fugitive Emissions
- Bioreactor
- Soil Vapor Extraction System
- Wastewater Treatment System
- Coating of Storage Tanks and Piping
- Miscellaneous Natural Gas Combustion Sources

The pipeline component fugitive emissions listed above represent leaks from piping components such as valves, flanges, and pump seals which are measured and quantified via contractor Method 21 inspections. No other quantifiable leaks, spills, or similar such releases occurred in 2015. Figure 3 and Figure 4, above, show the location and modeling IDs of the emission sources modeled. A description of the sources modeled and emission calculation methodology is provided in Table 5, below.

Table 5. Source ID and Description

Source	Source ID	Description
Storage Tanks	5, 25, 29, 30, 31, 80, 81, 84, 86, 87, 100, 101, 102, 103, 105, 106, 107, 108, 111, 112, 113, 114, 115, 116, 118, 119, 121, 122, 123, 124, 125, 132, 134, 142, 149, 152, 156, 165, 170, 173, 178, 179, 182, 185, 190, 210, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 227, 236, 247, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 282, 283, 284, 285, 117A,	<p>A total of 86 floating roof and fixed roof storage tanks emitted toxic chemicals in 2015. The storage tanks on the fuels side of the facility (western portion) stored denatured ethanol and petroleum products such as gasoline, diesel, and Jet A. The fixed storage tanks on the chemicals side stored various chemicals; several of these tanks (IDs 25, 29, 30, 31, 173, 178, 179, 182, 185, 190, 210, 213, 214, 221, 222, and 223) vent to the chemicals side thermal oxidizer (source ID 13). Emissions from all tanks were calculated using the EPA TANKS 4.0.9d program; those venting to the thermal oxidizer were assumed to be controlled at a 99.9899% control efficiency per the most recent source test.</p> <p>Storage tank 921 (source ID = 5) is a fixed roof tank venting to a carbon canister. Emissions from this tank were calculated using the EPA TANKS 4.0.9d program and applying an estimated 98% control efficiency.</p> <p>Storage tanks not venting to a control device were modeled as point sources per SCAQMD guidance with an exit velocity of 0.001 m/s, a diameter of 0.001 m, a stack height equal to the tank height, and an exit temperature equal to ambient. Storage tanks venting to the</p>

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Source	Source ID	Description
	117B	<p>chemicals side thermal oxidizer were modeled as point sources at the location of the thermal oxidizer and with the same stack parameters.</p> <p>Storage tank 921 (source ID = 5) was modeled as a point source at the location of the carbon canister vent using appropriate stack parameters and assuming an estimated 98% control efficiency.</p>
Storage Tank Degassing	295A, 295B, 295C, 286B, 286C, 286D, 286E, 286F, 286G, 286H, 286I, 286J, 286K, 286L, 286M, 286N, 286O, 286P, 292A, 292B, 292C, 294A, 294B, 295A, 295B, 295C, 295D, 295E, 295F, 295G, 295H	<p>Several storage tanks were degassed or filled during 2015 and were controlled by contractor-operated thermal oxidizers during the degassing/filling. Emissions were a combination of uncombusted vapors from the tanks (source IDs 286A, 286B, 286C, 286D, 286E, 286F, 286G, 286H, 286I, 286J, 286K, 286L, 286M, 286N, 286O, 286P) plus combustion products from the vapors and assist gas burned by the thermal oxidizers (source IDs (292A, 292B, 292C, 293, 294A, 294B, 295A, 295B, 295C, 295D, 295E, 295F, 295G, 295H, 295I, 296). The toxic emissions that were uncombusted vapors were calculated based on a methodology referenced in AP-42 Section 7.1 and a control efficiency of 99.9% (provided by contractor). Combustion product toxic emissions were calculated based on the quantity of fuel combusted and emission factors from Tables B-1 and B-3 in the SCAQMD AB2588 Instruction Booklet⁴.</p> <p>Stack locations and parameters were provided by the contractor.</p>
Truck Loading Racks	8A, 8B, 13, 22A, 22B, 23	<p>There are two operating truck loading racks at the Shell Carson terminal – the fuels side load rack and the chemicals side load rack. In 2015 trucks loaded ethanol at the fuels side load rack and distillate fuel oil no. 2 (diesel) was loaded at the chemicals side load rack. Emissions from the load racks consisted of “truck fugitives” (uncaptured vapors displaced during loading) and captured vapors that were vented to thermal oxidizers. The fuels side truck fugitives (source ID 22B) and the chemicals side truck fugitives (source ID 8B) were calculated based on AP-42 Section 5.2 methodology and a capture efficiency of 99.2% (the value for trucks subject to a 1-inch vapor tightness test). Emission calculations for the fuels side ethanol rack were based on the conservative assumption that all trucks loaded were previously carrying gasoline, therefore toxic emissions were calculated based on gasoline characteristics (e.g., vapor pressure, molecular weight, toxics speciation) rather than denatured ethanol.</p> <p>Captured vapors at the ethanol load rack were vented to a thermal oxidizer with a control efficiency of 99.98% per the 2015 source test. Vapors that passed through uncombusted were modeled as a point source (source ID 22A) and combustion products were modeled using</p>

⁴ South Coast Air Quality Management District, Reporting Procedures for AB2588 Facilities Reporting their Quadrennial Air Toxic Emissions Inventory in the Annual Emission Reporting Program, December 2016.

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Source	Source ID	Description
		<p>identical source location and parameters (source ID 23). Stack parameters were taken from source test and/or permit application documents.</p> <p>Captured vapors at the chemicals side load rack were vented to a thermal oxidizer with a control efficiency of 99.99% per the 2015 source test. Vapors that passed through uncombusted were modeled as a point source (source ID 8A) and combustion products were modeled using identical source location and parameters (source ID 13). Stack parameters were taken from source test and/or permit application documents.</p> <p>Combustion product toxic emissions were calculated based on the quantity of fuel combusted and emission factors from Table B-1 of the SCAQMD AB2588 Instruction Booklet.</p>
Diesel and Gasoline Internal Combustion Engines	14, 298_1A, 298_1B, 298_1C, 298_1D, 298_2A, 298_2B, 298_4, 298_5, 299_1A, 299_1B, 299_1C, 299_1D, 299_2A, 299_2B, 299_3, 299_5	<p>In 2015 contractors operated diesel and gasoline internal combustion engines for various projects throughout the terminal. Toxic emissions were calculated based on SCAQMD AB2588 Instruction Booklet emission factors and the quantity of fuel consumed as provided by the contractors. Specifically for diesel particulate matter, Tier 1, 2, 3, interim 4, and 4 emission factors⁵ were used for contractor engines that met the criteria. The SCAQMD default emission factor of 33.5 lb/mgal was used for any Tier 0 engine or where Tier information was not available. In the Air Toxic Inventory Report (ATIR) for 2015 emissions submitted in March 2018, both diesel exhaust particulate (DPM) and speciated emissions were reported for diesel internal combustion engines (ICEs). Based on SCAQMD guidance, DPM is a surrogate for all toxic emissions from diesel combustion, therefore only DPM emissions from diesel ICEs were modeled in this analysis to avoid double counting</p> <p>Contractor diesel and gasoline engines were modeled as volume sources located in the general areas that the engines were operated. Emissions from engines operated in the fuels side tank farm area (298_1A, 298_1B, 298_1C, 298_1D for diesel engines and 299_1A, 299_1B, 299_1C, 299_1D for gasoline engines) were distributed evenly over 4 volume sources covering the extents of the fuels side tank farm. Similarly, emissions from engines operated in the chemical side tank farm area (298_2A and 298_2B for diesel engines and 299_2A and 299_2B for gasoline engines) were distributed evenly over 2 volume sources covering the extents of the chemical side tank farm.</p> <p>Other contractor-operated diesel and gasoline engines (source IDs 298_4, 298_5, 299_3, 299_5) were modeled as volume sources in the</p>

⁵ <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P1000A05.pdf> (accessed August 21, 2018).

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Source	Source ID	Description
		<p>specific locations that those engines were operated in 2015.</p> <p>Shell also operated a diesel emergency fire pump (source ID 14) located in the eastern end of the facility south of the chemicals side loading rack. The engine was modeled as a point source.</p>
Pipeline Component Fugitive Emissions	288_1A, 288_1B, 288_1C, 288_1D, 288_1E, 288_2A, 288_2B	<p>Toxic chemical emissions from piping components (valves, flanges, pump seals, etc.) were calculated based on VOC emissions and the toxic chemical liquid weight fractions as appropriate for the fuels side piping components (source IDs 288_1A, 288_1B, 288_1C, 288_1D, 288_1E) and the chemicals side piping components (source IDs 288_2A, 288_2B). VOC emissions were provided by the pipeline component monitoring contractor and were based on Method 21 monitoring data and CAPCOA correlation equations.</p> <p>Emissions from piping components in the fuels side tank farm and ethanol loading rack were distributed evenly over 5 volume sources covering the extents of the piping locations on the fuels side. Emissions from piping components in the chemical side tank farm and loading rack were distributed evenly over 2 volume sources covering the extents of the piping locations on the chemicals side.</p>
Bioreactor	245	<p>Shell operated a bioreactor located just west of the ethanol load rack to treat groundwater. Emissions from the bioreactor were vented to a dual carbon canister system with a control efficiency of 98% per the SCAQMD permit engineering evaluation. VOC emissions were based on source test results and toxic chemical emissions were calculated based on the VOC emissions multiplied by average concentrations of each toxic from monthly sampling data.</p> <p>The bioreactor was modeled as a point source.</p>
Soil Vapor Extraction System	24, 233	<p>A soil vapor extraction system (SVES) located northeast of the ethanol load rack was operated onsite by a contractor in 2015. Emissions from the SVES were vented to a thermal oxidizer. Toxic emissions came from two sources: uncombusted vapors (source ID 233) and combustion products (source ID 24). Uncombusted vapor emissions were calculated based on vapor flow rates to the thermal oxidizer and average SVES effluent toxic chemical concentrations from quarterly samples. Combustion product emissions were calculated based on measured natural gas usage and SCAQMD AB2588 Instruction Booklet emission factors.</p> <p>The SVES thermal oxidizer was modeled as a point source.</p>
Wastewater Treatment	291, 297	<p>A wastewater treatment system (WWTS) located west of the ethanol load rack and south of the bioreactor was operated onsite by a contractor in 2015. Emissions from the WWTS were vented to a</p>

Source	Source ID	Description
System		<p>thermal oxidizer. Toxic emissions came from two sources: uncombusted vapors (source ID 291) and combustion products (source ID 297). Uncombusted vapor emissions were calculated based on wastewater flow rates, toxic chemical concentrations from sample data, and a control efficiency of 98.9% per the SCAQMD permit engineering evaluation. Combustion product emissions were calculated based on measured natural gas usage and SCAQMD AB2588 Instruction Booklet emission factors.</p> <p>The WWTS thermal oxidizer was modeled as a point source.</p>
Coating of Storage Tanks and Piping	999_1A, 999_1B, 999_1C, 999_1D, 999_1E, 999_2A, 999_2B	<p>Toxic chemical emissions from coating of storage tanks and piping were calculated based on contractor-provided paint usage quantities and toxic chemical fractions per safety data sheets for each coating used. It was assumed that all VOC toxics in each coating were emitted. Emissions from coatings used in the fuels side tank farm and ethanol load rack area were distributed evenly over 5 volume sources (source IDs 999_1A, 999_1B, 999_1C, 999_1D, 999_1E) and emissions from coatings used in the chemical side tank farm and chemical load rack area were distributed evenly over 2 volume sources (source IDs 999_2A, 999_2B).</p>

For modeling purposes, all sources were assumed to operate 24 hours per day, 7 days per week, and 52 weeks per year. Source parameters are provided in Table C-1 and Table C-2 of the Appendices (pages 32 and 41, respectively). Emissions rates of each toxic substance are provided by source and for the entire facility in Table D-1 and Table D-2 of the Appendices (pages 43 and 45, respectively).

3.3 Air Dispersion Modeling

Dispersion modeling for this HRA was performed using AERMOD, v 18081. AERMOD was run outside of HARP, and the results were imported into HARP to complete the risk analysis. AERMOD simulates the atmospheric transport and dilution of emissions from project sources. This mathematical model estimates dilution of emissions by diffusion and turbulent mixing with ambient air as the emissions travel downwind from a source. AERMOD can predict the resulting cumulative concentrations from many point, area, and volume sources at numerous specified locations of interest (commonly referred to as receptors). The model is capable of predicting impacts in terrain ranging from flat to complex.

3.3.1 Meteorological data

The AERMOD-ready meteorological data sets for years 2012-2016 for the Long Beach, CA monitoring station were used for the analysis. These data sets were developed by SCAQMD using AERMET version 16216, the AERMOD meteorological data preprocessor, and provided for use in this analysis. The Long Beach meteorological station appears to be the most representative station to the Carson

facility as it is in close proximity (approximately 5.5 miles east-southeast of the plant) and there are no intervening terrain features. A windrose showing a graphical distribution of wind speed and wind direction for the time period modeled is included as Figure E-1 of the Appendices (page 93).

3.3.2 Model Options

AERMOD was run with the regulatory default modeling options.

3.3.3 Terrain Characterization

AERMOD requires that each source in the analysis be categorized as being in either a rural or an urban setting. Consistent with SCAQMD guidance⁶, all sources were designated as urban. An urban population of 9,818,605 (Los Angeles County) was input to AERMOD.

Source and receptors were modeled with consideration of terrain elevations. The AERMOD terrain processor (AERMAP) was used to calculate terrain elevations for each source and receptor from the U.S. Geological Survey (USGS) National Elevation Dataset (NED). The terrain data is provided in electronic format on the DVD included as Appendix P to the HRA (page 161).

3.3.4 Receptors

Health effect indices such as cancer risk, chronic hazard index, and acute hazard index were calculated for a variety of receptor locations. Receptors of primary interest are those at residential locations, at sensitive population locations, and at offsite worker locations. However, in order to get a more complete picture of the patterns of exposure, concentrations and risk are also calculated at regularly spaced grid points throughout the modeling domain.

The receptors used to analyze project impacts include:

- 25-m spaced receptors along the outer facility boundary
- 25-m spaced receptors between the facility boundary and out to 100+ meters from the facility boundary
- 50-m spaced receptors beyond 100 m out to 500 m or more from the facility boundary
- 100-m spaced receptors beyond 500 m out to 1,000 m from the facility boundary
- 250-m spaced receptors beyond 1,000 m out to 4,500 m or more from the facility boundary
- 500-m spaced receptors beyond 5,000 m or more from the facility boundary
- Sensitive receptors within the modeling domain

Receptor spacing was within SCAQMD modeling guidelines⁷, which requires a fence line spacing of 100 meters or less for facility areas greater than 100 acres (Shell site is >400 acres). Receptor

⁶ SCAQMD Modeling Guidance for AERMOD <http://www.aqmd.gov/home/air-quality/air-quality-data-studies/meteorological-data/modeling-guidance> (accessed August 15, 2018).

heights above ground were set to 0.0 meters, consistent with SCAQMD modeling guidance. This network is composed of Cartesian (X,Y) receptors with Universal Transverse Mercator (UTM) coordinates. The modeling was conducted using the North American Datum of 1983 (NAD83).

Sensitive receptor locations (schools, day care facilities, and hospitals) were obtained via an internet search and the Google Maps database. The sensitive receptors used in the project analysis are listed in Table F-1 of the Appendices (page 94).

Figure G-1 and Figure G-2 of the Appendices (pages 100 and 101, respectively) show the model representation of fence line, grid and sensitive receptors. A total of 7,751 fence line and grid receptors were included in the analysis, plus an additional 187 sensitive receptors, for a total of 7,938 receptors.

Additionally, to calculate population exposure and cancer burden, separate dispersion modeling runs were performed at receptors located at the centroid of census tracts whose centroid was located within the modeling domain. The HARP model contains the census tract centroid UTM coordinates and population values from the 2010 census; this data was exported from HARP to create the census tract centroid receptor grid. A total of 5,678 census tract centroid receptors were modeled; Figure G-3 of the Appendices (page 102) shows these receptor locations.

3.3.5 Building Downwash

When point sources are located near or on buildings or structures, the dispersion of the plume can be influenced. The wake produced on the lee side of the structure can cause the plume to be pulled toward the ground near the structure resulting in higher concentrations. This is called building downwash. Stack heights that minimize downwash effects are designated good engineering practice (GEP) stack heights.

The effects of building downwash have been examined in this modeling analysis. AERMOD uses the EPA-approved Building Profile Input Program with Plume Rise Model Enhancements (BPIP-PRIME) to provide input for the downwash analysis. This program calculates the GEP formula stack heights and direction-specific building dimensions for input to the dispersion calculations. BPIP-PRIME requires the input of building coordinates and heights, and stack coordinates. Per SCAQMD guidance, to account for downwash effects on storage tank emissions, storage tanks were modeled as point sources and each modeled storage tank was included as a building/structure in the BPIP-PRIME run. Additionally, buildings deemed to potentially cause downwash effects on other modeled point sources were also included. Figure 5 above shows the locations of point sources and potential downwash structures used in the modeling.

⁷ South Coast Air Quality Management District, [AB 2588 and Rule 1402 Supplemental Guidelines \(Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics “Hot Spots” Information and Assessment Act\)](#), July 2018, Table 6.

3.3.6 Modeled Concentrations

The AERMOD output is the normalized ground level concentration at each receptor from each source based on an emission rate of one gram per second (χ/Q or Chi over Q). When AERMOD is run outside of HARP, HARP is provided a list of AERMOD “plotfiles” (files containing model results at each receptor for each source and averaging period) and annual and maximum hourly emission rates for each toxic substance by source. Since ambient concentration is directly related to emission rate, the χ/Q is then multiplied in HARP by the emission rate for each substance to obtain a ground level concentration (GLC) resulting from each substance.

The annual average concentration of each substance modeled and used to estimate cancer, chronic, and 8-hr chronic risk are shown in Table H-1 through Table H-3 of the Appendices (page 103). Maximum one-hour average concentrations of each substance modeled and used to estimate acute risk are shown in Table H-4 (page 109). Note that the maximum 1-hr concentrations are based on the conservative assumption that all sources emit at the maximum rate 24 hours per day, 365 days per year.

4.0 RISK CHARACTERIZATION

As described above, the ground-level concentrations of each toxic substance emitted are calculated by HARP. HARP analyzes this data to calculate cancer risk and non-cancer risks. HARP provides several analysis methods to perform these calculations; the methods chosen for this project follow SCAQMD guidance⁸ and are shown in Table 6, below.

Table 6. Analysis Methods Used in Risk Modeling

Risk	Method
Residential cancer risk	RMP Using the Derived Method
Worker cancer risk	OEHHA Derived Method
Residential chronic and 8-hr chronic risk	OEHHA Derived Method
Worker chronic and 8-hr chronic risk	OEHHA Derived Method
Acute risk	Default/NA

As the entire modeling domain is an urban area, the exposure pathways chosen for this analysis were inhalation, home grown produce, dermal absorption, soil ingestion, and mother’s milk for residential exposure and inhalation, dermal absorption, and soil ingestion for worker pathways. Pathways of fish ingestion, dairy milk ingestion, drinking water consumption, and meat ingestion were not used as the facility does not impact a local fishable body of water, grazing land, dairy, or water reservoir.

⁸ South Coast Air Quality Management District, [AB 2588 and Rule 1402 Supplemental Guidelines \(Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics “Hot Spots” Information and Assessment Act\)](#), July 2018, Table 8.

Per SCAQMD guidance for HARP modeling⁹, a deposition velocity of 0.02 m/s was assumed for the non-inhalation pathways. Default values for all pathways were used with the exception of the dermal pathway which assumed a “warm” climate.

4.1 Carcinogens

The cancer health impacts are characterized as a cancer risk that represents the chances per million people of developing cancer. The cancer risk from each substance is added together to arrive at a total cancer risk. The exposure durations modeled in HARP followed OEHHA and SCAQMD guidance and are shown in Table 7, below.

Table 7. Exposure Durations

Risk type	Exposure Duration
Residential and sensitive receptor cancer risk ¹⁰	24 hr/day, 350 day/yr, 30 years
Cancer burden	24 hr/day, 350 day/yr, 70 years
Worker cancer risk	8 hr/day, 250 day/yr, 25 years

4.1.1 Point of Maximum Impact (PMI)

The cancer risk at the point of maximum impact¹¹ was 75.0 per million, at a fence line receptor (#112) on the eastern boundary of the facility. 97.8% of the risk was due to diesel exhaust particulate matter (DPM), primarily from contractor-operated diesel internal combustion engines (ICEs) used in the chemical side tank farm and load rack area. DPM is carcinogenic by the inhalation pathway. Complete breakdowns of cancer risk by substance and by source at the PMI are provided in Table I-1 and Table J-1 of the Appendices (pages 111 and 115, respectively). Cancer risk at the PMI is broken down by substance and pathway in Table K-1 of the Appendices (page 146). Figure L-1 of the Appendices (page 150) shows the location of the PMI.

4.1.2 Maximum Exposed Individual Resident (MEIR)

The highest cancer risk at a residential receptor (#696) was a cancer risk value of 22.0 in one million. The receptor is located just south of the fence line of the southwestern portion of the facility near the fuels tank farm. 67.9% of the risk was due to DPM, primarily from contractor-operated diesel ICEs used in the fuels side tank farm. Most of the remainder of the risk was due to benzene (24.9%). The fuels side tank farm diesel ICEs contributed 65.7% of the cancer risk. Storage tanks in the fuels tank farm were the primary source of the benzene, contributing 29.6% of the cancer risk. The

⁹ South Coast Air Quality Management District, AB 2588 and Rule 1402 Supplemental Guidelines (Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics “Hot Spots” Information and Assessment Act), July 2018, Table 6.

¹⁰ Sensitive receptors were conservatively treated as residential receptors in this analysis. This approach likely overestimates risk as it assumes 30 years of exposure.

¹¹ Based on 30-yr residential exposure.

largest risk from a storage tank was from Tank 727, an internal floating roof tank storing gasoline in the southern portion of the tank farm, with a 4.8% contribution to the risk. Other tanks in this area contributed lesser amounts of risk. Complete breakdowns of cancer risk by substance and by source at the MEIR are provided in Table I-1 and Table J-1 of the Appendices (pages 111 and 115, respectively). Cancer risk at the MEIR is broken down by substance and pathway in Table K-2 of the Appendices (page 147). Figure L-1 of the Appendices shows the location of the MEIR (page 150). A contour map showing the 30-yr residential cancer risk is included as Figure M-1 (page 151).

4.1.3 Maximum Exposed Individual Worker (MEIW)

The receptor with the highest calculated offsite worker exposure cancer risk was the same receptor as the PMI (#112) with a cancer risk of 6.2 in one million. The receptor was a fenceline receptor and was conservatively considered a potential worker receptor as the fenceline at that location separates Shell from the neighboring Nexeo Solutions facility. DPM emissions, mainly from contractor-operated diesel ICEs used in the chemical side tank farm and load rack area, were the primary contributors to cancer risk at the MEIW. 97.8% of the cancer risk by pollutant was due to DPM, and 95.9% of the cancer risk by source could be attributed to those diesel ICEs. Complete breakdowns of cancer risk by substance and by source at the MEIW are provided in Table I-1 and Table J-1 of the Appendices (pages 111 and 115, respectively). Cancer risk at the MEIW is broken down by substance and pathway in Table K-3 of the Appendices (page 148). Figure L-1 of the Appendices (page 150) shows the location of the MEIW. A contour map showing the 25-yr worker cancer risk is included as Figure M-2 (page 152).

4.1.4 Maximum Exposed Sensitive Receptor

The highest calculated cancer risk at a sensitive receptor was 6.0 in one million, at Del Amo Elementary School (receptor #7829) located about 300 meters south of the eastern portion of the Shell Carson terminal. 70.7% of the cancer risk at that receptor was due to DPM emissions. Most of the remaining risk resulted from benzene emissions (24.8%). Contractor-operated diesel ICEs used in the fuels side tank farm were the largest contributor to cancer risk (38.2%), but contractor engines used in the chemical side tank farm and load rack area (14.9%), the RM Electric diesel generator ICEs operated near the office building in the southern central portion of the facility (12.7%), and the WCES diesel ICEs operated near the ethanol load rack (4.7%) were also important. Benzene emissions from various storage tanks in the fuels tank farm and the ethanol load rack truck loading fugitives also contributed significantly to the cancer risk. Those sources contributed ~20% (in total) and 6.4% to cancer risk, respectively. Complete breakdowns of cancer risk by substance and by source at the maximum exposed sensitive receptor are provided in Table I-1 and Table J-1 of the Appendices (pages 111 and 115, respectively). Cancer risk at the maximum exposed sensitive receptor is broken down by substance and pathway in Table K-4 of the Appendices (page 149). Figure L-1 of the Appendices (page 150) shows the location of the maximum exposed sensitive receptor.

Table 8, below provides a list of all sensitive receptors with a cancer risk above one per million.

Table 8. Sensitive Receptors with Cancer Risk Greater Than One per Million

Sensitive Receptor Name	Receptor Number	UTM Coordinates (NAD83)		Increased Cancer Cases (in-one-million)
		Easting (m)	Northing (m)	
Del Amo Elementary School	7829	385247	3744738	6.0
Curtiss Middle School	7828	384293	3746322	3.7
Golden Wings Academy Inc	7833	383115	3745483	2.4
Annalee Elementary School	7815	384218	3746693	2.2
Andrew Carnegie Middle School	7814	383558	3744007	2.1
Carson Montessori Academy	7826	383307	3744170	2.0
Bonita Street Elementary School	7820	383370	3743858	1.5
Broadacres Elementary School	7822	385396	3746688	1.3

4.1.5 Population Exposure and Cancer Burden

To determine population exposure, modeling was performed at receptors located at the centroid of all census tracts whose centroid was located within the modeling domain. Both AERMOD and HARP were run in the manner as was done previously, except with the census tract centroid receptors instead of fence line, grid, and sensitive receptors. 30-yr and 70-yr residential cancer risk was calculated at each of these receptors. For any receptor with a cancer risk greater than one per million, the population of the census tract represented by that receptor was summed to determine the total exposure to various levels of cancer risk. The results of these calculations are provided in Table 9, below.

Table 9. Population Exposure

Cancer Risk	Population	
	70 yr exposure	30 yr exposure
1 to <10 in a million	43,195	35,038
10 to <25 in a million	949	466
25 to <100 in a million	0	0
100 to <1000 in a million	0	0
>=1000 in a million	0	0
Total >= 1 in a million	44,144	35,504

Additionally, cancer burden was calculated based on the total population exposed to 70-yr cancer risk above one per million. The population of each census tract was multiplied by the 70-yr cancer risk calculated at the representative receptor. These products were summed, and the cancer burden was determined to be **0.26**. A contour map showing the one per million cancer risk based on 70-yr exposure is included as Figure M-3 of the Appendices (page 153).

4.2 Non-Carcinogens

The non-cancer health impacts are characterized through a hazard index (HI). When more than one chemical is considered, it is assumed that the effects are additive provided the associated chemicals

are expected to have an adverse impact on the same target organ system (respiratory system, liver, etc.). Thus, chemical-specific hazard indices are summed to arrive at a hazard index for each target organ. For any organ system, a total hazard index exceeding 1.0 indicates a potential health effect. Although the assumption of additivity of exposure to multiple chemicals ignores possible antagonistic or synergistic interactions, this approach has been accepted by regulatory agencies as generally conservative.

4.2.1 Chronic HI

The chronic hazard index at the point of maximum impact was 0.069, at receptor #112 located on the eastern boundary of the facility adjacent to the neighboring Nexeo Solutions facility. The substance contributing most to chronic risk (~66%) at the PMI and WEIW was hexamethylene diisocyanate monomer from coatings used by contractors at the facility. Most of the remainder of the chronic risk at the PMI and MEIW resulted from DPM emissions. The associated target organ/system was the respiratory system. Since the PMI was located along the fenceline separating Shell from the neighboring Nexeo Solutions facility, the PMI also represented maximum chronic risk at a worker receptor.

The maximum chronic risk at a residential receptor was a hazard index of 0.035, at receptor #707 located just south of the fenceline of the southwestern portion of the facility near the fuel tank farm, about 300 meters east of the cancer MEIR. The primary chemical contributing to the chronic hazard index was benzene (nearly 100%). The associated target organ/system was the hematologic system. Over 94% of the chronic risk was a result of emissions from storage tanks in the fuels side tank farm. Tank 503 storing transmix was the largest contributor at 16.3%, and the remainder of the tanks contributed less than 11% each.

The maximum chronic risk at a sensitive receptor was a hazard index of 0.0074 at Del Amo Elementary School (receptor #7829) located about 300 meters south of the eastern portion of the Shell Carson terminal. Benzene contributed nearly 100% of the risk. The associated target organ/system was the hematologic system. Over 95% of the chronic risk was a result of emissions from the ethanol load rack truck loading fugitives and storage tanks in the fuels side tank farm. The storage tanks contributed 69.5% of the risk (5.6% or less each), and the truck loading fugitives contributed 25.6% of the chronic risk.

Complete breakdowns of chronic risk by substance and by source at each of the maximum chronic risk receptors are provided in Table I-2 and Table J-2 (pages 112 and 122, respectively) of the Appendices. Figure L-1 (page 150) of the Appendices shows the location of these receptors. As the maximum chronic risk was below 0.5 at all receptors, no contour map was generated

4.2.2 8-Hr Chronic HI

The 8-hr chronic hazard index at the point of maximum impact was 0.056, at receptor #262 located on the western boundary of the facility adjacent to the Environmental Water Solutions facility. Since the PMI was located along the fenceline separating Shell from the neighboring Environmental Water Solutions facility, the PMI also represented maximum chronic risk at a worker receptor.

Benzene contributed 100% of the risk to the 8-hr chronic hazard index. The sources responsible for over 94% of the 8-hr chronic risk were gasoline storage tanks in the fuels side tank farm, with Tank 733 contributing 25.0% of the risk and the remaining tanks contributing 8% or less each. The associated target organ/system was the hematologic system.

The maximum 8-hr chronic risk at a residential receptor was a hazard index of 0.035, at receptor #707 located just south of the fenceline of the southwestern portion of the facility near the fuel tank farm. Benzene contributed 100% of the risk to the 8-hr chronic hazard index. The associated target organ/system was the hematologic system. Over 94% of the 8-hr chronic risk was a result of emissions from storage tanks in the fuels side tank farm. Tank 503 storing transmix was the largest contributor at 16.3%, and the remainder of the tanks contributed less than 11% each.

The maximum 8-hr chronic risk at a sensitive receptor was a hazard index of 0.0074 at Del Amo Elementary School (receptor #7829) located about 300 meters south of the eastern portion of the Shell Carson terminal. Benzene contributed 100% of the risk to the 8-hr chronic hazard index. The associated target organ/system was the hematologic system. Over 95% of the chronic risk was a result of emissions from the ethanol load rack truck loading fugitives and storage tanks in the fuels side tank farm. The truck loading fugitives contributed 25.6% of the 8-hr chronic risk, and the storage tanks contributed less than 6% each.

Complete breakdowns of 8-hr chronic risk by substance and by source at each of the maximum 8-hr chronic risk receptors are provided in Table I-3 and Table J-3 of the Appendices (pages 113 and 130, respectively). Figure L-1 (page 150) of the Appendices shows the location of these receptors. As the maximum 8-hr chronic risk was below 0.5 at all receptors, no contour map was generated.

4.2.3 Acute HI

The acute hazard index at the point of maximum impact is 1.3, at receptor #264 located on the western boundary of the facility adjacent to the Environmental Water Solutions facility. Since the PMI was located along the fenceline separating Shell from the neighboring Environmental Water Solutions facility, the PMI also represented maximum chronic risk at a worker receptor. The primary chemical contributing to the acute hazard index was benzene at 98.7%. The associated target organ/system was the reproductive/developmental system. 98.6% of the acute risk was a result of emissions from storage tanks in the fuels side tank farm. Tank 563 storing gasoline was the largest contributor at 9.4%, and the remainder of the tanks contributed less than 9% each.

The maximum acute risk at a residential receptor was a hazard index of 0.86, at receptor #2801 located about 50 meters north of the northern fenceline near the fuels tank farm. The primary chemical contributing to the acute hazard index was benzene at 97.7%. The associated target organ/system was the reproductive/developmental system. 98.9% of the acute risk was a result of emissions from storage tanks in the fuels side tank farm. Tanks 588, 589, and 720 storing diesel or renewable diesel and located in the northernmost portion of the tank farm were the largest contributors at 40.7%, 18.7%, and 14.9%, respectively, and the remainder of the tanks contributed less than 8% each.

The maximum acute risk at a sensitive receptor was a hazard index of 0.11 at receptor #7828 located about 500 meters north of the northern fence line near the fuels tank farm (Curtiss Middle School). The primary chemical contributing to the acute hazard index was benzene at 97.6%. The associated target organ/system was the reproductive/developmental system. 95.4% of the acute risk was a result of emissions from storage tanks in the fuels side tank farm. Tanks 588, 589, and 720 storing diesel or renewable diesel and located in the northernmost portion of the tank farm were the largest contributors at 33.0%, 21.3%, and 13.7% respectively, and the remainder of the tanks contributed less than 6% each.

Complete breakdowns of chronic risk by substance and by source at each of the maximum chronic risk receptors are provided in Table I-4 and Table J-4 of the Appendices (pages 114 and 138, respectively). Figure L-1 of the Appendices (page 150) shows the location of these receptors. A map showing the acute HI contours is included of the Appendices as Figure M-4 (page 154). Note that the acute risk presented here was based on the conservative assumption that all emission sources were emitting at their respective maximum rates simultaneously, 24 hours per day and 365 days per year.

5.0 CONCLUSION

The results of the HRA indicate that the Notification Risk Level was exceeded based on 2015 emissions from Shell, but the Action Risk Level was exceeded. HRA results are summarized in Table 10, below.

Table 10. HRA Results Compared to SCAQMD Rule 1402 Risk Levels

Risk Level or Standard	HRA Result	Notification Risk Level	Action Risk Level
Cancer Risk (per Million)	22.0	10	25
Cancer Burden (per Million)	0.26	--	0.5
Chronic Risk (Hazard Index)	0.056	1.0	3.0
Acute Risk (Hazard Index)	1.3	1.0	3.0
Ambient Air Lead Concentration ($\mu\text{g}/\text{m}^3$)	0	1.5	--

5.1 Public Notice

As results of this HRA are greater than or equal to the Notification Risk Level, upon SCAQMD approval of this HRA, Shell will be required to provide public notice, in accordance with the procedures in the most current version of “SCAQMD Public Notification Procedures for Facilities Under the Air Toxics ‘Hot Spots’ Information and Assessment Act (AB 2588) and Rule 1402”, as follows:

- (A) Distribute the approved or prepared Health Risk Assessment;
- (B) Distribute Public Notification Materials; and
- (C) Participate in a District-approved Public Meeting.

The initial public notice will be prepared and performed as required and in accordance with SCAQMD guidelines, after approval of the HRA by SCAQMD.

Follow-up notifications may be required, based on the progress reports required by Rule 1402(j), and in accordance with the timeline required by Rule 1402(q)(2).

5.2 Risk Reduction Plan (RRP)

As results of this HRA are below the Action Risk Level, Shell is not required to prepare a Risk Reduction Plan (RRP).

5.3 Key Conservative Assumptions

1. The acute risk presented in this report assumes all sources emitted at maximum hourly emission rates 24 hours per day, 365 days per year.
2. DPM emissions from contractor-operated diesel ICEs were calculated assuming the engines were uncontrolled (Tier 0) when specific engine information was unavailable.
3. Emission calculations for the fuels side ethanol rack were based on the assumption that all trucks loaded were previously carrying gasoline, therefore toxic emissions were calculated based on gasoline characteristics (e.g., vapor pressure, molecular weight, toxics speciation) rather than denatured ethanol.

APPENDIX A. SUBSTANCES EMITTED

Table A-1. Substances Emitted

CAS Number	Substance Name	CAS Number	Substance Name
75-07-0	Acetaldehyde	111-76-2	Glycol Ether EB
107-02-8	Acrolein	107-98-2	Glycol Ether PM
7664-41-7	Ammonia	108-65-6	Glycol Ether PM Acetate
71-43-2	Benzene	822-06-0	Hexamethylene-1,6-diisocyanate
191-24-2	Benzo(g,h,i)perylene	110-54-3	Hexane (-n)
75-27-4	Bromodichloromethane	67-63-0	Isopropyl Alcohol
75-25-2	Bromoform	7439-96-5	Manganese
106-99-0	1,3-Butadiene	67-56-1	Methyl Alcohol
71-36-3	Butanol-(1)	78-93-3	Methyl Ethyl Ketone
112-34-5	Butyl Dioxitol	108-10-1	Methyl Isobutyl Ketone
7782-50-5	Chlorine	91-57-6	2-Methylnaphthalene
108-90-7	Chlorobenzene	1634-04-4	Methyl-tert-butyl ether (MTBE)
67-66-3	Chloroform	91-20-3	Naphthalene
74-87-3	Chloromethane	7440-02-0	Nickel
7440-50-8	Copper	108-95-2	Phenol
95-48-7	o-Cresol	1151	PAH
98-82-8	Isopropyl Benzene	78-92-2	Secondary Butyl Alcohol (SBA)
110-82-7	Cyclohexane	100-42-5	Styrene
124-48-1	Dibromochloromethane	75-65-0	Tert-Butyl Alcohol
75-71-8	Dichlorodifluoromethane	127-18-4	Tetrachloroethene
75-34-3	1,1-Dichloroethane	108-88-3	Toluene
107-06-2	1,2-Dichloroethane	79-01-6	Trichloroethylene
75-35-4	Vinylidene Chloride	95-63-6	1,2,4-Trimethylbenzene
9901	Diesel Exhaust Particulate	540-84-1	2,2,4-Trimethylpentane (isooctane)
68-12-2	Dimethyl Formamide	75-01-4	Vinyl Chloride
100-41-4	Ethylbenzene	1330-20-7	Xylenes (mixed isomers)
50-00-0	Formaldehyde		

APPENDIX B. OEHHA REFERENCE EXPOSURE LEVEL (REL) SUMMARY AND TARGET ORGAN SYSTEMS

Table B-1. OEHHA Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary and Target Organ Systems

Substance	CAS #	REL type	Inhalation REL (ug/m ³)	Oral REL (ug/kg BW ^{-day})	Target Organs
Acetaldehyde	75-07-0	Acute	470		Eyes; respiratory system (sensory irritation)
		8-hr Chronic	300		Respiratory system
		Chronic	140		Respiratory system
Acrolein	107-02-8	Acute	2.5		Eyes, respiratory system (sensory irritation)
		8-hr Chronic	0.7		Respiratory system
		Chronic	0.35		Respiratory system
Ammonia	7664-41-7	Acute	3200		Respiratory system; eyes
		Chronic	200		Respiratory system
Benzene	71-43-2	Acute	27		Developmental; Immune system; Hematologic system
		8-hr Chronic	3		Hematologic system
		Chronic	3		Hematologic system
1,3-Butadiene	106-99-0	Acute	660		Development
		8-hr Chronic	9		Reproductive system
		Chronic	2		Reproductive system
Chlorine	7782-50-5	Acute	210		Respiratory system; eyes
		Chronic	0.2		Respiratory system
Chlorobenzene	108-90-7	Chronic	1,000		Alimentary system (liver); kidney; reproductive system
Chloroform	67-66-3	Acute	150		Reproductive/ Developmental; respiratory system; nervous system
		Chronic	300		Alimentary system; kidney; development
Copper and compounds	7440-50-8	Acute	100		Respiratory system
o-Cresol	95-48-7	Chronic	600		Nervous system
Dichloroethylene (1,1) (Vinylidene Chloride)	75-35-4	Chronic	70		Alimentary system (liver)

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Substance	CAS #	REL type	Inhalation REL (ug/m ³)	Oral REL (ug/kg BW ^{-day})	Target Organs
Diesel Exhaust Particulate	9901	Chronic	5		Respiratory system
Dimethylformamide (N,N-)	68-12-2	Chronic	80		Alimentary (liver) and respiratory systems
Ethylbenzene	100-41-4	Chronic	2,000		Alimentary system (liver); kidney; endocrine system; development
Ethylene glycol monobutyl ether	111-76-2	Acute	14,000		Respiratory system; eyes
Ethylene dichloride	107-06-2	Chronic	400		Alimentary system (liver)
Formaldehyde	50-00-0	Acute	55		Eyes (Sensory irritation)
		8-hr Chronic	9		Respiratory system
		Chronic	9		Respiratory system
Hexane (n-)	110-54-3	Chronic	7000		Nervous system
Isopropanol	67-63-0	Acute	3,200		Eyes; respiratory system
		Chronic	7,000		Kidney; development
Manganese & Compounds	7439-96-5	8-hr Chronic	0.17		Nervous system
		Chronic	0.09		Nervous system
Methanol	67-56-1	Acute	28,000		Nervous system
		C	4,000		Development
Methanol	67-56-1	Acute	28000		Nervous system
		Chronic	4,000		Development
Methyl ethyl ketone	78-93-3	Acute	13,000		Respiratory system; eyes
Methyl-tert-butyl ether (MTBE)	1634-04-4	Chronic	8000		Kidney; eyes; alimentary system (liver)
Naphthalene	91-20-3	Chronic	9		Respiratory system
Nickel & nickel compounds	7440-02-0	Acute	0.2		Immune system
		8-hr Chronic	0.06		Respiratory, immune systems
		Chronic	0.014	11	Inhalation: Respiratory system; hematologic system Oral: Development
Perchloroethylene (AKA Tetrachloroethylene)	127-18-4	Acute	20,000		Nervous system; respiratory system; eyes
		Chronic	35		Kidney; alimentary system (liver)
Phenol	108-95-2	Acute	5,800		Respiratory system; eyes

Substance	CAS #	REL type	Inhalation REL (ug/m ³)	Oral REL (ug/kg BW ^{-day})	Target Organs
		Chronic	200		Alimentary system; cardiovascular system; kidney; nervous system
Propylene Glycol Monomethyl Ether	107-98-2	Chronic	7,000		Alimentary system (liver)
Styrene	100-42-5	Acute	21000		Respiratory system; eyes; reproductive/development
		Chronic	900		Nervous system
Toluene	108-88-3	Acute	37,000		Respiratory, nervous systems; eyes reproductive/development
		Chronic	300		Nervous system; respiratory system; development
Trichloroethylene	79-01-6	Chronic	600		Nervous system; eyes
Vinyl Chloride	75-01-4	Acute	180,000		Nervous system; respiratory system; eyes
Xylenes (mixed)	1330-20-7	Acute	22,000		Nervous & respiratory systems; eyes
		Chronic	700		Nervous & respiratory systems; eyes

Table based on <https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary> (accessed August 13, 2018).

APPENDIX C. SOURCE PARAMETERS

Table C-1. Project Point Source Parameters

Source Description	Stack ID	Stack Height		Stack Gas Exit Temperature		Stack Gas Exit Velocity		Stack Gas Exit Flow Rate		Stack Diameter		UTM Coordinates (NAD83)		Base Elevation (m)	Stack Release Type
		(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(ft ³ /m)	(m ³ /s)	(ft)	(m)	East (m)	North (m)		
Ethanol Rack VCU (NG Combustion)	23	35.0	10.7	1428.5	1049.0	20.8	6.3	35327	16.7	6.0	1.83	384771.4	3745255.1	7.17	Vertical
Chemical's Side VCU (NG Combustion)	13	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
Soil Vapor Extraction Unit Thermal Oxidizer (Uncombusted Vapors)	233	30.0	9.1	356.1	453.2	26.4	8.0	4771	2.3	2.0	0.60	384847.9	3745351.6	7.2	Vertical
Soil Vapor Extraction Unit Thermal Oxidizer (NG Combustion)	24	30.0	9.1	356.1	453.2	26.4	8.0	4771	2.3	2.0	0.60	384847.9	3745351.6	7.2	Horiz.
Bioreactor	245	20.0	6.1	83.0	301.5	42.6	13.0	1394	0.7	0.8	0.25	384549.8	3745283.8	6.94	Horiz.
Fire Pump	14	8.0	2.4	1140.0	888.7	78.4	23.9	924	0.4	0.5	0.15	385624.9	3745283.6	8.54	Vertical
12-14 VFR Storage Tank; Slop (vents to chemical side RTO)	173	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-11 VFR Storage Tank; Acetone (vents to chemical side RTO)	211	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-12 VFR Storage Tank; Acetone (vents to chemical side RTO)	212	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-13 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	213	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-14 VFR Storage Tank; Kwik Dri 66 (vents to chemical side RTO)	28	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical

Source Description	Stack ID	Stack Height		Stack Gas Exit Temperature		Stack Gas Exit Velocity		Stack Gas Exit Flow Rate		Stack Diameter		UTM Coordinates (NAD83)		Base Elevation (m)	Stack Release Type
		(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(ft ³ /m)	(m ³ /s)	(ft)	(m)	East (m)	North (m)		
18-16 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	214	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-28 VFR Storage Tank; Ethyl alcohol (vents to chemical side RTO)	27	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-3 VFR Storage Tank; Hexane (-n) (vents to chemical side RTO)	31	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-33 VFR Storage Tank; Glycol Ether EB (vents to chemical side RTO)	222	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-4 VFR Storage Tank; Normal Butyl Acetate (vents to chemical side RTO)	30	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-5 VFR Storage Tank; VMP HT (vents to chemical side RTO)	29	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-6 VFR Storage Tank; Methyl isobutyl ketone (vents to chemical side RTO)	221	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
18-9 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	210	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
30-1 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	178	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
30-10 VFR Storage Tank; Xylenes (mixed isomers) (vents to chemical side RTO)	223	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
30-2 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	179	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical

Source Description	Stack ID	Stack Height		Stack Gas Exit Temperature		Stack Gas Exit Velocity		Stack Gas Exit Flow Rate		Stack Diameter		UTM Coordinates (NAD83)		Base Elevation (m)	Stack Release Type
		(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(ft³/m)	(m³/s)	(ft)	(m)	East (m)	North (m)		
30-4 VFR Storage Tank; Toluene (vents to chemical side RTO)	182	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
30-6 VFR Storage Tank; TOL WHT (vents to chemical side RTO)	185	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
30-7 VFR Storage Tank; Sol 142 (MS 142 HT) (vents to chemical side RTO)	186	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
48-2A VFR Storage Tank; Methyl alcohol (vents to chemical side RTO)	25	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Horiz.
6004 VFR Storage Tank; VMP HT (vents to chemical side RTO)	190	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
921 VFR Storage Tank; Groundwater (vents to cc)	5	8.0	2.4	68.0	293.2	0.1	0.0	0	0.0	0.2	0.05	384559.2	3745257.9	6.91	Vertical
Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	295A	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384286.5	3745390.7	5.9	Vertical
Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	295B	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	383880.1	3744769.0	6.03	Vertical
Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	295C	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	383879.1	3744874.2	6.02	Vertical
Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	295D	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384420.3	3745324.5	6.29	Vertical
Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	295E	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384279.4	3745187.7	5.65	Vertical
Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	295F	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	383976.1	3744955.9	5.72	Vertical
Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	295G	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384286.5	3745388.8	5.9	Vertical
Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	295H	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384378.4	3745185.6	5.99	Vertical
Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	295I	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384080.3	3744873.2	6.07	Vertical

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Source Description	Stack ID	Stack Height		Stack Gas Exit Temperature		Stack Gas Exit Velocity		Stack Gas Exit Flow Rate		Stack Diameter		UTM Coordinates (NAD83)		Base Elevation (m)	Stack Release Type
		(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(ft³/m)	(m³/s)	(ft)	(m)	East (m)	North (m)		
Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	292A	13.0	4.0	1500.0	1088.7	46.2	14.1	7310	3.5	1.8	0.56	384190.5	3744770.0	6.1	Vertical
Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	292B	13.0	4.0	1500.0	1088.7	46.2	14.1	7310	3.5	1.8	0.56	384148.7	3745027.3	5.69	Vertical
Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	292C	13.0	4.0	1500.0	1088.7	46.2	14.1	7310	3.5	1.8	0.56	384191.6	3744973.2	5.93	Vertical
Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	294A	14.0	4.3	1500.0	1088.7	93.6	28.5	17640	8.3	2.0	0.61	384190.5	3744770.0	6.1	Vertical
Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	294B	14.0	4.3	1500.0	1088.7	93.6	28.5	17640	8.3	2.0	0.61	384146.6	3745026.3	5.7	Vertical
Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	293	13.0	4.0	1500.0	1088.7	31.8	9.7	5040	2.4	1.8	0.56	384533.6	3745185.6	6.82	Vertical
Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	296	13.5	4.1	1500.0	1088.7	93.6	28.5	17640	8.3	2.0	0.61	384461.1	3744966.1	6.67	Vertical
1134 DEFR Storage Tank - Transmix	215	40.0	12.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384615.4	3745161.1	7.16	Vertical
12-1 VFR Storage Tank - Isobutyl Acetate	94	12.0	3.7	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385516.1	3745452.2	8.29	Vertical
12-15 VFR Storage Tank - Methyl Amyl Ketone	82	18.0	5.5	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385511.7	3745463.3	8.16	Vertical
12-17 VFR Storage Tank - Glycol Ether PM Acetate	84	18.0	5.5	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385506.8	3745463.4	8.13	Vertical
12-22 VFR Storage Tank - Butyl Dioxitol	152	18.0	5.5	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385496.7	3745468.7	8.08	Vertical
12-3 VFR Storage Tank - Glycol Ether PM	80	12.0	3.7	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385511.3	3745452.3	8.26	Vertical
12-4 VFR Storage Tank - Lubricity Additive	81	12.0	3.7	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385511.2	3745457.4	8.21	Vertical
1515 DEFR Storage Tank - Transmix	219	40.0	12.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384617.0	3745200.9	7.17	Vertical
18-1 VFR Storage Tank - OMS (Sol 71)	145	23.5	7.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385630.6	3745572.0	8.39	Vertical

Source Description	Stack ID	Stack Height		Stack Gas Exit Temperature		Stack Gas Exit Velocity		Stack Gas Exit Flow Rate		Stack Diameter		UTM Coordinates (NAD83)		Base Elevation (m)	Stack Release Type
		(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(ft ³ /m)	(m ³ /s)	(ft)	(m)	East (m)	North (m)		
18-15 VFR Storage Tank - Kwik Dri 66	161	23.5	7.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385525.8	3745559.3	8.09	Vertical
18-21 VFR Storage Tank - CYC 150	149	23.5	7.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385568.8	3745583.4	8.27	Vertical
18-24 VFR Storage Tank - CYC 100	142	23.5	7.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385584.2	3745559.4	8.39	Vertical
18-29 VFR Storage Tank - Propylene glycol	140	23.5	7.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385630.6	3745583.8	8.39	Vertical
18-30 VFR Storage Tank - CYC 100	134	23.5	7.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385568.5	3745559.2	8.39	Vertical
18-31 VFR Storage Tank - 9-MOL (Nexeo Surfactant NP-9)	162	24.2	7.4	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385515.7	3745441.2	8.37	Vertical
18-37 VFR Storage Tank - Sol 340 (MS 340 HT)	163	24.0	7.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385504.1	3745456.6	8.18	Vertical
18-8 VFR Storage Tank - LOBS Kerosene	158	23.5	7.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385495.5	3745559.4	8.09	Vertical
2549 VFR Storage Tank - Contact Water	284	23.0	7.0	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385484.7	3745643.8	8.09	Vertical
2550 VFR Storage Tank - Contact Water	285	23.0	7.0	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385489.8	3745644.1	8.09	Vertical
2551 VFR Storage Tank - Groundwater	170	5.0	1.5	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384561.3	3745182.5	6.95	Vertical
30-12 VFR Storage Tank - Sol 340 (MS 340 HT)	133	30.0	9.1	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385516.5	3745709.3	8.09	Vertical
30-8 VFR Storage Tank - Distillate fuel oil no. 2	227	30.0	9.1	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385611.9	3745621.5	8.39	Vertical
48-1A VFR Storage Tank - Renewable Diesel	165	30.0	9.1	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385618.6	3745657.7	8.39	Vertical
48-3 VFR Storage Tank - Biodiesel	156	30.0	9.1	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385577.5	3745658.4	8.3	Vertical
48-4 VFR Storage Tank - Biodiesel	86	30.0	9.1	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385535.9	3745658.7	8.09	Vertical

Source Description	Stack ID	Stack Height		Stack Gas Exit Temperature		Stack Gas Exit Velocity		Stack Gas Exit Flow Rate		Stack Diameter		UTM Coordinates (NAD83)		Base Elevation (m)	Stack Release Type
		(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(ft ³ /m)	(m ³ /s)	(ft)	(m)	East (m)	North (m)		
48-6 VFR Storage Tank - Biodiesel	87	30.1	9.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	385577.1	3745708.9	8.16	Vertical
501 IFR Storage Tank - Denatured Ethanol	260	41.5	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384422.1	3744671.3	6.9	Vertical
502 IFR Storage Tank - Denatured Ethanol	261	41.4	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384329.0	3744672.3	6.67	Vertical
503 IFR Storage Tank - Transmix	262	41.4	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384234.2	3744674.1	6.03	Vertical
504 IFR Storage Tank - Denatured Ethanol	263	41.4	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384423.9	3744770.5	6.9	Vertical
505 IFR Storage Tank - Gasoline	236	41.8	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384329.4	3744771.1	6.03	Vertical
506 IFR Storage Tank - Gasoline	275	41.5	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384235.4	3744772.4	6.02	Vertical
507A DEFR Storage Tank - Gasoline	264	41.8	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384141.3	3744772.8	5.82	Vertical
508 IFR Storage Tank - Denatured Ethanol	265	41.8	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384425.0	3744869.7	6.37	Vertical
509 DEFR Storage Tank - Gasoline	266	41.8	12.7	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384331.1	3744870.3	6.12	Vertical
510 DEFR Storage Tank - Gasoline	267	41.7	12.7	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384236.5	3744871.6	5.99	Vertical
511 IFR Storage Tank - Gasoline	276	41.4	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384142.2	3744872.4	6	Vertical
512 IFR Storage Tank - Denatured Ethanol	268	41.8	12.7	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384425.5	3744968.6	6.41	Vertical
513 IFR Storage Tank - Denatured Ethanol	269	41.8	12.7	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384331.2	3744969.7	6.25	Vertical
514 IFR Storage Tank - Gasoline	270	41.5	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384237.7	3744970.1	5.83	Vertical
515 IFR Storage Tank - Gasoline	271	41.5	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384142.9	3744971.1	5.95	Vertical
560 IFR Storage Tank - Gasoline	111	42.0	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384426.7	3745088.8	6.14	Vertical
561 IFR Storage Tank - Gasoline	112	41.5	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384332.6	3745089.6	5.93	Vertical
562 IFR Storage Tank - Gasoline	277	41.7	12.7	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384237.8	3745092.2	5.69	Vertical
563 IFR Storage Tank - Gasoline	278	41.8	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384144.2	3745092.5	5.31	Vertical

Source Description	Stack ID	Stack Height		Stack Gas Exit Temperature		Stack Gas Exit Velocity		Stack Gas Exit Flow Rate		Stack Diameter		UTM Coordinates (NAD83)		Base Elevation (m)	Stack Release Type
		(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(ft ³ /m)	(m ³ /s)	(ft)	(m)	East (m)	North (m)		
564A IFR Storage Tank - Gasoline	113	42.0	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384428.1	3745187.8	6.08	Vertical
565 IFR Storage Tank - Gasoline	114	42.6	13.0	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384333.4	3745188.6	5.9	Vertical
566 IFR Storage Tank - Gasoline	115	41.5	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384239.2	3745190.1	5.41	Vertical
567 IFR Storage Tank - Gasoline	279	41.8	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384145.1	3745191.3	4.64	Vertical
568 IFR Storage Tank - Gasoline	125	41.6	12.7	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384428.7	3745287.4	6.06	Vertical
569 IFR Storage Tank - Gasoline	116	41.7	12.7	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384333.9	3745287.0	5.83	Vertical
570 IFR Storage Tank - Gasoline	280	41.4	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384239.8	3745288.9	5.46	Vertical
572 IFR Storage Tank - Gasoline	216	41.8	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384429.7	3745385.4	6.89	Vertical
573 IFR Storage Tank - Gasoline	217	41.5	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384335.4	3745386.1	6	Vertical
574 VFR Storage Tank - Jet A	102	41.5	12.6	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384241.2	3745387.0	5.4	Vertical
575 VFR Storage Tank - Jet A	108	41.8	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384146.3	3745388.3	4.99	Vertical
576 DEFR Storage Tank - Jet A	272	40.0	12.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384430.9	3745483.9	6.81	Vertical
577 IFR Storage Tank - Jet A	273	41.8	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384335.9	3745485.0	6.25	Vertical
578 VFR Storage Tank - Jet A	121	41.8	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384242.2	3745485.3	5.64	Vertical
579 VFR Storage Tank - Jet A	103	41.0	12.5	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384147.7	3745487.0	5.2	Vertical
580 VFR Storage Tank - Distillate fuel oil no. 2	122	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384432.0	3745582.9	6.37	Vertical
581 VFR Storage Tank - Distillate fuel oil no. 2	132	40.2	12.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384337.8	3745582.8	6	Vertical
582 VFR Storage Tank - Jet A	124	40.2	12.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384242.9	3745584.5	5.46	Vertical
583 IFR Storage Tank - Distillate fuel oil no. 2	220	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384148.4	3745585.3	5.28	Vertical
585 VFR Storage Tank - Jet A	123	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384337.9	3745682.2	5.62	Vertical
586 IFR Storage Tank - Jet A	274	40.1	12.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384243.6	3745683.2	5.5	Vertical
587 VFR Storage Tank - Jet A	107	41.0	12.5	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384149.2	3745684.2	5.51	Vertical
588 VFR Storage Tank; Distillate fuel oil no. 2	117A	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384432.9	3745791.7	5.65	Vertical

Source Description	Stack ID	Stack Height		Stack Gas Exit Temperature		Stack Gas Exit Velocity		Stack Gas Exit Flow Rate		Stack Diameter		UTM Coordinates (NAD83)		Base Elevation (m)	Stack Release Type
		(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(ft ³ /m)	(m ³ /s)	(ft)	(m)	East (m)	North (m)		
588 VFR Storage Tank; Renewable diesel	117B	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384432.9	3745791.7	5.65	Vertical
589 VFR Storage Tank - Renewable Diesel	106	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384338.7	3745793.2	5.68	Vertical
720 VFR Storage Tank - Distillate fuel oil no. 2	105	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384569.9	3745788.9	6.24	Vertical
722 VFR Storage Tank - Jet A	101	42.0	12.8	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	383924.6	3744676.6	5.71	Vertical
723 VFR Storage Tank - Jet A	100	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	383827.5	3744677.6	5.7	Vertical
725 IFR Storage Tank - Gasoline	282	40.2	12.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384022.0	3744774.3	5.8	Vertical
726 IFR Storage Tank - Gasoline	283	40.1	12.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	383925.4	3744775.5	6.14	Vertical
727 IFR Storage Tank - Gasoline	218	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	383828.7	3744775.8	6.08	Vertical
729 IFR Storage Tank - Gasoline	119	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384023.5	3744873.2	5.97	Vertical
730 IFR Storage Tank - Gasoline	118	40.5	12.3	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	383926.5	3744874.2	6.29	Vertical
733 IFR Storage Tank - Gasoline	247	40.2	12.2	Ambient	Ambient	0.003	0.001	0	0.0	0.003	0.001	384024.4	3744972.2	5.8	Vertical
WW Treatment Sep-Nov - GEM ThermOx F89304 (NG combustion)	297	12.0	3.7	1500.0	1088.7	10.0	3.0	470	0.2	1.0	0.30	384546.2	3745237.9	6.88	Vertical
Contractor WW Treatment - MI Water and Tk 1134 (uncombusted vapors)	291	12.0	3.7	1500.0	1088.7	10.0	3.0	470	0.2	1.0	0.30	384546.2	3745237.9	6.88	Vertical
Ethanol Rack VCU (Uncombusted Truck Vapors)	22A	35.0	10.7	1428.5	1049.0	20.8	6.3	35327	16.7	6.0	1.83	384771.4	3745255.1	7.17	Vertical
Chemical's Side VCU (Uncombusted Truck Vapors)	8A	35.0	10.7	1623.0	1157.0	7.6	2.3	10790	5.1	5.5	1.68	385511.7	3745370.9	8.39	Vertical
Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	286A	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384286.5	3745390.7	5.9	Vertical
Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	286B	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	383880.1	3744769.0	6.03	Vertical
Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	286C	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	383879.1	3744874.2	6.02	Vertical

Source Description	Stack ID	Stack Height		Stack Gas Exit Temperature		Stack Gas Exit Velocity		Stack Gas Exit Flow Rate		Stack Diameter		UTM Coordinates (NAD83)		Base Elevation (m)	Stack Release Type
		(ft)	(m)	(°F)	(K)	(ft/s)	(m/s)	(ft ³ /m)	(m ³ /s)	(ft)	(m)	East (m)	North (m)		
Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	286D	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384420.3	3745324.5	6.29	Vertical
Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	286E	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384279.4	3745187.7	5.65	Vertical
Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	286F	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	383976.1	3744955.9	5.72	Vertical
Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	286G	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384286.5	3745388.8	5.9	Vertical
Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	286H	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384378.4	3745185.6	5.99	Vertical
Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	286I	13.0	4.0	1500.0	1088.7	120.3	36.7	22680	10.7	2.0	0.61	384080.3	3744873.2	6.07	Vertical
Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	286J	13.0	4.0	1500.0	1088.7	46.2	14.1	7310	3.5	1.8	0.56	384190.5	3744770.0	6.1	Vertical
Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	286K	13.0	4.0	1500.0	1088.7	46.2	14.1	7310	3.5	1.8	0.56	384148.7	3745027.3	5.69	Vertical
Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	286L	13.0	4.0	1500.0	1088.7	46.2	14.1	7310	3.5	1.8	0.56	384191.6	3744973.2	5.93	Vertical
Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	286M	14.0	4.3	1500.0	1088.7	93.6	28.5	17640	8.3	2.0	0.61	384190.5	3744770.0	6.1	Vertical
Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	286N	14.0	4.3	1500.0	1088.7	93.6	28.5	17640	8.3	2.0	0.61	384146.6	3745026.3	5.7	Vertical
Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	286O	13.0	4.0	1500.0	1088.7	31.8	9.7	5040	2.4	1.8	0.56	384533.6	3745185.6	6.82	Vertical
Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	286P	13.5	4.1	1500.0	1088.7	93.6	28.5	17640	8.3	2.0	0.61	384461.1	3744966.1	6.67	Vertical

Table C-2. Project Volume Source Parameters

Source Description	Model ID	Release Height		Easterly Length		Northerly Length		UTM Coordinates Easting/ Northing		Base Elevation
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(m)	(m)	(m)
Chemicals Rack (truck fugitives)	8B	10.0	3.05	5.7	1.7	9.3	2.83	385474.9	3745387.4	8.26
Ethanol Load Rack (truck fugitives)	22B	10.0	3.05	14.3	4.4	9.3	2.83	384685.2	3745202.2	7.17
Fugitives - Tank farm and ethanol rack (1 of 5)	288_1A	2.5	0.76	203.2	62.0	2.3	0.71	383924.3	3744771.5	6.09
Fugitives - Tank farm and ethanol rack (2 of 5)	288_1B	2.5	0.76	284.0	86.6	2.3	0.71	384284.1	3744820.7	5.93
Fugitives - Tank farm and ethanol rack (3 of 5)	288_1C	2.5	0.76	284.0	86.6	2.3	0.71	384284.1	3745234.3	5.43
Fugitives - Tank farm and ethanol rack (4 of 5)	288_1D	2.5	0.76	284.0	86.6	2.3	0.71	384284.1	3745633.7	5.56
Fugitives - Tank farm and ethanol rack (5 of 5)	288_1E	10.0	3.05	210.0	64.0	9.3	2.83	384639.9	3745218.9	7.16
Fugitives - Chemical load rack and tank farm (1 of 2)	288_2A	2.5	0.76	139.5	42.5	2.3	0.71	385555.5	3745637.6	8.17
Fugitives - Chemical load rack and tank farm (2 of 2)	288_2B	10.0	3.05	93.0	28.4	9.3	2.83	385475.0	3745447.8	8.09
Portable diesel ICEs - Fuels tank farm (1 of 4)	298_1A	2.5	0.76	203.2	62.0	2.3	0.71	383924.3	3744771.5	6.09
Portable diesel ICEs - Fuels tank farm (2 of 4)	298_1B	2.5	0.76	284.0	86.6	2.3	0.71	384284.1	3744820.7	5.93
Portable diesel ICEs - Fuels tank farm (3 of 4)	298_1C	2.5	0.76	284.0	86.6	2.3	0.71	384284.1	3745234.3	5.43
Portable diesel ICEs - Fuels tank farm (4 of 4)	298_1D	2.5	0.76	284.0	86.6	2.3	0.71	384284.1	3745633.7	5.56
Portable diesel ICEs - Chemical load rack and tank farm (1 of 2)	298_2A	2.5	0.76	139.5	42.5	2.3	0.71	385555.5	3745637.6	8.17
Portable diesel ICEs - Chemical load rack and tank farm (2 of 2)	298_2B	2.5	0.76	93.0	28.4	2.3	0.71	385475.0	3745447.8	8.09
AECOM Generator - SVES area	299_3	2.5	0.76	15.3	4.7	2.3	0.71	384841.1	3745341.8	7.18
RM Electric diesel generators	298_4	2.5	0.76	7.6	2.3	2.3	0.71	385012.4	3745063.2	7.48
WCES diesel ICEs	298_5	10.0	3.05	210.0	64.0	9.3	2.83	384617.0	3745200.9	7.17
Portable gasoline ICEs - Fuels tank farm (1 of 4)	299_1A	2.5	0.76	203.2	62.0	2.3	0.71	383924.3	3744771.5	6.09
Portable gasoline ICEs - Fuels tank farm (2 of 4)	299_1B	2.5	0.76	284.0	86.6	2.3	0.71	384284.1	3744820.7	5.93
Portable gasoline ICEs - Fuels tank farm (3 of 4)	299_1C	2.5	0.76	284.0	86.6	2.3	0.71	384284.1	3745234.3	5.43
Portable gasoline ICEs - Fuels tank farm (4 of 4)	299_1D	2.5	0.76	284.0	86.6	2.3	0.71	384284.1	3745633.7	5.56
Portable gasoline ICEs - Chemical load rack and tank farm (1 of 2)	299_2A	2.5	0.76	139.5	42.5	2.3	0.71	385555.5	3745637.6	8.17

Source Description	Model ID	Release Height		Easterly Length		Northerly Length		UTM Coordinates Easting/ Northing		Base Elevation
		(ft)	(m)	(ft)	(m)	(ft)	(m)	(m)	(m)	(m)
Portable gasoline ICES - Chemical load rack and tank farm (2 of 2)	299_2B	2.5	0.76	93.0	28.4	2.3	0.71	385475.0	3745447.8	8.09
WCES gasoline ICES	299_5	10.0	3.05	210.0	64.0	9.3	2.83	384617.0	3745200.9	7.17
Painting - Tank farm and ethanol rack (1 of 5)	999_1A	20.0	6.10	203.2	62.0	18.6	5.67	383924.3	3744771.5	6.09
Painting - Tank farm and ethanol rack (2 of 5)	999_1B	20.0	6.10	284.0	86.6	18.6	5.67	384284.1	3744820.7	5.93
Painting - Tank farm and ethanol rack (3 of 5)	999_1C	20.0	6.10	284.0	86.6	18.6	5.67	384284.1	3745234.3	5.43
Painting - Tank farm and ethanol rack (4 of 5)	999_1D	20.0	6.10	284.0	86.6	18.6	5.67	384284.1	3745633.7	5.56
Painting - Tank farm and ethanol rack (5 of 5)	999_1E	20.0	6.10	210.0	64.0	18.6	5.67	384639.9	3745218.9	7.16
Painting - Chemical load rack and tank farm (1 of 2)	999_2A	17.0	5.18	139.5	42.5	15.8	4.82	385555.5	3745637.6	8.17
Painting - Chemical load rack and tank farm (2 of 2)	999_2B	17.0	5.18	93.0	28.4	15.8	4.82	385475.0	3745447.8	8.09
Misc unmetered equipm (NG)	287	5.0	1.52	107.0	32.6	4.7	1.42	385086.1	3745147.8	7.69

APPENDIX D. EMISSION RATES

Table D-1. 2015 Emission Rates by Substance

CAS Number	Substance Name	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
		lb/yr	g/s	lb/hr	g/s
75-07-0	Acetaldehyde	2.56E-01	3.69E-06	5.30E-03	6.68E-04
107-02-8	Acrolein	1.06E-01	1.52E-06	1.43E-03	1.80E-04
7664-41-7	Ammonia	7.45E+01	1.07E-03	2.81E-01	3.54E-02
71-43-2	Benzene	7.51E+02	1.08E-02	5.87E-01	7.40E-02
191-24-2	Benzo(g,h,i)perylene	3.53E-16	5.08E-21	2.87E-19	3.61E-20
75-27-4	Bromodichloromethane	1.07E-01	1.55E-06	1.26E-05	1.59E-06
75-25-2	Bromoform	1.97E-01	2.83E-06	2.31E-05	2.91E-06
106-99-0	1,3-Butadiene	1.97E-01	2.84E-06	5.56E-03	7.00E-04
71-36-3	Butanol-(1)	1.55E+00	2.22E-05	1.76E-04	2.22E-05
112-34-5	Butyl Dioxitol	8.58E+01	1.23E-03	1.75E-02	2.21E-03
7782-50-5	Chlorine	9.78E-02	1.41E-06	2.76E-03	3.47E-04
108-90-7	Chlorobenzene	1.40E-01	2.02E-06	1.64E-05	2.07E-06
67-66-3	Chloroform	7.70E-02	1.11E-06	9.03E-06	1.14E-06
74-87-3	Chloromethane	6.50E-02	9.34E-07	7.61E-06	9.59E-07
7440-50-8	Copper	7.10E-04	1.02E-08	2.00E-05	2.52E-06
95-48-7	o-Cresol	4.23E-02	6.08E-07	7.95E-05	1.00E-05
98-82-8	Isopropyl Benzene	1.50E+02	2.16E-03	1.28E+00	1.61E-01
110-82-7	Cyclohexane	4.56E+02	6.56E-03	2.11E+00	2.66E-01
124-48-1	Dibromochloromethane	1.42E-01	2.04E-06	1.66E-05	2.09E-06
75-71-8	Dichlorodifluoromethane	1.20E-01	1.72E-06	1.40E-05	1.76E-06
75-34-3	1,1-Dichloroethane	1.45E-01	2.09E-06	1.70E-05	2.14E-06
107-06-2	1,2-Dichloroethane	5.52E+00	7.94E-05	6.47E-04	8.15E-05
75-35-4	Vinylidene Chloride	8.06E-02	1.16E-06	9.45E-06	1.19E-06
9901	Diesel Exhaust Particulate	2.19E+02	3.16E-03	7.98E-01	1.01E-01
68-12-2	Dimethyl Formamide	4.11E-01	5.91E-06	4.70E-05	5.92E-06
100-41-4	Ethylbenzene	8.86E+02	1.27E-02	5.30E+00	6.68E-01
50-00-0	Formaldehyde	1.05E+00	1.51E-05	2.20E-02	2.77E-03
111-76-2	Glycol Ether EB	9.15E+01	1.32E-03	1.04E-02	1.32E-03
107-98-2	Glycol Ether PM	1.30E+02	1.87E-03	2.11E+00	2.66E-01
108-65-6	Glycol Ether PM Acetate	1.08E+02	1.56E-03	2.38E-02	3.00E-03
822-06-0	Hexamethylene-1,6-diisocyanate	4.38E+00	6.30E-05	2.63E-03	3.31E-04
110-54-3	Hexane (-n)	2.38E+03	3.43E-02	8.12E+00	1.02E+00
67-63-0	Isopropyl Alcohol	1.72E+02	2.47E-03	1.97E-02	2.48E-03
7439-96-5	Manganese	7.10E-04	1.02E-08	2.00E-05	2.52E-06
67-56-1	Methyl Alcohol	2.01E+02	2.90E-03	6.62E-02	8.34E-03
78-93-3	Methyl Ethyl Ketone	4.92E+02	7.08E-03	1.68E-01	2.12E-02

CAS Number	Substance Name	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
		lb/yr	g/s	lb/hr	g/s
108-10-1	Methyl Isobutyl Ketone	1.45E+02	2.08E-03	4.27E-02	5.38E-03
91-57-6	2-Methylnaphthalene	1.42E-02	2.05E-07	2.68E-05	3.38E-06
1634-04-4	Methyl-tert-butyl ether (MTBE)	4.93E+00	7.10E-05	2.03E-02	2.56E-03
91-20-3	Naphthalene	6.02E+01	8.66E-04	3.14E-01	3.95E-02
7440-02-0	Nickel	7.10E-04	1.02E-08	2.00E-05	2.52E-06
108-95-2	Phenol	7.81E-03	1.12E-07	1.47E-05	1.85E-06
1151	PAH	2.33E-03	3.36E-08	9.25E-06	1.17E-06
78-92-2	Secondary Butyl Alcohol (SBA)	7.98E-01	1.15E-05	9.12E-05	1.15E-05
100-42-5	Styrene	7.18E+00	1.03E-04	1.76E-02	2.22E-03
75-65-0	Tert-Butyl Alcohol	2.05E-01	2.96E-06	2.41E-05	3.04E-06
127-18-4	Tetrachloroethene	1.14E+00	1.64E-05	1.34E-04	1.69E-05
108-88-3	Toluene	3.56E+03	5.12E-02	1.71E+01	2.15E+00
79-01-6	Trichloroethylene	1.52E+00	2.18E-05	1.78E-04	2.24E-05
95-63-6	1,2,4-Trimethylbenzene	6.96E+02	1.00E-02	4.76E+00	6.00E-01
540-84-1	2,2,4-Trimethylpentane (isooctane)	1.49E+03	2.14E-02	1.22E+00	1.53E-01
75-01-4	Vinyl Chloride	7.49E-02	1.08E-06	8.78E-06	1.11E-06
1330-20-7	Xylenes (mixed isomers)	2.00E+03	2.88E-02	9.01E+00	1.14E+00

Table D-2. 2015 Emission Rates by Source

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
5	921 VFR Storage Tank; Groundwater (vents to cc)	Benzene	71-43-2	3.91E-04	5.62E-09	3.61E-07	4.55E-08
		Naphthalene	91-20-3	3.60E-07	5.18E-12	3.61E-10	4.55E-11
		1,2,4-Trimethylbenzene	95-63-6	2.65E-06	3.81E-11	2.59E-09	3.27E-10
		Cumene	98-82-8	1.11E-06	1.60E-11	1.08E-09	1.36E-10
		Ethyl Benzene	100-41-4	1.08E-05	1.56E-10	1.03E-08	1.30E-09
		Toluene	108-88-3	8.91E-05	1.28E-09	8.37E-08	1.05E-08
		Xylene	1330-20-7	1.57E-05	2.26E-10	1.51E-08	1.90E-09
		Methyl t-Butyl ether (MTBE)	1634-04-4	3.33E-03	4.80E-08	3.03E-06	3.82E-07
13	Chemical's Side VCU (NG Combustion)	PAH	1151	1.10E-03	1.59E-08	7.11E-07	8.96E-08
		Formaldehyde	50-00-0	1.36E-01	1.95E-06	8.74E-05	1.10E-05
		Benzene	71-43-2	6.40E-02	9.20E-07	4.12E-05	5.19E-06
		Acetaldehyde	75-07-0	3.42E-02	4.92E-07	2.20E-05	2.78E-06
		Naphthalene	91-20-3	3.31E-03	4.76E-08	2.13E-06	2.69E-07
		Ethyl Benzene	100-41-4	7.61E-02	1.09E-06	4.90E-05	6.18E-06
		Acrolein	107-02-8	2.98E-02	4.28E-07	1.92E-05	2.42E-06
		Toluene	108-88-3	2.92E-01	4.20E-06	1.88E-04	2.37E-05
		Hexane	110-54-3	5.07E-02	7.30E-07	3.27E-05	4.12E-06
		Xylene	1330-20-7	2.17E-01	3.12E-06	1.40E-04	1.76E-05
		Ammonia	7664-41-7	3.53E+01	5.08E-04	2.27E-02	2.87E-03
14	Fire Pump	Diesel Exhaust Particulate	9901	2.06E-01	2.96E-06	4.48E-02	5.64E-03
23	Ethanol Rack VCU (NG Combustion)	Ammonia	7664-41-7	2.11E+01	3.04E-04	2.60E-02	3.28E-03
		PAH	1151	6.59E-04	9.48E-09	8.12E-07	1.02E-07
		Formaldehyde	50-00-0	8.11E-02	1.17E-06	9.99E-05	1.26E-05
		Benzene	71-43-2	3.82E-02	5.50E-07	4.71E-05	5.94E-06
		Acetaldehyde	75-07-0	2.04E-02	2.94E-07	2.52E-05	3.17E-06
		Naphthalene	91-20-3	1.98E-03	2.85E-08	2.44E-06	3.07E-07
		Ethyl Benzene	100-41-4	4.55E-02	6.54E-07	5.60E-05	7.06E-06
		Acrolein	107-02-8	1.78E-02	2.56E-07	2.19E-05	2.76E-06

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Toluene	108-88-3	1.75E-01	2.51E-06	2.15E-04	2.71E-05
		Hexane	110-54-3	3.03E-02	4.36E-07	3.74E-05	4.71E-06
		Xylene	1330-20-7	1.30E-01	1.87E-06	1.60E-04	2.02E-05
24	Soil Vapor Extraction Unit Thermal Oxidizer (NG Combustion)	PAH	1151	3.87E-04	5.56E-09	1.18E-07	1.48E-08
		Formaldehyde	50-00-0	6.57E-02	9.46E-07	2.00E-05	2.52E-06
		Benzene	71-43-2	3.09E-02	4.45E-07	9.42E-06	1.19E-06
		Acetaldehyde	75-07-0	1.66E-02	2.39E-07	5.06E-06	6.38E-07
		Naphthalene	91-20-3	1.16E-03	1.67E-08	3.53E-07	4.45E-08
		Ethyl Benzene	100-41-4	3.67E-02	5.28E-07	1.12E-05	1.41E-06
		Acrolein	107-02-8	1.04E-02	1.50E-07	3.18E-06	4.01E-07
		Toluene	108-88-3	1.42E-01	2.04E-06	4.31E-05	5.43E-06
		Hexane	110-54-3	2.44E-02	3.50E-07	7.42E-06	9.35E-07
		Xylene	1330-20-7	1.05E-01	1.51E-06	3.20E-05	4.04E-06
		Ammonia	7664-41-7	1.24E+01	1.78E-04	3.77E-03	4.75E-04
25	48-2A VFR Storage Tank; Methyl alcohol (vents to chemical side RTO)	Methanol	67-56-1	5.24E-01	7.54E-06	2.10E-04	2.65E-05
29	18-5 VFR Storage Tank; VMP HT (vents to chemical side RTO)	Benzene	71-43-2	3.40E-05	4.89E-10	1.36E-08	1.72E-09
		Ethyl Benzene	100-41-4	6.62E-06	9.52E-11	2.66E-09	3.35E-10
		Toluene	108-88-3	7.73E-06	1.11E-10	3.10E-09	3.91E-10
		Xylene	1330-20-7	3.32E-05	4.77E-10	1.33E-08	1.68E-09
30	18-4 VFR Storage Tank; Normal Butyl Acetate (vents to chemical side RTO)	n-Butanol	71-36-3	9.24E-05	1.33E-09	3.71E-08	4.67E-09
31	18-3 VFR Storage Tank; Hexane (-n) (vents to chemical side RTO)	Hexane	110-54-3	2.36E-01	3.40E-06	9.48E-05	1.19E-05
80	12-3 VFR Storage Tank - GLYCOL ETHER PM	Propylene glycol monomethyl ether	107-98-2	4.01E+01	5.77E-04	2.10E+00	2.64E-01
81	12-4 VFR Storage Tank -	1,2,4-Trimethylbenzene	95-63-6	1.39E+00	1.99E-05	6.91E-02	8.71E-03

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
	Lubricity Additive	Cumene	98-82-8	6.33E-01	9.11E-06	3.12E-02	3.93E-03
		Xylene	1330-20-7	1.17E+00	1.69E-05	5.71E-02	7.20E-03
84	12-17 VFR Storage Tank - Glycol Ether PM Acetate	Propylene glycol monomethyl ether acetate	108-65-6	5.05E-03	7.26E-08	2.94E-04	3.70E-05
86	48-4 VFR Storage Tank - Biodiesel	Benzene	71-43-2	2.94E-01	4.22E-06	2.77E-03	3.48E-04
		Naphthalene	91-20-3	8.96E-02	1.29E-06	8.86E-04	1.12E-04
		1,2,4-Trimethylbenzene	95-63-6	4.27E-01	6.14E-06	4.17E-03	5.25E-04
		Cumene	98-82-8	1.64E-01	2.36E-06	1.59E-03	2.00E-04
		Ethyl Benzene	100-41-4	4.70E-01	6.76E-06	4.52E-03	5.70E-04
		Toluene	108-88-3	3.20E+00	4.61E-05	3.05E-02	3.84E-03
		Hexane	110-54-3	5.93E-02	8.53E-07	5.56E-04	7.00E-05
		Cyclohexane	110-82-7	3.79E+00	5.45E-05	3.56E-02	4.49E-03
87	48-6 VFR Storage Tank - Biodiesel	Xylene	1330-20-7	1.51E+00	2.17E-05	1.45E-02	1.83E-03
		Benzene	71-43-2	3.20E-01	4.60E-06	2.76E-03	3.48E-04
		Naphthalene	91-20-3	9.69E-02	1.39E-06	8.86E-04	1.12E-04
		1,2,4-Trimethylbenzene	95-63-6	4.62E-01	6.65E-06	4.17E-03	5.25E-04
		Cumene	98-82-8	1.78E-01	2.56E-06	1.59E-03	2.00E-04
		Ethyl Benzene	100-41-4	5.10E-01	7.34E-06	4.52E-03	5.70E-04
		Toluene	108-88-3	3.48E+00	5.01E-05	3.05E-02	3.84E-03
		Hexane	110-54-3	6.46E-02	9.29E-07	5.55E-04	7.00E-05
100	723 VFR Storage Tank - Jet A	Cyclohexane	110-82-7	4.12E+00	5.93E-05	3.56E-02	4.48E-03
		Xylene	1330-20-7	1.64E+00	2.36E-05	1.45E-02	1.83E-03
		Naphthalene	91-20-3	2.51E+00	3.60E-05	2.01E-02	2.53E-03
		1,2,4-Trimethylbenzene	95-63-6	4.02E+01	5.78E-04	3.15E-01	3.96E-02
		Cumene	98-82-8	1.08E+01	1.56E-04	8.39E-02	1.06E-02
		Ethyl Benzene	100-41-4	6.88E+01	9.89E-04	5.25E-01	6.62E-02
		Toluene	108-88-3	2.04E+02	2.94E-03	1.53E+00	1.93E-01
Hexane	110-54-3	1.15E+02	1.65E-03	8.39E-01	1.06E-01		
		Xylene	1330-20-7	8.90E+01	1.28E-03	6.81E-01	8.58E-02

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
101	722 VFR Storage Tank - Jet A	Naphthalene	91-20-3	2.51E+00	3.61E-05	2.01E-02	2.53E-03
		1,2,4-Trimethylbenzene	95-63-6	4.02E+01	5.79E-04	3.15E-01	3.96E-02
		Cumene	98-82-8	1.09E+01	1.56E-04	8.39E-02	1.06E-02
		Ethyl Benzene	100-41-4	6.89E+01	9.91E-04	5.25E-01	6.62E-02
		Toluene	108-88-3	2.05E+02	2.95E-03	1.53E+00	1.93E-01
		Hexane	110-54-3	1.15E+02	1.65E-03	8.39E-01	1.06E-01
		Xylene	1330-20-7	8.91E+01	1.28E-03	6.81E-01	8.58E-02
102	574 VFR Storage Tank - Jet A	Naphthalene	91-20-3	2.36E+00	3.40E-05	2.00E-02	2.52E-03
		1,2,4-Trimethylbenzene	95-63-6	3.78E+01	5.44E-04	3.14E-01	3.95E-02
		Cumene	98-82-8	1.02E+01	1.47E-04	8.37E-02	1.05E-02
		Ethyl Benzene	100-41-4	6.48E+01	9.32E-04	5.24E-01	6.60E-02
		Toluene	108-88-3	1.93E+02	2.77E-03	1.53E+00	1.93E-01
		Hexane	110-54-3	1.08E+02	1.55E-03	8.37E-01	1.05E-01
		Xylene	1330-20-7	8.38E+01	1.21E-03	6.79E-01	8.55E-02
103	579 VFR Storage Tank - Jet A	Naphthalene	91-20-3	2.40E+00	3.45E-05	2.00E-02	2.52E-03
		1,2,4-Trimethylbenzene	95-63-6	3.85E+01	5.53E-04	3.14E-01	3.95E-02
		Cumene	98-82-8	1.04E+01	1.50E-04	8.37E-02	1.05E-02
		Ethyl Benzene	100-41-4	6.59E+01	9.48E-04	5.24E-01	6.60E-02
		Toluene	108-88-3	1.96E+02	2.82E-03	1.53E+00	1.93E-01
		Hexane	110-54-3	1.10E+02	1.58E-03	8.37E-01	1.05E-01
		Xylene	1330-20-7	8.52E+01	1.23E-03	6.79E-01	8.55E-02
105	720 VFR Storage Tank - Distillate fuel oil no. 2	Benzene	71-43-2	1.95E+00	2.81E-05	2.43E-02	3.06E-03
		Naphthalene	91-20-3	5.81E-01	8.36E-06	7.77E-03	9.79E-04
		1,2,4-Trimethylbenzene	95-63-6	2.79E+00	4.01E-05	3.65E-02	4.60E-03
		Cumene	98-82-8	1.07E+00	1.54E-05	1.39E-02	1.75E-03
		Ethyl Benzene	100-41-4	3.09E+00	4.45E-05	3.96E-02	5.00E-03
		Toluene	108-88-3	2.12E+01	3.05E-04	2.67E-01	3.37E-02
		Hexane	110-54-3	3.95E-01	5.69E-06	4.87E-03	6.14E-04
		Cyclohexane	110-82-7	2.52E+01	3.63E-04	3.12E-01	3.93E-02

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
106	589 VFR Storage Tank - Renewable Diesel	Xylene	1330-20-7	9.93E+00	1.43E-04	1.27E-01	1.61E-02
		Benzene	71-43-2	2.38E+00	3.42E-05	2.42E-02	3.05E-03
		Naphthalene	91-20-3	7.01E-01	1.01E-05	7.76E-03	9.78E-04
		1,2,4-Trimethylbenzene	95-63-6	3.37E+00	4.85E-05	3.65E-02	4.60E-03
		Cumene	98-82-8	1.30E+00	1.87E-05	1.39E-02	1.75E-03
		Ethyl Benzene	100-41-4	3.75E+00	5.40E-05	3.96E-02	4.99E-03
		Toluene	108-88-3	2.57E+01	3.70E-04	2.67E-01	3.36E-02
		Hexane	110-54-3	4.81E-01	6.92E-06	4.87E-03	6.13E-04
		Cyclohexane	110-82-7	3.07E+01	4.41E-04	3.12E-01	3.93E-02
107	587 VFR Storage Tank - Jet A	Xylene	1330-20-7	1.20E+01	1.73E-04	1.27E-01	1.61E-02
		Naphthalene	91-20-3	3.19E+00	4.59E-05	2.01E-02	2.53E-03
		1,2,4-Trimethylbenzene	95-63-6	5.11E+01	7.35E-04	3.15E-01	3.97E-02
		Cumene	98-82-8	1.38E+01	1.99E-04	8.40E-02	1.06E-02
		Ethyl Benzene	100-41-4	8.75E+01	1.26E-03	5.25E-01	6.62E-02
		Toluene	108-88-3	2.60E+02	3.74E-03	1.53E+00	1.93E-01
		Hexane	110-54-3	1.46E+02	2.10E-03	8.40E-01	1.06E-01
108	575 VFR Storage Tank - Jet A	Xylene	1330-20-7	1.13E+02	1.63E-03	6.81E-01	8.58E-02
		Naphthalene	91-20-3	2.32E+00	3.34E-05	2.00E-02	2.52E-03
		1,2,4-Trimethylbenzene	95-63-6	3.72E+01	5.35E-04	3.14E-01	3.95E-02
		Cumene	98-82-8	1.01E+01	1.45E-04	8.37E-02	1.05E-02
		Ethyl Benzene	100-41-4	6.37E+01	9.16E-04	5.24E-01	6.60E-02
		Toluene	108-88-3	1.89E+02	2.72E-03	1.53E+00	1.93E-01
		Hexane	110-54-3	1.06E+02	1.53E-03	8.37E-01	1.05E-01
111	560 IFR Storage Tank - Gasoline	Xylene	1330-20-7	8.24E+01	1.19E-03	6.79E-01	8.55E-02
		Methanol	67-56-1	3.04E+00	4.37E-05	1.42E-03	1.79E-04
		Benzene	71-43-2	2.07E+01	2.97E-04	1.15E-02	1.45E-03
		Naphthalene	91-20-3	9.27E-02	1.33E-06	2.31E-03	2.91E-04
		1,2,4-Trimethylbenzene	95-63-6	1.42E+00	2.04E-05	1.85E-02	2.33E-03
		Cumene	98-82-8	1.52E-01	2.18E-06	1.16E-03	1.47E-04

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Ethyl Benzene	100-41-4	2.30E+00	3.31E-05	9.44E-03	1.19E-03
		Styrene	100-42-5	1.06E-01	1.53E-06	6.09E-04	7.67E-05
		Toluene	108-88-3	3.10E+01	4.46E-04	4.94E-02	6.23E-03
		Hexane	110-54-3	3.60E+01	5.19E-04	1.41E-02	1.77E-03
		Cyclohexane	110-82-7	4.27E+00	6.14E-05	2.32E-03	2.93E-04
		2,2,4-Trimethylpentane	540-84-1	4.22E+01	6.07E-04	4.08E-02	5.14E-03
		Xylene	1330-20-7	1.15E+01	1.66E-04	5.49E-02	6.91E-03
112	561 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.33E+00	4.78E-05	1.42E-03	1.79E-04
		Benzene	71-43-2	2.31E+01	3.32E-04	1.15E-02	1.45E-03
		Naphthalene	91-20-3	7.06E-01	1.02E-05	2.30E-03	2.90E-04
		1,2,4-Trimethylbenzene	95-63-6	6.32E+00	9.09E-05	1.85E-02	2.33E-03
		Cumene	98-82-8	4.58E-01	6.59E-06	1.16E-03	1.47E-04
		Ethyl Benzene	100-41-4	4.75E+00	6.84E-05	9.43E-03	1.19E-03
		Styrene	100-42-5	2.66E-01	3.82E-06	6.08E-04	7.66E-05
		Toluene	108-88-3	4.33E+01	6.22E-04	4.94E-02	6.22E-03
		Hexane	110-54-3	3.87E+01	5.57E-04	1.41E-02	1.77E-03
		Cyclohexane	110-82-7	4.76E+00	6.84E-05	2.32E-03	2.92E-04
		2,2,4-Trimethylpentane	540-84-1	5.18E+01	7.45E-04	4.07E-02	5.13E-03
Xylene	1330-20-7	2.58E+01	3.71E-04	5.48E-02	6.91E-03		
113	564A IFR Storage Tank - Gasoline	Methanol	67-56-1	4.07E+00	5.85E-05	1.51E-03	1.90E-04
		Benzene	71-43-2	2.81E+01	4.04E-04	1.22E-02	1.53E-03
		Naphthalene	91-20-3	6.38E-01	9.18E-06	2.31E-03	2.91E-04
		1,2,4-Trimethylbenzene	95-63-6	5.95E+00	8.56E-05	1.86E-02	2.34E-03
		Cumene	98-82-8	4.52E-01	6.50E-06	1.17E-03	1.47E-04
		Ethyl Benzene	100-41-4	4.98E+00	7.16E-05	9.52E-03	1.20E-03
		Styrene	100-42-5	2.69E-01	3.87E-06	6.13E-04	7.72E-05
		Toluene	108-88-3	4.94E+01	7.11E-04	5.04E-02	6.35E-03
		Hexane	110-54-3	4.76E+01	6.85E-04	1.51E-02	1.91E-03
Cyclohexane	110-82-7	5.79E+00	8.32E-05	2.45E-03	3.09E-04		

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		2,2,4-Trimethylpentane	540-84-1	6.12E+01	8.81E-04	4.20E-02	5.30E-03
		Xylene	1330-20-7	2.67E+01	3.83E-04	5.53E-02	6.96E-03
114	565 IFR Storage Tank - Gasoline	Methanol	67-56-1	4.07E+00	5.85E-05	1.51E-03	1.90E-04
		Benzene	71-43-2	2.81E+01	4.04E-04	1.21E-02	1.53E-03
		Naphthalene	91-20-3	6.28E-01	9.03E-06	2.31E-03	2.91E-04
		1,2,4-Trimethylbenzene	95-63-6	5.87E+00	8.44E-05	1.85E-02	2.34E-03
		Cumene	98-82-8	4.47E-01	6.42E-06	1.17E-03	1.47E-04
		Ethyl Benzene	100-41-4	4.94E+00	7.11E-05	9.50E-03	1.20E-03
		Styrene	100-42-5	2.67E-01	3.83E-06	6.11E-04	7.70E-05
		Toluene	108-88-3	4.92E+01	7.08E-04	5.03E-02	6.34E-03
		Hexane	110-54-3	4.76E+01	6.85E-04	1.51E-02	1.90E-03
		Cyclohexane	110-82-7	5.78E+00	8.31E-05	2.45E-03	3.08E-04
		2,2,4-Trimethylpentane	540-84-1	6.11E+01	8.79E-04	4.20E-02	5.29E-03
Xylene	1330-20-7	2.64E+01	3.80E-04	5.52E-02	6.95E-03		
115	566 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.34E+00	4.80E-05	1.42E-03	1.79E-04
		Benzene	71-43-2	2.32E+01	3.34E-04	1.15E-02	1.45E-03
		Naphthalene	91-20-3	7.37E-01	1.06E-05	2.30E-03	2.90E-04
		1,2,4-Trimethylbenzene	95-63-6	6.57E+00	9.45E-05	1.85E-02	2.33E-03
		Cumene	98-82-8	4.74E-01	6.82E-06	1.16E-03	1.47E-04
		Ethyl Benzene	100-41-4	4.88E+00	7.02E-05	9.43E-03	1.19E-03
		Styrene	100-42-5	2.74E-01	3.94E-06	6.08E-04	7.66E-05
		Toluene	108-88-3	4.39E+01	6.31E-04	4.94E-02	6.22E-03
		Hexane	110-54-3	3.88E+01	5.59E-04	1.41E-02	1.77E-03
		Cyclohexane	110-82-7	4.78E+00	6.88E-05	2.32E-03	2.92E-04
		2,2,4-Trimethylpentane	540-84-1	5.23E+01	7.52E-04	4.07E-02	5.13E-03
Xylene	1330-20-7	2.65E+01	3.82E-04	5.48E-02	6.91E-03		
116	569 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.13E+00	4.51E-05	1.42E-03	1.79E-04
		Benzene	71-43-2	2.15E+01	3.09E-04	1.15E-02	1.45E-03
		Naphthalene	91-20-3	2.96E-01	4.26E-06	2.31E-03	2.91E-04

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		1,2,4-Trimethylbenzene	95-63-6	3.04E+00	4.37E-05	1.85E-02	2.33E-03
		Cumene	98-82-8	2.53E-01	3.65E-06	1.16E-03	1.47E-04
		Ethyl Benzene	100-41-4	3.11E+00	4.48E-05	9.44E-03	1.19E-03
		Styrene	100-42-5	1.59E-01	2.29E-06	6.09E-04	7.67E-05
		Toluene	108-88-3	3.51E+01	5.04E-04	4.94E-02	6.23E-03
		Hexane	110-54-3	3.69E+01	5.31E-04	1.41E-02	1.77E-03
		Cyclohexane	110-82-7	4.43E+00	6.37E-05	2.32E-03	2.93E-04
		2,2,4-Trimethylpentane	540-84-1	4.54E+01	6.52E-04	4.08E-02	5.14E-03
		Xylene	1330-20-7	1.63E+01	2.34E-04	5.49E-02	6.91E-03
118	730 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.99E+00	5.74E-05	1.30E-03	1.64E-04
		Benzene	71-43-2	2.75E+01	3.95E-04	1.04E-02	1.31E-03
		Naphthalene	91-20-3	5.37E-01	7.72E-06	1.87E-03	2.36E-04
		1,2,4-Trimethylbenzene	95-63-6	5.14E+00	7.39E-05	1.51E-02	1.90E-03
		Cumene	98-82-8	4.00E-01	5.76E-06	9.51E-04	1.20E-04
		Ethyl Benzene	100-41-4	4.56E+00	6.56E-05	7.77E-03	9.78E-04
		Styrene	100-42-5	2.42E-01	3.48E-06	4.99E-04	6.28E-05
		Toluene	108-88-3	4.71E+01	6.78E-04	4.16E-02	5.24E-03
		Hexane	110-54-3	4.68E+01	6.74E-04	1.32E-02	1.66E-03
		Cyclohexane	110-82-7	5.66E+00	8.14E-05	2.10E-03	2.64E-04
		2,2,4-Trimethylpentane	540-84-1	5.92E+01	8.52E-04	3.51E-02	4.43E-03
		Xylene	1330-20-7	2.42E+01	3.48E-04	4.50E-02	5.67E-03
119	729 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.91E+00	5.62E-05	1.30E-03	1.64E-04
		Benzene	71-43-2	2.68E+01	3.85E-04	1.04E-02	1.31E-03
		Naphthalene	91-20-3	3.56E-01	5.11E-06	1.87E-03	2.35E-04
		1,2,4-Trimethylbenzene	95-63-6	3.69E+00	5.30E-05	1.50E-02	1.90E-03
		Cumene	98-82-8	3.10E-01	4.45E-06	9.49E-04	1.20E-04
		Ethyl Benzene	100-41-4	3.83E+00	5.51E-05	7.75E-03	9.76E-04
		Styrene	100-42-5	1.95E-01	2.80E-06	4.97E-04	6.27E-05
		Toluene	108-88-3	4.35E+01	6.26E-04	4.15E-02	5.23E-03

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Hexane	110-54-3	4.61E+01	6.62E-04	1.32E-02	1.66E-03
		Cyclohexane	110-82-7	5.52E+00	7.94E-05	2.09E-03	2.64E-04
		2,2,4-Trimethylpentane	540-84-1	5.64E+01	8.11E-04	3.51E-02	4.42E-03
		Xylene	1330-20-7	2.00E+01	2.87E-04	4.49E-02	5.66E-03
121	578 VFR Storage Tank - Jet A	Naphthalene	91-20-3	2.28E+00	3.29E-05	2.00E-02	2.52E-03
		1,2,4-Trimethylbenzene	95-63-6	3.66E+01	5.26E-04	3.14E-01	3.95E-02
		Cumene	98-82-8	9.89E+00	1.42E-04	8.37E-02	1.05E-02
		Ethyl Benzene	100-41-4	6.27E+01	9.02E-04	5.24E-01	6.60E-02
		Toluene	108-88-3	1.86E+02	2.68E-03	1.53E+00	1.93E-01
		Hexane	110-54-3	1.05E+02	1.50E-03	8.37E-01	1.05E-01
		Xylene	1330-20-7	8.11E+01	1.17E-03	6.79E-01	8.55E-02
122	580 VFR Storage Tank - Distillate fuel oil no. 2	Benzene	71-43-2	7.43E+00	1.07E-04	2.42E-02	3.05E-03
		Naphthalene	91-20-3	2.19E+00	3.15E-05	7.76E-03	9.78E-04
		1,2,4-Trimethylbenzene	95-63-6	1.05E+01	1.52E-04	3.65E-02	4.60E-03
		Cumene	98-82-8	4.07E+00	5.85E-05	1.39E-02	1.75E-03
		Ethyl Benzene	100-41-4	1.17E+01	1.69E-04	3.96E-02	4.99E-03
		Toluene	108-88-3	8.04E+01	1.16E-03	2.67E-01	3.36E-02
		Hexane	110-54-3	1.50E+00	2.16E-05	4.87E-03	6.13E-04
		Cyclohexane	110-82-7	9.59E+01	1.38E-03	3.12E-01	3.93E-02
123	585 VFR Storage Tank - Jet A	Naphthalene	91-20-3	2.03E+00	2.92E-05	2.01E-02	2.53E-03
		1,2,4-Trimethylbenzene	95-63-6	3.22E+01	4.64E-04	3.15E-01	3.97E-02
		Cumene	98-82-8	8.67E+00	1.25E-04	8.41E-02	1.06E-02
		Ethyl Benzene	100-41-4	5.47E+01	7.86E-04	5.26E-01	6.63E-02
		Toluene	108-88-3	1.61E+02	2.32E-03	1.54E+00	1.94E-01
		Hexane	110-54-3	8.97E+01	1.29E-03	8.40E-01	1.06E-01
		Xylene	1330-20-7	7.08E+01	1.02E-03	6.82E-01	8.59E-02
124	582 VFR Storage Tank - Jet A	Naphthalene	91-20-3	3.67E+00	5.28E-05	2.01E-02	2.53E-03
		1,2,4-Trimethylbenzene	95-63-6	5.88E+01	8.46E-04	3.15E-01	3.96E-02

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Cumene	98-82-8	1.59E+01	2.29E-04	8.39E-02	1.06E-02
		Ethyl Benzene	100-41-4	1.01E+02	1.45E-03	5.25E-01	6.62E-02
		Toluene	108-88-3	2.99E+02	4.31E-03	1.53E+00	1.93E-01
		Hexane	110-54-3	1.68E+02	2.42E-03	8.39E-01	1.06E-01
		Xylene	1330-20-7	1.30E+02	1.87E-03	6.81E-01	8.58E-02
125	568 IFR Storage Tank - Gasoline	Styrene	100-42-5	2.57E-01	3.70E-06	6.11E-04	7.70E-05
		Toluene	108-88-3	4.85E+01	6.98E-04	5.03E-02	6.34E-03
		Hexane	110-54-3	4.74E+01	6.82E-04	1.51E-02	1.90E-03
		Cyclohexane	110-82-7	5.75E+00	8.27E-05	2.45E-03	3.08E-04
		2,2,4-Trimethylpentane	540-84-1	6.05E+01	8.71E-04	4.20E-02	5.29E-03
		Xylene	1330-20-7	2.56E+01	3.68E-04	5.52E-02	6.95E-03
		Methanol	67-56-1	4.05E+00	5.82E-05	1.51E-03	1.90E-04
		Benzene	71-43-2	2.79E+01	4.01E-04	1.21E-02	1.53E-03
		Naphthalene	91-20-3	5.91E-01	8.50E-06	2.31E-03	2.91E-04
		1,2,4-Trimethylbenzene	95-63-6	5.58E+00	8.02E-05	1.85E-02	2.34E-03
		Cumene	98-82-8	4.28E-01	6.16E-06	1.17E-03	1.47E-04
Ethyl Benzene	100-41-4	4.79E+00	6.90E-05	9.50E-03	1.20E-03		
132	581 VFR Storage Tank - Distillate fuel oil no. 2	Benzene	71-43-2	7.17E+00	1.03E-04	2.42E-02	3.05E-03
		Naphthalene	91-20-3	2.12E+00	3.04E-05	7.76E-03	9.78E-04
		1,2,4-Trimethylbenzene	95-63-6	1.02E+01	1.46E-04	3.65E-02	4.60E-03
		Cumene	98-82-8	3.93E+00	5.65E-05	1.39E-02	1.75E-03
		Ethyl Benzene	100-41-4	1.13E+01	1.63E-04	3.96E-02	4.99E-03
		Toluene	108-88-3	7.77E+01	1.12E-03	2.67E-01	3.36E-02
		Hexane	110-54-3	1.45E+00	2.09E-05	4.87E-03	6.13E-04
		Cyclohexane	110-82-7	9.26E+01	1.33E-03	3.12E-01	3.93E-02
Xylene	1330-20-7	3.63E+01	5.23E-04	1.27E-01	1.61E-02		
134	18-30 VFR Storage Tank - CYC 100	Benzene	71-43-2	6.37E-02	9.17E-07	2.96E-03	3.73E-04
		1,2,4-Trimethylbenzene	95-63-6	1.09E+01	1.56E-04	5.35E-01	6.74E-02
		Cumene	98-82-8	3.35E+00	4.82E-05	1.63E-01	2.06E-02

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Toluene	108-88-3	9.21E-02	1.32E-06	4.35E-03	5.48E-04
		Xylene	1330-20-7	3.10E+00	4.46E-05	1.49E-01	1.88E-02
142	18-24 VFR Storage Tank - CYC 100	Benzene	71-43-2	7.19E-02	1.03E-06	2.96E-03	3.73E-04
		1,2,4-Trimethylbenzene	95-63-6	1.22E+01	1.76E-04	5.35E-01	6.74E-02
		Cumene	98-82-8	3.78E+00	5.44E-05	1.63E-01	2.06E-02
		Toluene	108-88-3	1.04E-01	1.49E-06	4.35E-03	5.48E-04
		Xylene	1330-20-7	3.50E+00	5.03E-05	1.49E-01	1.88E-02
149	18-21 VFR Storage Tank - CYC 150	Benzene	71-43-2	1.04E-01	1.49E-06	4.66E-03	5.88E-04
		Naphthalene	91-20-3	1.96E-01	2.82E-06	9.57E-03	1.21E-03
		1,2,4-Trimethylbenzene	95-63-6	3.93E-01	5.65E-06	1.87E-02	2.36E-03
		Cumene	98-82-8	9.10E-01	1.31E-05	4.29E-02	5.40E-03
		Toluene	108-88-3	3.00E-02	4.31E-07	1.37E-03	1.73E-04
		Xylene	1330-20-7	8.42E-03	1.21E-07	3.92E-04	4.94E-05
152	12-22 VFR Storage Tank - Butyl Dioxitol	Diethylene Glycol Monobutyl Ether	112-34-5	9.40E-02	1.35E-06	7.76E-03	9.77E-04
156	48-3 VFR Storage Tank - Biodiesel	Benzene	71-43-2	2.25E-01	3.24E-06	2.77E-03	3.48E-04
		Naphthalene	91-20-3	6.90E-02	9.92E-07	8.86E-04	1.12E-04
		1,2,4-Trimethylbenzene	95-63-6	3.28E-01	4.72E-06	4.17E-03	5.25E-04
		Cumene	98-82-8	1.26E-01	1.81E-06	1.59E-03	2.00E-04
		Ethyl Benzene	100-41-4	3.61E-01	5.20E-06	4.52E-03	5.70E-04
		Toluene	108-88-3	2.46E+00	3.54E-05	3.05E-02	3.84E-03
		Hexane	110-54-3	4.55E-02	6.54E-07	5.56E-04	7.00E-05
		Cyclohexane	110-82-7	2.91E+00	4.18E-05	3.56E-02	4.49E-03
Xylene	1330-20-7	1.16E+00	1.67E-05	1.45E-02	1.83E-03		
165	48-1A VFR Storage Tank - Renewable Diesel	Benzene	71-43-2	7.66E-01	1.10E-05	8.43E-03	1.06E-03
		Naphthalene	91-20-3	2.32E-01	3.34E-06	2.70E-03	3.40E-04
		1,2,4-Trimethylbenzene	95-63-6	1.11E+00	1.59E-05	1.27E-02	1.60E-03
		Cumene	98-82-8	4.26E-01	6.13E-06	4.84E-03	6.10E-04
		Ethyl Benzene	100-41-4	1.22E+00	1.76E-05	1.38E-02	1.74E-03

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Toluene	108-88-3	8.34E+00	1.20E-04	9.28E-02	1.17E-02
		Hexane	110-54-3	1.55E-01	2.23E-06	1.69E-03	2.13E-04
		Cyclohexane	110-82-7	9.89E+00	1.42E-04	1.08E-01	1.37E-02
		Xylene	1330-20-7	3.93E+00	5.65E-05	4.43E-02	5.58E-03
170	2551 VFR Storage Tank - Groundwater	Benzene	71-43-2	5.22E-06	7.50E-11	5.96E-10	7.50E-11
		Naphthalene	91-20-3	4.81E-09	6.91E-14	5.49E-13	6.91E-14
		1,2,4-Trimethylbenzene	95-63-6	3.53E-08	5.08E-13	4.03E-12	5.08E-13
		Cumene	98-82-8	1.49E-08	2.14E-13	1.70E-12	2.14E-13
		Ethyl Benzene	100-41-4	1.44E-07	2.08E-12	1.65E-11	2.08E-12
		Toluene	108-88-3	1.19E-06	1.71E-11	1.36E-10	1.71E-11
		Xylene	1330-20-7	2.10E-07	3.02E-12	2.40E-11	3.02E-12
		Methyl t-Butyl ether (MTBE)	1634-04-4	4.45E-05	6.40E-10	5.08E-09	6.40E-10
173	12-14 VFR Storage Tank; Slop (vents to chemical side RTO)	Methanol	67-56-1	3.87E-03	5.57E-08	1.55E-06	1.96E-07
		Dimethyl Formamide	68-12-2	4.56E-06	6.56E-11	1.83E-09	2.31E-10
		n-Butanol	71-36-3	1.11E-05	1.60E-10	4.47E-09	5.63E-10
		Benzene	71-43-2	2.55E-08	3.66E-13	1.02E-11	1.29E-12
		Sec-butyl alcohol	78-92-2	3.52E-05	5.06E-10	1.41E-08	1.78E-09
		MEK	78-93-3	2.57E-03	3.70E-08	1.03E-06	1.30E-07
		Naphthalene	91-20-3	1.16E-07	1.67E-12	4.65E-11	5.86E-12
		1,2,4-Trimethylbenzene	95-63-6	1.17E-05	1.68E-10	4.69E-09	5.90E-10
		Cumene	98-82-8	9.49E-07	1.36E-11	3.81E-10	4.80E-11
		MIBK	108-10-1	1.42E-04	2.04E-09	5.70E-08	7.18E-09
		Toluene	108-88-3	8.77E-04	1.26E-08	3.52E-07	4.43E-08
		Hexane	110-54-3	1.10E-03	1.58E-08	4.40E-07	5.54E-08
		Cyclohexane	110-82-7	6.95E-06	9.99E-11	2.79E-09	3.51E-10
		Ethylene Glycol Monobutyl Ether	111-76-2	1.22E-05	1.75E-10	4.88E-09	6.15E-10
		Xylene	1330-20-7	1.94E-04	2.80E-09	7.80E-08	9.83E-09
178	30-1 VFR Storage Tank; Isopropyl alcohol (vents	IPA	67-63-0	1.78E-01	2.56E-06	7.16E-05	9.02E-06

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
	to chemical side RTO)						
179	30-2 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	IPA	67-63-0	1.72E-01	2.48E-06	6.92E-05	8.72E-06
182	30-4 VFR Storage Tank; Toluene (vents to chemical side RTO)	Benzene	71-43-2	4.30E-04	6.19E-09	1.73E-07	2.18E-08
		Toluene	108-88-3	1.38E-01	1.99E-06	5.54E-05	6.98E-06
185	30-6 VFR Storage Tank; TOL WHT (vents to chemical side RTO)	Hexane	110-54-3	1.07E-04	1.55E-09	4.31E-08	5.43E-09
		Cyclohexane	110-82-7	5.14E-03	7.39E-08	2.06E-06	2.60E-07
190	6004 VFR Storage Tank; VMP HT (vents to chemical side RTO)	Benzene	71-43-2	2.33E-04	3.35E-09	9.35E-08	1.18E-08
		Toluene	108-88-3	2.24E-07	3.23E-12	9.00E-11	1.13E-11
		Hexane	110-54-3	1.68E-01	2.41E-06	6.73E-05	8.48E-06
		Cyclohexane	110-82-7	2.83E-02	4.08E-07	1.14E-05	1.43E-06
210	18-9 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	MEK	78-93-3	1.14E-01	1.64E-06	4.58E-05	5.77E-06
213	18-13 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	MEK	78-93-3	1.23E-01	1.77E-06	4.93E-05	6.21E-06
214	18-16 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	MEK	78-93-3	1.30E-01	1.86E-06	5.20E-05	6.55E-06
215	1134 DEFR Storage Tank - Transmix	Methanol	67-56-1	2.69E-01	3.87E-06	2.72E-04	3.42E-05
		Benzene	71-43-2	1.83E+00	2.63E-05	2.27E-03	2.86E-04
		Naphthalene	91-20-3	1.07E-02	1.54E-07	9.21E-04	1.16E-04
		1,2,4-Trimethylbenzene	95-63-6	1.26E-01	1.81E-06	4.81E-03	6.06E-04
		Cumene	98-82-8	1.63E-02	2.34E-07	3.41E-04	4.29E-05
		Ethyl Benzene	100-41-4	2.16E-01	3.11E-06	2.30E-03	2.90E-04

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Styrene	100-42-5	8.87E-03	1.28E-07	1.35E-04	1.70E-05
		Toluene	108-88-3	2.77E+00	3.99E-05	1.09E-02	1.37E-03
		Hexane	110-54-3	3.23E+00	4.64E-05	2.62E-03	3.31E-04
		Cyclohexane	110-82-7	3.87E-01	5.57E-06	4.67E-04	5.88E-05
		2,2,4-Trimethylpentane	540-84-1	3.72E+00	5.35E-05	8.51E-03	1.07E-03
		Xylene	1330-20-7	1.00E+00	1.44E-05	1.25E-02	1.58E-03
216	572 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.37E+00	4.84E-05	1.42E-03	1.79E-04
		Benzene	71-43-2	2.33E+01	3.36E-04	1.16E-02	1.46E-03
		Naphthalene	91-20-3	6.62E-01	9.52E-06	2.30E-03	2.90E-04
		1,2,4-Trimethylbenzene	95-63-6	5.98E+00	8.60E-05	1.85E-02	2.33E-03
		Cumene	98-82-8	4.39E-01	6.31E-06	1.16E-03	1.47E-04
		Ethyl Benzene	100-41-4	4.62E+00	6.64E-05	9.44E-03	1.19E-03
		Styrene	100-42-5	2.56E-01	3.68E-06	6.09E-04	7.67E-05
		Toluene	108-88-3	4.30E+01	6.18E-04	4.95E-02	6.23E-03
		Hexane	110-54-3	3.92E+01	5.64E-04	1.41E-02	1.78E-03
		Cyclohexane	110-82-7	4.81E+00	6.91E-05	2.33E-03	2.94E-04
		2,2,4-Trimethylpentane	540-84-1	5.19E+01	7.47E-04	4.08E-02	5.14E-03
Xylene	1330-20-7	2.50E+01	3.59E-04	5.48E-02	6.91E-03		
217	573 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.72E+00	5.35E-05	1.49E-03	1.88E-04
		Benzene	71-43-2	2.57E+01	3.69E-04	1.21E-02	1.52E-03
		Naphthalene	91-20-3	5.48E-01	7.88E-06	2.35E-03	2.97E-04
		1,2,4-Trimethylbenzene	95-63-6	5.16E+00	7.43E-05	1.89E-02	2.38E-03
		Cumene	98-82-8	3.96E-01	5.70E-06	1.19E-03	1.50E-04
		Ethyl Benzene	100-41-4	4.42E+00	6.36E-05	9.67E-03	1.22E-03
		Styrene	100-42-5	2.37E-01	3.42E-06	6.23E-04	7.85E-05
		Toluene	108-88-3	4.47E+01	6.43E-04	5.09E-02	6.42E-03
		Hexane	110-54-3	4.36E+01	6.27E-04	1.49E-02	1.88E-03
		Cyclohexane	110-82-7	5.29E+00	7.61E-05	2.44E-03	3.07E-04
		2,2,4-Trimethylpentane	540-84-1	5.57E+01	8.01E-04	4.22E-02	5.32E-03

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
218	727 IFR Storage Tank - Gasoline	Xylene	1330-20-7	2.36E+01	3.39E-04	5.61E-02	7.07E-03
		Methanol	67-56-1	3.69E+00	5.30E-05	1.27E-03	1.61E-04
		Benzene	71-43-2	2.53E+01	3.64E-04	1.02E-02	1.28E-03
		Naphthalene	91-20-3	3.64E-01	5.24E-06	1.87E-03	2.36E-04
		1,2,4-Trimethylbenzene	95-63-6	3.71E+00	5.33E-05	1.50E-02	1.90E-03
		Cumene	98-82-8	3.06E-01	4.40E-06	9.49E-04	1.20E-04
		Ethyl Benzene	100-41-4	3.72E+00	5.35E-05	7.74E-03	9.75E-04
		Styrene	100-42-5	1.91E-01	2.75E-06	4.97E-04	6.26E-05
		Toluene	108-88-3	4.15E+01	5.97E-04	4.13E-02	5.20E-03
		Hexane	110-54-3	4.34E+01	6.25E-04	1.29E-02	1.62E-03
		Cyclohexane	110-82-7	5.21E+00	7.50E-05	2.06E-03	2.59E-04
		2,2,4-Trimethylpentane	540-84-1	5.35E+01	7.70E-04	3.47E-02	4.38E-03
		Xylene	1330-20-7	1.95E+01	2.80E-04	4.49E-02	5.65E-03
219	1515 DEFR Storage Tank - Transmix	Methanol	67-56-1	1.62E-01	2.33E-06	9.36E-05	1.18E-05
		Benzene	71-43-2	1.10E+00	1.58E-05	7.51E-04	9.47E-05
		Naphthalene	91-20-3	1.70E-03	2.44E-08	2.49E-04	3.14E-05
		1,2,4-Trimethylbenzene	95-63-6	5.12E-02	7.37E-07	1.31E-03	1.65E-04
		Cumene	98-82-8	8.11E-03	1.17E-07	9.31E-05	1.17E-05
		Ethyl Benzene	100-41-4	1.19E-01	1.71E-06	6.38E-04	8.03E-05
		Styrene	100-42-5	4.68E-03	6.73E-08	3.71E-05	4.68E-06
		Toluene	108-88-3	1.62E+00	2.34E-05	3.14E-03	3.96E-04
		Hexane	110-54-3	1.94E+00	2.79E-05	9.51E-04	1.20E-04
		Cyclohexane	110-82-7	2.32E-01	3.33E-06	1.55E-04	1.95E-05
				2,2,4-Trimethylpentane	540-84-1	2.21E+00	3.17E-05
		Xylene	1330-20-7	5.43E-01	7.81E-06	3.45E-03	4.35E-04
220	583 IFR Storage Tank - Distillate fuel oil no. 2	Benzene	71-43-2	3.27E-01	4.71E-06	3.84E-05	4.83E-06
		Naphthalene	91-20-3	9.53E-02	1.37E-06	7.97E-04	1.00E-04
		1,2,4-Trimethylbenzene	95-63-6	4.45E-01	6.39E-06	5.16E-04	6.50E-05
		Cumene	98-82-8	1.73E-01	2.48E-06	9.57E-05	1.21E-05

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Ethyl Benzene	100-41-4	5.03E-01	7.23E-06	1.52E-04	1.91E-05
		Toluene	108-88-3	3.50E+00	5.03E-05	5.79E-04	7.30E-05
		Hexane	110-54-3	6.68E-02	9.61E-07	7.33E-06	9.23E-07
		Cyclohexane	110-82-7	4.24E+00	6.10E-05	4.94E-04	6.22E-05
		Xylene	1330-20-7	1.61E+00	2.32E-05	5.52E-04	6.95E-05
221	18-6 VFR Storage Tank; Methyl isobutyl ketone (vents to chemical side RTO)	MIBK	108-10-1	2.44E-02	3.50E-07	9.78E-06	1.23E-06
222	18-33 VFR Storage Tank; Glycol Ether EB (vents to chemical side RTO)	Ethylene Glycol Monobutyl Ether	111-76-2	2.28E-03	3.28E-08	9.17E-07	1.15E-07
223	30-10 VFR Storage Tank; Xylenes (mixed isomers) (vents to chemical side RTO)	Xylene	1330-20-7	4.51E-02	6.48E-07	1.81E-05	2.28E-06
227	30-8 VFR Storage Tank - Distillate fuel oil no. 2	Benzene	71-43-2	3.76E-02	5.41E-07	1.04E-03	1.31E-04
		Naphthalene	91-20-3	1.15E-02	1.65E-07	3.32E-04	4.19E-05
		1,2,4-Trimethylbenzene	95-63-6	5.47E-02	7.87E-07	1.56E-03	1.97E-04
		Cumene	98-82-8	2.10E-02	3.02E-07	5.96E-04	7.50E-05
		Ethyl Benzene	100-41-4	6.03E-02	8.67E-07	1.70E-03	2.14E-04
		Toluene	108-88-3	4.10E-01	5.90E-06	1.14E-02	1.44E-03
		Hexane	110-54-3	7.60E-03	1.09E-07	2.08E-04	2.63E-05
		Cyclohexane	110-82-7	4.85E-01	6.98E-06	1.33E-02	1.68E-03
233	Soil Vapor Extraction Unit Thermal Oxidizer (Uncombusted Vapors)	Benzene	71-43-2	1.74E+00	2.50E-05	3.09E-04	3.90E-05
		Ethyl Benzene	100-41-4	1.47E+00	2.12E-05	2.62E-04	3.30E-05
		Toluene	108-88-3	5.31E+00	7.64E-05	9.45E-04	1.19E-04
		Xylene	1330-20-7	8.61E+00	1.24E-04	1.53E-03	1.93E-04
236	505 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.02E+00	4.35E-05	1.42E-03	1.79E-04
		Benzene	71-43-2	2.05E+01	2.95E-04	1.15E-02	1.45E-03

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Naphthalene	91-20-3	5.84E-02	8.40E-07	2.30E-03	2.90E-04
		1,2,4-Trimethylbenzene	95-63-6	1.14E+00	1.64E-05	1.85E-02	2.33E-03
		Cumene	98-82-8	1.35E-01	1.94E-06	1.16E-03	1.47E-04
		Ethyl Benzene	100-41-4	2.16E+00	3.11E-05	9.43E-03	1.19E-03
		Styrene	100-42-5	9.73E-02	1.40E-06	6.08E-04	7.66E-05
		Toluene	108-88-3	3.03E+01	4.36E-04	4.94E-02	6.22E-03
		Hexane	110-54-3	3.59E+01	5.16E-04	1.41E-02	1.77E-03
		Cyclohexane	110-82-7	4.24E+00	6.10E-05	2.32E-03	2.92E-04
		2,2,4-Trimethylpentane	540-84-1	4.16E+01	5.99E-04	4.07E-02	5.13E-03
		Xylene	1330-20-7	1.07E+01	1.54E-04	5.48E-02	6.91E-03
245	Bioreactor	Chloroform	67-66-3	7.70E-02	1.11E-06	9.03E-06	1.14E-06
		Benzene	71-43-2	3.87E-01	5.56E-06	4.53E-05	5.71E-06
		Chloromethane	74-87-3	6.50E-02	9.34E-07	7.61E-06	9.59E-07
		Vinyl Chloride	75-01-4	7.49E-02	1.08E-06	8.78E-06	1.11E-06
		Bromoform	75-25-2	1.97E-01	2.83E-06	2.31E-05	2.91E-06
		Bromodichloromethane	75-27-4	1.07E-01	1.55E-06	1.26E-05	1.59E-06
		1,1-Dichloroethane	75-34-3	1.45E-01	2.09E-06	1.70E-05	2.14E-06
		Vinylidene Chloride	75-35-4	8.06E-02	1.16E-06	9.45E-06	1.19E-06
		Tert-Butyl Alcohol	75-65-0	2.05E-01	2.96E-06	2.41E-05	3.03E-06
		Dichlorodifluoromethane	75-71-8	1.20E-01	1.72E-06	1.40E-05	1.77E-06
		MEK	78-93-3	1.75E-01	2.52E-06	2.05E-05	2.59E-06
		Trichloroethylene	79-01-6	1.52E+00	2.18E-05	1.78E-04	2.24E-05
		1,2,4-Trimethylbenzene	95-63-6	2.21E-01	3.18E-06	2.59E-05	3.27E-06
		Ethyl Benzene	100-41-4	4.34E-01	6.25E-06	5.09E-05	6.41E-06
		1,2-Dichloroethane	107-06-2	5.52E+00	7.94E-05	6.47E-04	8.16E-05
		Toluene	108-88-3	4.09E-01	5.88E-06	4.79E-05	6.03E-06
		Chlorobenzene	108-90-7	1.40E-01	2.02E-06	1.64E-05	2.07E-06
		Dibromochloromethane	124-48-1	1.42E-01	2.04E-06	1.66E-05	2.09E-06
		Tetrachloroethylene	127-18-4	1.14E+00	1.64E-05	1.34E-04	1.69E-05

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Xylene	1330-20-7	3.85E+00	5.53E-05	4.51E-04	5.68E-05
		Methyl t-Butyl ether (MTBE)	1634-04-4	3.18E-01	4.57E-06	3.73E-05	4.69E-06
247	733 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.86E+00	5.56E-05	1.24E-03	1.56E-04
		Benzene	71-43-2	2.64E+01	3.80E-04	9.88E-03	1.24E-03
		Naphthalene	91-20-3	3.26E-01	4.69E-06	1.75E-03	2.21E-04
		1,2,4-Trimethylbenzene	95-63-6	3.44E+00	4.95E-05	1.41E-02	1.78E-03
		Cumene	98-82-8	2.94E-01	4.22E-06	8.91E-04	1.12E-04
		Ethyl Benzene	100-41-4	3.69E+00	5.31E-05	7.28E-03	9.18E-04
		Styrene	100-42-5	1.86E-01	2.68E-06	4.67E-04	5.89E-05
		Toluene	108-88-3	4.26E+01	6.13E-04	3.92E-02	4.94E-03
		Hexane	110-54-3	4.56E+01	6.56E-04	1.26E-02	1.59E-03
		Cyclohexane	110-82-7	5.45E+00	7.84E-05	1.99E-03	2.51E-04
		2,2,4-Trimethylpentane	540-84-1	4.76E+00	6.85E-05	2.79E-02	3.52E-03
		Xylene	1330-20-7	1.92E+01	2.76E-04	4.22E-02	5.32E-03
260	501 IFR Storage Tank - Denatured Ethanol	Methanol	67-56-1	8.88E-02	1.28E-06	5.94E-05	7.48E-06
		Benzene	71-43-2	6.23E-01	8.97E-06	4.93E-04	6.21E-05
		Naphthalene	91-20-3	2.58E-02	3.72E-07	1.08E-04	1.37E-05
		1,2,4-Trimethylbenzene	95-63-6	2.24E-01	3.22E-06	8.69E-04	1.10E-04
		Cumene	98-82-8	1.56E-02	2.25E-07	5.45E-05	6.87E-06
		Ethyl Benzene	100-41-4	1.53E-01	2.20E-06	4.39E-04	5.53E-05
		Styrene	100-42-5	8.82E-03	1.27E-07	2.84E-05	3.58E-06
		Toluene	108-88-3	1.26E+00	1.82E-05	2.25E-03	2.84E-04
		Hexane	110-54-3	1.03E+00	1.48E-05	5.74E-04	7.23E-05
		Cyclohexane	110-82-7	1.28E-01	1.84E-06	9.90E-05	1.25E-05
		2,2,4-Trimethylpentane	540-84-1	1.45E+00	2.08E-05	1.82E-03	2.29E-04
		Xylene	1330-20-7	8.42E-01	1.21E-05	2.56E-03	3.22E-04
261	502 IFR Storage Tank - Denatured Ethanol	Methanol	67-56-1	9.06E-02	1.30E-06	5.93E-05	7.48E-06
		Benzene	71-43-2	6.39E-01	9.19E-06	4.93E-04	6.21E-05
		Naphthalene	91-20-3	2.96E-02	4.26E-07	1.08E-04	1.37E-05

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		1,2,4-Trimethylbenzene	95-63-6	2.54E-01	3.66E-06	8.69E-04	1.09E-04
		Cumene	98-82-8	1.75E-02	2.52E-07	5.45E-05	6.87E-06
		Ethyl Benzene	100-41-4	1.68E-01	2.42E-06	4.39E-04	5.53E-05
		Styrene	100-42-5	9.81E-03	1.41E-07	2.84E-05	3.58E-06
		Toluene	108-88-3	1.34E+00	1.93E-05	2.25E-03	2.84E-04
		Hexane	110-54-3	1.04E+00	1.50E-05	5.74E-04	7.23E-05
		Cyclohexane	110-82-7	1.31E-01	1.89E-06	9.90E-05	1.25E-05
		2,2,4-Trimethylpentane	540-84-1	1.51E+00	2.17E-05	1.82E-03	2.29E-04
		Xylene	1330-20-7	9.31E-01	1.34E-05	2.56E-03	3.22E-04
262	503 IFR Storage Tank - Transmix	Methanol	67-56-1	1.50E+00	2.16E-05	6.91E-04	8.71E-05
		Benzene	71-43-2	1.02E+01	1.47E-04	5.62E-03	7.08E-04
		Naphthalene	91-20-3	3.36E-02	4.83E-07	1.99E-03	2.51E-04
		1,2,4-Trimethylbenzene	95-63-6	5.65E-01	8.13E-06	1.04E-02	1.31E-03
		Cumene	98-82-8	8.14E-02	1.17E-06	7.40E-04	9.33E-05
		Ethyl Benzene	100-41-4	1.15E+00	1.65E-05	5.05E-03	6.36E-04
		Styrene	100-42-5	4.58E-02	6.59E-07	2.95E-04	3.71E-05
		Toluene	108-88-3	1.52E+01	2.19E-04	2.45E-02	3.09E-03
		Hexane	110-54-3	1.80E+01	2.59E-04	6.93E-03	8.73E-04
		Cyclohexane	110-82-7	2.16E+00	3.10E-05	1.16E-03	1.46E-04
		2,2,4-Trimethylpentane	540-84-1	2.06E+01	2.96E-04	1.98E-02	2.49E-03
		Xylene	1330-20-7	5.25E+00	7.55E-05	2.74E-02	3.45E-03
263	504 IFR Storage Tank - Denatured Ethanol	Methanol	67-56-1	8.92E-02	1.28E-06	5.94E-05	7.48E-06
		Benzene	71-43-2	6.26E-01	9.01E-06	4.93E-04	6.21E-05
		Naphthalene	91-20-3	2.65E-02	3.82E-07	1.08E-04	1.37E-05
		1,2,4-Trimethylbenzene	95-63-6	2.30E-01	3.30E-06	8.70E-04	1.10E-04
		Cumene	98-82-8	1.60E-02	2.30E-07	5.45E-05	6.87E-06
		Ethyl Benzene	100-41-4	1.56E-01	2.24E-06	4.39E-04	5.54E-05
		Styrene	100-42-5	9.00E-03	1.30E-07	2.84E-05	3.58E-06
		Toluene	108-88-3	1.28E+00	1.84E-05	2.25E-03	2.84E-04

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Hexane	110-54-3	1.03E+00	1.48E-05	5.74E-04	7.24E-05
		Cyclohexane	110-82-7	1.29E-01	1.85E-06	9.90E-05	1.25E-05
		2,2,4-Trimethylpentane	540-84-1	1.46E+00	2.10E-05	1.82E-03	2.29E-04
		Xylene	1330-20-7	8.59E-01	1.24E-05	2.56E-03	3.22E-04
264	507A DEFR Storage Tank - Gasoline	Methanol	67-56-1	7.15E-01	1.03E-05	1.03E-03	1.29E-04
		Benzene	71-43-2	4.88E+00	7.03E-05	8.65E-03	1.09E-03
		Naphthalene	91-20-3	5.04E-02	7.25E-07	2.03E-03	2.56E-04
		1,2,4-Trimethylbenzene	95-63-6	5.59E-01	8.04E-06	1.62E-02	2.05E-03
		Cumene	98-82-8	4.95E-02	7.13E-07	1.02E-03	1.28E-04
		Ethyl Benzene	100-41-4	6.47E-01	9.31E-06	8.16E-03	1.03E-03
		Styrene	100-42-5	3.21E-02	4.61E-07	5.30E-04	6.67E-05
		Toluene	108-88-3	7.74E+00	1.11E-04	4.13E-02	5.21E-03
		Hexane	110-54-3	8.45E+00	1.22E-04	9.73E-03	1.23E-03
		Cyclohexane	110-82-7	1.01E+00	1.45E-05	1.73E-03	2.18E-04
		2,2,4-Trimethylpentane	540-84-1	1.02E+01	1.47E-04	3.29E-02	4.14E-03
Xylene	1330-20-7	3.33E+00	4.80E-05	4.76E-02	5.99E-03		
265	508 IFR Storage Tank - Denatured Ethanol	Methanol	67-56-1	8.70E-02	1.25E-06	5.94E-05	7.48E-06
		Benzene	71-43-2	6.07E-01	8.74E-06	4.93E-04	6.21E-05
		Naphthalene	91-20-3	2.18E-02	3.14E-07	1.08E-04	1.37E-05
		1,2,4-Trimethylbenzene	95-63-6	1.92E-01	2.76E-06	8.70E-04	1.10E-04
		Cumene	98-82-8	1.36E-02	1.96E-07	5.45E-05	6.87E-06
		Ethyl Benzene	100-41-4	1.37E-01	1.97E-06	4.39E-04	5.54E-05
		Styrene	100-42-5	7.77E-03	1.12E-07	2.84E-05	3.58E-06
		Toluene	108-88-3	1.18E+00	1.70E-05	2.25E-03	2.84E-04
		Hexane	110-54-3	1.01E+00	1.45E-05	5.74E-04	7.24E-05
		Cyclohexane	110-82-7	1.25E-01	1.80E-06	9.90E-05	1.25E-05
		2,2,4-Trimethylpentane	540-84-1	1.39E+00	1.99E-05	1.82E-03	2.29E-04
Xylene	1330-20-7	7.48E-01	1.08E-05	2.56E-03	3.22E-04		
266	509 DEFR Storage Tank -	Methanol	67-56-1	7.71E-01	1.11E-05	1.03E-03	1.30E-04

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
	Gasoline	Benzene	71-43-2	5.30E+00	7.63E-05	8.68E-03	1.09E-03
		Naphthalene	91-20-3	9.98E-02	1.44E-06	2.03E-03	2.56E-04
		1,2,4-Trimethylbenzene	95-63-6	9.61E-01	1.38E-05	1.63E-02	2.05E-03
		Cumene	98-82-8	7.54E-02	1.08E-06	1.02E-03	1.28E-04
		Ethyl Benzene	100-41-4	8.66E-01	1.25E-05	8.17E-03	1.03E-03
		Styrene	100-42-5	4.58E-02	6.59E-07	5.30E-04	6.68E-05
		Toluene	108-88-3	9.04E+00	1.30E-04	4.14E-02	5.22E-03
		Hexane	110-54-3	9.05E+00	1.30E-04	9.78E-03	1.23E-03
		Cyclohexane	110-82-7	1.09E+00	1.57E-05	1.74E-03	2.19E-04
		2,2,4-Trimethylpentane	540-84-1	1.14E+01	1.64E-04	3.29E-02	4.15E-03
		Xylene	1330-20-7	4.59E+00	6.60E-05	4.76E-02	6.00E-03
267	510 DEFR Storage Tank - Gasoline	Methanol	67-56-1	8.40E-01	1.21E-05	1.04E-03	1.31E-04
		Benzene	71-43-2	5.74E+00	8.26E-05	8.73E-03	1.10E-03
		Naphthalene	91-20-3	6.43E-02	9.25E-07	2.03E-03	2.55E-04
		1,2,4-Trimethylbenzene	95-63-6	6.97E-01	1.00E-05	1.62E-02	2.05E-03
		Cumene	98-82-8	6.07E-02	8.73E-07	1.02E-03	1.28E-04
		Ethyl Benzene	100-41-4	7.79E-01	1.12E-05	8.17E-03	1.03E-03
		Styrene	100-42-5	3.89E-02	5.60E-07	5.30E-04	6.67E-05
		Toluene	108-88-3	9.16E+00	1.32E-04	4.14E-02	5.22E-03
		Hexane	110-54-3	9.91E+00	1.43E-04	9.88E-03	1.25E-03
		Cyclohexane	110-82-7	1.18E+00	1.70E-05	1.75E-03	2.21E-04
		2,2,4-Trimethylpentane	540-84-1	1.20E+01	1.73E-04	3.30E-02	4.16E-03
Xylene	1330-20-7	4.03E+00	5.79E-05	4.76E-02	6.00E-03		
268	512 IFR Storage Tank - Denatured Ethanol	Methanol	67-56-1	8.11E-02	1.17E-06	6.01E-05	7.57E-06
		Benzene	71-43-2	5.65E-01	8.13E-06	4.98E-04	6.27E-05
		Naphthalene	91-20-3	2.02E-02	2.91E-07	1.08E-04	1.37E-05
		1,2,4-Trimethylbenzene	95-63-6	1.78E-01	2.56E-06	8.70E-04	1.10E-04
		Cumene	98-82-8	1.26E-02	1.82E-07	5.46E-05	6.87E-06
		Ethyl Benzene	100-41-4	1.27E-01	1.83E-06	4.40E-04	5.54E-05

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Styrene	100-42-5	7.23E-03	1.04E-07	2.85E-05	3.59E-06
		Toluene	108-88-3	1.10E+00	1.58E-05	2.26E-03	2.85E-04
		Hexane	110-54-3	9.38E-01	1.35E-05	5.82E-04	7.33E-05
		Cyclohexane	110-82-7	1.16E-01	1.67E-06	1.00E-04	1.26E-05
		2,2,4-Trimethylpentane	540-84-1	1.29E+00	1.86E-05	1.83E-03	2.30E-04
		Xylene	1330-20-7	6.96E-01	1.00E-05	2.56E-03	3.23E-04
269	513 IFR Storage Tank - Denatured Ethanol	Methanol	67-56-1	9.26E-02	1.33E-06	5.93E-05	7.48E-06
		Benzene	71-43-2	6.56E-01	9.43E-06	4.93E-04	6.21E-05
		Naphthalene	91-20-3	3.39E-02	4.88E-07	1.08E-04	1.37E-05
		1,2,4-Trimethylbenzene	95-63-6	2.89E-01	4.15E-06	8.69E-04	1.09E-04
		Cumene	98-82-8	1.97E-02	2.83E-07	5.45E-05	6.87E-06
		Ethyl Benzene	100-41-4	1.85E-01	2.66E-06	4.39E-04	5.53E-05
		Styrene	100-42-5	1.09E-02	1.57E-07	2.84E-05	3.58E-06
		Toluene	108-88-3	1.43E+00	2.05E-05	2.25E-03	2.84E-04
		Hexane	110-54-3	1.06E+00	1.53E-05	5.74E-04	7.23E-05
		Cyclohexane	110-82-7	1.35E-01	1.94E-06	9.90E-05	1.25E-05
		2,2,4-Trimethylpentane	540-84-1	1.58E+00	2.27E-05	1.82E-03	2.29E-04
		Xylene	1330-20-7	1.03E+00	1.48E-05	2.56E-03	3.22E-04
270	514 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.07E+00	4.42E-05	1.41E-03	1.78E-04
		Benzene	71-43-2	2.10E+01	3.02E-04	1.15E-02	1.45E-03
		Naphthalene	91-20-3	2.50E-01	3.59E-06	2.30E-03	2.90E-04
		1,2,4-Trimethylbenzene	95-63-6	2.66E+00	3.83E-05	1.85E-02	2.33E-03
		Cumene	98-82-8	2.29E-01	3.29E-06	1.16E-03	1.47E-04
		Ethyl Benzene	100-41-4	2.90E+00	4.17E-05	9.43E-03	1.19E-03
		Styrene	100-42-5	1.46E-01	2.10E-06	6.08E-04	7.66E-05
		Toluene	108-88-3	3.37E+01	4.85E-04	4.93E-02	6.22E-03
		Hexane	110-54-3	3.62E+01	5.21E-04	1.40E-02	1.76E-03
		Cyclohexane	110-82-7	4.33E+00	6.23E-05	2.31E-03	2.92E-04
		2,2,4-Trimethylpentane	540-84-1	4.41E+01	6.34E-04	4.07E-02	5.12E-03

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
271	515 IFR Storage Tank - Gasoline	Xylene	1330-20-7	1.50E+01	2.16E-04	5.48E-02	6.90E-03
		Methanol	67-56-1	2.96E+00	4.25E-05	1.39E-03	1.75E-04
		Benzene	71-43-2	2.03E+01	2.92E-04	1.13E-02	1.43E-03
		Naphthalene	91-20-3	2.99E-01	4.30E-06	2.29E-03	2.88E-04
		1,2,4-Trimethylbenzene	95-63-6	3.03E+00	4.36E-05	1.84E-02	2.31E-03
		Cumene	98-82-8	2.49E-01	3.58E-06	1.15E-03	1.45E-04
		Ethyl Benzene	100-41-4	3.01E+00	4.33E-05	9.35E-03	1.18E-03
		Styrene	100-42-5	1.55E-01	2.23E-06	6.03E-04	7.60E-05
		Toluene	108-88-3	3.34E+01	4.80E-04	4.88E-02	6.15E-03
		Hexane	110-54-3	3.48E+01	5.01E-04	1.37E-02	1.73E-03
		Cyclohexane	110-82-7	4.18E+00	6.01E-05	2.28E-03	2.87E-04
		2,2,4-Trimethylpentane	540-84-1	4.30E+01	6.18E-04	4.02E-02	5.06E-03
		Xylene	1330-20-7	1.58E+01	2.27E-04	5.43E-02	6.85E-03
272	576 DEFR Storage Tank - Jet A	Naphthalene	91-20-3	2.70E-01	3.88E-06	1.98E-03	2.50E-04
		1,2,4-Trimethylbenzene	95-63-6	6.24E-01	8.98E-06	3.97E-03	5.00E-04
		Cumene	98-82-8	8.77E-02	1.26E-06	4.65E-04	5.86E-05
		Ethyl Benzene	100-41-4	3.41E-01	4.91E-06	1.34E-03	1.69E-04
		Toluene	108-88-3	6.68E-01	9.61E-06	1.38E-03	1.73E-04
		Hexane	110-54-3	2.94E-01	4.22E-06	1.64E-04	2.06E-05
		Xylene	1330-20-7	4.87E-01	7.00E-06	2.07E-03	2.61E-04
273	577 IFR Storage Tank - Jet A	Naphthalene	91-20-3	2.00E-01	2.88E-06	2.94E-03	3.71E-04
		1,2,4-Trimethylbenzene	95-63-6	7.06E-01	1.02E-05	5.92E-03	7.46E-04
		Cumene	98-82-8	1.36E-01	1.96E-06	6.97E-04	8.78E-05
		Ethyl Benzene	100-41-4	7.16E-01	1.03E-05	2.03E-03	2.55E-04
		Toluene	108-88-3	1.89E+00	2.73E-05	2.16E-03	2.72E-04
		Hexane	110-54-3	1.01E+00	1.45E-05	3.10E-04	3.90E-05
		Xylene	1330-20-7	9.57E-01	1.38E-05	3.13E-03	3.94E-04
274	586 IFR Storage Tank - Jet A	Naphthalene	91-20-3	2.33E-01	3.34E-06	2.33E-03	2.94E-04
		1,2,4-Trimethylbenzene	95-63-6	7.94E-01	1.14E-05	4.71E-03	5.93E-04

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Cumene	98-82-8	1.50E-01	2.16E-06	5.56E-04	7.00E-05
		Ethyl Benzene	100-41-4	7.84E-01	1.13E-05	1.63E-03	2.05E-04
		Toluene	108-88-3	2.05E+00	2.95E-05	1.77E-03	2.23E-04
		Hexane	110-54-3	1.09E+00	1.57E-05	2.78E-04	3.50E-05
		Xylene	1330-20-7	1.05E+00	1.51E-05	2.50E-03	3.16E-04
275	506 IFR Storage Tank - Gasoline	Methanol	67-56-1	2.60E+00	3.74E-05	1.44E-03	1.82E-04
		Benzene	71-43-2	1.77E+01	2.54E-04	1.17E-02	1.47E-03
		Naphthalene	91-20-3	9.92E-02	1.43E-06	2.30E-03	2.90E-04
		1,2,4-Trimethylbenzene	95-63-6	1.37E+00	1.97E-05	1.85E-02	2.33E-03
		Cumene	98-82-8	1.40E-01	2.01E-06	1.16E-03	1.47E-04
		Ethyl Benzene	100-41-4	2.05E+00	2.95E-05	9.45E-03	1.19E-03
		Styrene	100-42-5	9.61E-02	1.38E-06	6.09E-04	7.67E-05
		Toluene	108-88-3	2.68E+01	3.86E-04	4.97E-02	6.26E-03
		Hexane	110-54-3	3.07E+01	4.42E-04	1.43E-02	1.81E-03
		Cyclohexane	110-82-7	3.64E+00	5.24E-05	2.36E-03	2.97E-04
		2,2,4-Trimethylpentane	540-84-1	3.62E+01	5.21E-04	4.11E-02	5.18E-03
		Xylene	1330-20-7	1.03E+01	1.48E-04	5.49E-02	6.92E-03
276	511 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.09E+00	4.45E-05	1.42E-03	1.79E-04
		Benzene	71-43-2	2.11E+01	3.03E-04	1.16E-02	1.46E-03
		Naphthalene	91-20-3	1.54E-01	2.22E-06	2.31E-03	2.91E-04
		1,2,4-Trimethylbenzene	95-63-6	1.92E+00	2.76E-05	1.85E-02	2.33E-03
		Cumene	98-82-8	1.84E-01	2.64E-06	1.17E-03	1.47E-04
		Ethyl Benzene	100-41-4	2.56E+00	3.69E-05	9.45E-03	1.19E-03
		Styrene	100-42-5	1.23E-01	1.77E-06	6.09E-04	7.67E-05
		Toluene	108-88-3	3.25E+01	4.67E-04	4.95E-02	6.23E-03
		Hexane	110-54-3	3.66E+01	5.27E-04	1.41E-02	1.78E-03
		Cyclohexane	110-82-7	4.35E+00	6.26E-05	2.33E-03	2.93E-04
		Xylene	1330-20-7	1.30E+01	1.87E-04	5.49E-02	6.91E-03
277	562 IFR Storage Tank -	Methanol	67-56-1	3.15E+00	4.53E-05	1.43E-03	1.80E-04

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
	Gasoline	Benzene	71-43-2	2.15E+01	3.09E-04	1.16E-02	1.46E-03
		Naphthalene	91-20-3	1.43E-01	2.05E-06	2.31E-03	2.91E-04
		1,2,4-Trimethylbenzene	95-63-6	1.84E+00	2.64E-05	1.85E-02	2.33E-03
		Cumene	98-82-8	1.80E-01	2.59E-06	1.17E-03	1.47E-04
		Ethyl Benzene	100-41-4	2.56E+00	3.68E-05	9.45E-03	1.19E-03
		Styrene	100-42-5	1.22E-01	1.75E-06	6.09E-04	7.68E-05
		Toluene	108-88-3	3.29E+01	4.73E-04	4.96E-02	6.24E-03
		Hexane	110-54-3	3.73E+01	5.37E-04	1.42E-02	1.79E-03
		Cyclohexane	110-82-7	4.43E+00	6.37E-05	2.34E-03	2.95E-04
		2,2,4-Trimethylpentane	540-84-1	4.42E+01	6.35E-04	4.09E-02	5.16E-03
		Xylene	1330-20-7	1.30E+01	1.86E-04	5.49E-02	6.92E-03
278	563 IFR Storage Tank - Gasoline	Methanol	67-56-1	1.86E+00	2.68E-05	1.48E-03	1.87E-04
		Benzene	71-43-2	1.26E+01	1.81E-04	1.19E-02	1.51E-03
		Naphthalene	91-20-3	2.17E-02	3.12E-07	2.31E-03	2.91E-04
		1,2,4-Trimethylbenzene	95-63-6	5.95E-01	8.56E-06	1.85E-02	2.34E-03
		Cumene	98-82-8	7.66E-02	1.10E-06	1.17E-03	1.47E-04
		Ethyl Benzene	100-41-4	1.29E+00	1.85E-05	9.49E-03	1.20E-03
		Styrene	100-42-5	5.67E-02	8.15E-07	6.11E-04	7.70E-05
		Toluene	108-88-3	1.84E+01	2.65E-04	5.01E-02	6.31E-03
		Hexane	110-54-3	2.20E+01	3.16E-04	1.48E-02	1.86E-03
		Cyclohexane	110-82-7	2.59E+00	3.73E-05	2.41E-03	3.03E-04
		2,2,4-Trimethylpentane	540-84-1	2.54E+01	3.66E-04	4.16E-02	5.24E-03
Xylene	1330-20-7	6.32E+00	9.08E-05	5.51E-02	6.94E-03		
279	567 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.19E+00	4.59E-05	1.44E-03	1.81E-04
		Benzene	71-43-2	2.17E+01	3.12E-04	1.17E-02	1.47E-03
		Naphthalene	91-20-3	8.12E-02	1.17E-06	2.31E-03	2.91E-04
		1,2,4-Trimethylbenzene	95-63-6	1.36E+00	1.96E-05	1.85E-02	2.34E-03
		Cumene	98-82-8	1.52E-01	2.18E-06	1.17E-03	1.47E-04
		Ethyl Benzene	100-41-4	2.36E+00	3.39E-05	9.46E-03	1.19E-03

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Styrene	100-42-5	1.08E-01	1.55E-06	6.10E-04	7.68E-05
		Toluene	108-88-3	3.23E+01	4.65E-04	4.96E-02	6.25E-03
		Hexane	110-54-3	3.79E+01	5.45E-04	1.43E-02	1.80E-03
		Cyclohexane	110-82-7	4.48E+00	6.44E-05	2.35E-03	2.96E-04
		2,2,4-Trimethylpentane	540-84-1	4.42E+01	6.35E-04	4.10E-02	5.17E-03
		Xylene	1330-20-7	1.17E+01	1.69E-04	5.49E-02	6.92E-03
280	570 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.22E+00	4.63E-05	1.44E-03	1.81E-04
		Benzene	71-43-2	2.19E+01	3.15E-04	1.17E-02	1.47E-03
		Naphthalene	91-20-3	1.38E-01	1.98E-06	2.31E-03	2.91E-04
		1,2,4-Trimethylbenzene	95-63-6	1.81E+00	2.60E-05	1.86E-02	2.34E-03
		Cumene	98-82-8	1.80E-01	2.59E-06	1.17E-03	1.47E-04
		Ethyl Benzene	100-41-4	2.58E+00	3.71E-05	9.47E-03	1.19E-03
		Styrene	100-42-5	1.22E-01	1.76E-06	6.11E-04	7.69E-05
		Toluene	108-88-3	3.34E+01	4.81E-04	4.97E-02	6.26E-03
		Hexane	110-54-3	3.81E+01	5.48E-04	1.43E-02	1.80E-03
		Cyclohexane	110-82-7	4.52E+00	6.51E-05	2.35E-03	2.96E-04
		2,2,4-Trimethylpentane	540-84-1	4.50E+01	6.48E-04	4.11E-02	5.18E-03
Xylene	1330-20-7	1.31E+01	1.88E-04	5.50E-02	6.93E-03		
282	725 IFR Storage Tank - Gasoline	Methanol	67-56-1	3.82E+00	5.50E-05	1.28E-03	1.62E-04
		Benzene	71-43-2	2.62E+01	3.77E-04	1.03E-02	1.29E-03
		Naphthalene	91-20-3	4.17E-01	6.00E-06	1.87E-03	2.35E-04
		1,2,4-Trimethylbenzene	95-63-6	4.15E+00	5.97E-05	1.50E-02	1.89E-03
		Cumene	98-82-8	3.36E-01	4.84E-06	9.47E-04	1.19E-04
		Ethyl Benzene	100-41-4	4.01E+00	5.76E-05	7.73E-03	9.74E-04
		Styrene	100-42-5	2.08E-01	2.99E-06	4.96E-04	6.25E-05
		Toluene	108-88-3	4.36E+01	6.28E-04	4.13E-02	5.21E-03
		Hexane	110-54-3	4.50E+01	6.47E-04	1.30E-02	1.64E-03
		Cyclohexane	110-82-7	5.41E+00	7.78E-05	2.07E-03	2.61E-04
		2,2,4-Trimethylpentane	540-84-1	5.59E+01	8.03E-04	3.49E-02	4.39E-03

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
283	726 IFR Storage Tank - Gasoline	Xylene	1330-20-7	2.11E+01	3.03E-04	4.48E-02	5.65E-03
		Methanol	67-56-1	3.89E+00	5.60E-05	1.29E-03	1.62E-04
		Benzene	71-43-2	2.68E+01	3.86E-04	1.03E-02	1.29E-03
		Naphthalene	91-20-3	5.60E-01	8.05E-06	1.87E-03	2.35E-04
		1,2,4-Trimethylbenzene	95-63-6	5.30E+00	7.62E-05	1.50E-02	1.89E-03
		Cumene	98-82-8	4.08E-01	5.86E-06	9.49E-04	1.20E-04
		Ethyl Benzene	100-41-4	4.58E+00	6.58E-05	7.74E-03	9.75E-04
		Styrene	100-42-5	2.45E-01	3.52E-06	4.97E-04	6.26E-05
		Toluene	108-88-3	4.65E+01	6.69E-04	4.14E-02	5.22E-03
		Hexane	110-54-3	4.56E+01	6.56E-04	1.30E-02	1.64E-03
		Cyclohexane	110-82-7	5.52E+00	7.95E-05	2.07E-03	2.61E-04
		2,2,4-Trimethylpentane	540-84-1	5.81E+01	8.36E-04	3.49E-02	4.40E-03
		Xylene	1330-20-7	2.44E+01	3.51E-04	4.49E-02	5.66E-03
284	2549 VFR Storage Tank - Contact Water	Benzene	71-43-2	5.86E-04	8.43E-09	6.06E-05	7.64E-06
		Naphthalene	91-20-3	1.11E-07	1.59E-12	1.24E-08	1.57E-09
		1,2,4-Trimethylbenzene	95-63-6	2.22E-06	3.19E-11	2.44E-07	3.07E-08
		Cumene	98-82-8	2.57E-05	3.69E-10	2.79E-06	3.51E-07
		Ethyl Benzene	100-41-4	2.28E-05	3.28E-10	2.44E-06	3.07E-07
		Toluene	108-88-3	4.06E-04	5.84E-09	4.27E-05	5.39E-06
		Hexane	110-54-3	3.80E-05	5.46E-10	3.90E-06	4.91E-07
		Xylene	1330-20-7	9.50E-05	1.37E-09	1.02E-05	1.29E-06
285	2550 VFR Storage Tank - Contact Water	Benzene	71-43-2	5.74E-04	8.26E-09	3.89E-05	4.90E-06
		Naphthalene	91-20-3	1.08E-07	1.56E-12	7.97E-09	1.00E-09
		1,2,4-Trimethylbenzene	95-63-6	2.17E-06	3.12E-11	1.56E-07	1.97E-08
		Cumene	98-82-8	2.52E-05	3.62E-10	1.79E-06	2.25E-07
		Ethyl Benzene	100-41-4	2.23E-05	3.21E-10	1.56E-06	1.97E-07
		Toluene	108-88-3	3.98E-04	5.73E-09	2.74E-05	3.45E-06
		Hexane	110-54-3	3.72E-05	5.35E-10	2.50E-06	3.15E-07
		Xylene	1330-20-7	9.31E-05	1.34E-09	6.54E-06	8.24E-07

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
287	Misc unmetered equipm (NG)	PAH	1151	1.49E-05	2.15E-10	4.06E-08	5.12E-09
		Formaldehyde	50-00-0	2.54E-03	3.65E-08	6.90E-06	8.70E-07
		Benzene	71-43-2	1.20E-03	1.72E-08	3.25E-06	4.09E-07
		Acetaldehyde	75-07-0	6.42E-04	9.24E-09	1.75E-06	2.20E-07
		Naphthalene	91-20-3	4.48E-05	6.45E-10	1.22E-07	1.54E-08
		Ethyl Benzene	100-41-4	1.42E-03	2.04E-08	3.86E-06	4.86E-07
		Acrolein	107-02-8	4.03E-04	5.80E-09	1.10E-06	1.38E-07
		Toluene	108-88-3	5.47E-03	7.86E-08	1.49E-05	1.87E-06
		Hexane	110-54-3	9.41E-04	1.35E-08	2.56E-06	3.22E-07
		Xylene	1330-20-7	4.06E-03	5.85E-08	1.10E-05	1.39E-06
	Ammonia	7664-41-7	4.78E-01	6.88E-06	1.30E-03	1.64E-04	
291	Contractor WW Treatment - MI Water and Tk 1134 (uncombusted vapors)	Benzene	71-43-2	9.19E-01	1.32E-05	1.73E-03	2.17E-04
		Naphthalene	91-20-3	9.29E-02	1.34E-06	1.75E-04	2.20E-05
		2-Methylnaphthalene	91-57-6	1.42E-02	2.05E-07	2.68E-05	3.37E-06
		o-Cresol	95-48-7	4.23E-02	6.08E-07	7.95E-05	1.00E-05
		Ethyl Benzene	100-41-4	3.63E-01	5.22E-06	6.83E-04	8.60E-05
		Toluene	108-88-3	3.26E+00	4.69E-05	6.13E-03	7.73E-04
		Phenol	108-95-2	7.81E-03	1.12E-07	1.47E-05	1.85E-06
		Xylene	1330-20-7	2.24E+00	3.22E-05	4.21E-03	5.30E-04
	Methyl t-Butyl ether (MTBE)	1634-04-4	4.17E+00	6.00E-05	7.84E-03	9.87E-04	
293	Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	PAH	1151	3.84E-05	5.52E-10	2.03E-07	2.56E-08
		Formaldehyde	50-00-0	6.53E-03	9.39E-08	3.45E-05	4.35E-06
		Benzene	71-43-2	3.07E-03	4.42E-08	1.62E-05	2.05E-06
		Acetaldehyde	75-07-0	1.65E-03	2.38E-08	8.72E-06	1.10E-06
		Naphthalene	91-20-3	1.15E-04	1.66E-09	6.09E-07	7.67E-08
		Ethyl Benzene	100-41-4	3.65E-03	5.25E-08	1.93E-05	2.43E-06
		Acrolein	107-02-8	1.04E-03	1.49E-08	5.48E-06	6.90E-07
		Toluene	108-88-3	1.41E-02	2.02E-07	7.43E-05	9.36E-06
	Hexane	110-54-3	2.42E-03	3.48E-08	1.28E-05	1.61E-06	

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Xylene	1330-20-7	1.04E-02	1.50E-07	5.52E-05	6.95E-06
		Ammonia	7664-41-7	1.23E+00	1.77E-05	6.49E-03	8.18E-04
296	Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	PAH	1151	3.70E-05	5.32E-10	4.04E-07	5.09E-08
		Formaldehyde	50-00-0	4.04E-03	5.80E-08	4.41E-05	5.55E-06
		Benzene	71-43-2	1.89E-03	2.72E-08	2.06E-05	2.60E-06
		Acetaldehyde	75-07-0	1.04E-03	1.49E-08	1.13E-05	1.43E-06
		Naphthalene	91-20-3	1.11E-04	1.60E-09	1.21E-06	1.53E-07
		Ethyl Benzene	100-41-4	2.26E-03	3.25E-08	2.47E-05	3.11E-06
		Acrolein	107-02-8	8.88E-04	1.28E-08	9.70E-06	1.22E-06
		Toluene	108-88-3	8.70E-03	1.25E-07	9.50E-05	1.20E-05
		Hexane	110-54-3	1.52E-03	2.18E-08	1.66E-05	2.09E-06
		Xylene	1330-20-7	6.48E-03	9.32E-08	7.07E-05	8.91E-06
Ammonia	7664-41-7	1.11E+00	1.60E-05	1.21E-02	1.53E-03		
297	WW Treatment Sep-Nov - GEM ThermOx F89304 (NG combustion)	PAH	1151	4.38E-05	6.30E-10	8.23E-08	1.04E-08
		Formaldehyde	50-00-0	7.44E-03	1.07E-07	1.40E-05	1.76E-06
		Benzene	71-43-2	3.50E-03	5.04E-08	6.58E-06	8.29E-07
		Acetaldehyde	75-07-0	1.88E-03	2.71E-08	3.54E-06	4.46E-07
		Naphthalene	91-20-3	1.31E-04	1.89E-09	2.47E-07	3.11E-08
		Ethyl Benzene	100-41-4	4.16E-03	5.98E-08	7.82E-06	9.85E-07
		Acrolein	107-02-8	1.18E-03	1.70E-08	2.22E-06	2.80E-07
		Toluene	108-88-3	1.60E-02	2.30E-07	3.01E-05	3.79E-06
		Hexane	110-54-3	2.76E-03	3.97E-08	5.18E-06	6.53E-07
		Xylene	1330-20-7	1.19E-02	1.71E-07	2.24E-05	2.82E-06
Ammonia	7664-41-7	1.40E+00	2.02E-05	2.63E-03	3.32E-04		
117A	588 VFR Storage Tank; Distillate fuel oil no. 2	Benzene	71-43-2	3.37E-01	4.84E-06	1.86E-02	2.35E-03
		Naphthalene	91-20-3	9.21E-02	1.32E-06	5.09E-03	6.42E-04
		1,2,4-Trimethylbenzene	95-63-6	4.52E-01	6.50E-06	2.50E-02	3.15E-03
		Cumene	98-82-8	1.76E-01	2.54E-06	9.76E-03	1.23E-03
		Ethyl Benzene	100-41-4	5.15E-01	7.41E-06	2.85E-02	3.59E-03

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Toluene	108-88-3	3.59E+00	5.17E-05	1.99E-01	2.50E-02
		Hexane	110-54-3	6.87E-02	9.89E-07	3.80E-03	4.79E-04
		Cyclohexane	110-82-7	4.36E+00	6.27E-05	2.41E-01	3.04E-02
		Xylene	1330-20-7	1.65E+00	2.37E-05	9.13E-02	1.15E-02
117B	588 VFR Storage Tank; Renewable diesel	Benzene	71-43-2	2.40E+00	3.46E-05	2.42E-02	3.06E-03
		Naphthalene	91-20-3	7.17E-01	1.03E-05	7.77E-03	9.79E-04
		1,2,4-Trimethylbenzene	95-63-6	3.44E+00	4.94E-05	3.65E-02	4.60E-03
		Cumene	98-82-8	1.32E+00	1.90E-05	1.39E-02	1.75E-03
		Ethyl Benzene	100-41-4	3.81E+00	5.48E-05	3.96E-02	4.99E-03
		Toluene	108-88-3	2.61E+01	3.75E-04	2.67E-01	3.37E-02
		Hexane	110-54-3	4.87E-01	7.00E-06	4.87E-03	6.14E-04
		Cyclohexane	110-82-7	3.10E+01	4.46E-04	3.12E-01	3.93E-02
22A	Ethanol Rack VCU (Uncombusted Truck Vapors)	Methanol	67-56-1	3.52E-01	5.07E-06	1.05E-04	1.32E-05
		Benzene	71-43-2	2.39E+00	3.43E-05	7.10E-04	8.95E-05
		Naphthalene	91-20-3	1.41E-03	2.03E-08	4.19E-07	5.28E-08
		1,2,4-Trimethylbenzene	95-63-6	9.03E-02	1.30E-06	2.69E-05	3.38E-06
		Cumene	98-82-8	1.31E-02	1.88E-07	3.89E-06	4.90E-07
		Ethyl Benzene	100-41-4	2.32E-01	3.34E-06	6.90E-05	8.70E-06
		Styrene	100-42-5	1.00E-02	1.44E-07	2.97E-06	3.75E-07
		Toluene	108-88-3	3.45E+00	4.96E-05	1.03E-03	1.29E-04
		Hexane	110-54-3	4.19E+00	6.03E-05	1.25E-03	1.57E-04
		Cyclohexane	110-82-7	4.93E-01	7.10E-06	1.47E-04	1.85E-05
		2,2,4-Trimethylpentane	540-84-1	4.80E+00	6.91E-05	1.43E-03	1.80E-04
		Xylene	1330-20-7	1.13E+00	1.62E-05	3.36E-04	4.23E-05
22B	Ethanol Load Rack (truck fugitives)	Methanol	67-56-1	1.42E+01	2.04E-04	1.92E-03	2.42E-04
		Benzene	71-43-2	9.63E+01	1.38E-03	1.30E-02	1.64E-03
		Naphthalene	91-20-3	5.68E-02	8.17E-07	7.70E-06	9.70E-07
		1,2,4-Trimethylbenzene	95-63-6	3.64E+00	5.24E-05	4.93E-04	6.21E-05

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Cumene	98-82-8	5.27E-01	7.58E-06	7.14E-05	9.00E-06
		Ethyl Benzene	100-41-4	9.36E+00	1.35E-04	1.27E-03	1.60E-04
		Styrene	100-42-5	4.03E-01	5.80E-06	5.46E-05	6.88E-06
		Toluene	108-88-3	1.39E+02	2.00E-03	1.88E-02	2.37E-03
		Hexane	110-54-3	1.69E+02	2.43E-03	2.29E-02	2.88E-03
		Cyclohexane	110-82-7	1.99E+01	2.86E-04	2.69E-03	3.39E-04
		2,2,4-Trimethylpentane	540-84-1	1.94E+02	2.79E-03	2.62E-02	3.30E-03
		Xylene	1330-20-7	4.55E+01	6.55E-04	6.17E-03	7.77E-04
286A	Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	Methanol	67-56-1	8.98E-03	1.29E-07	7.64E-04	9.63E-05
		Benzene	71-43-2	6.09E-02	8.76E-07	5.18E-03	6.53E-04
		Naphthalene	91-20-3	3.59E-05	5.17E-10	3.06E-06	3.85E-07
		1,2,4-Trimethylbenzene	95-63-6	2.30E-03	3.31E-08	1.96E-04	2.47E-05
		Cumene	98-82-8	3.33E-04	4.79E-09	2.84E-05	3.57E-06
		Ethyl Benzene	100-41-4	5.92E-03	8.51E-08	5.03E-04	6.34E-05
		Styrene	100-42-5	2.55E-04	3.67E-09	2.17E-05	2.73E-06
		Toluene	108-88-3	8.79E-02	1.26E-06	7.48E-03	9.43E-04
		Hexane	110-54-3	1.07E-01	1.54E-06	9.10E-03	1.15E-03
		Cyclohexane	110-82-7	1.26E-02	1.81E-07	1.07E-03	1.35E-04
		2,2,4-Trimethylpentane	540-84-1	1.22E-01	1.76E-06	1.04E-02	1.31E-03
		Xylene	1330-20-7	2.88E-02	4.14E-07	2.45E-03	3.09E-04
286B	Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	Methanol	67-56-1	4.50E-03	6.48E-08	2.88E-04	3.63E-05
		Benzene	71-43-2	3.05E-02	4.39E-07	1.95E-03	2.46E-04
		Naphthalene	91-20-3	1.80E-05	2.59E-10	1.15E-06	1.45E-07
		1,2,4-Trimethylbenzene	95-63-6	1.15E-03	1.66E-08	7.39E-05	9.31E-06
		Cumene	98-82-8	1.67E-04	2.40E-09	1.07E-05	1.35E-06
		Ethyl Benzene	100-41-4	2.97E-03	4.27E-08	1.90E-04	2.39E-05
		Styrene	100-42-5	1.28E-04	1.84E-09	8.18E-06	1.03E-06
		Toluene	108-88-3	4.41E-02	6.34E-07	2.82E-03	3.55E-04
		Hexane	110-54-3	5.36E-02	7.71E-07	3.43E-03	4.32E-04

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Cyclohexane	110-82-7	6.31E-03	9.07E-08	4.04E-04	5.08E-05
		2,2,4-Trimethylpentane	540-84-1	6.14E-02	8.83E-07	3.93E-03	4.95E-04
		Xylene	1330-20-7	1.44E-02	2.08E-07	9.24E-04	1.16E-04
286C	Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	Methanol	67-56-1	4.50E-03	6.48E-08	4.87E-04	6.14E-05
		Benzene	71-43-2	3.05E-02	4.39E-07	3.30E-03	4.16E-04
		Naphthalene	91-20-3	1.80E-05	2.59E-10	1.95E-06	2.45E-07
		1,2,4-Trimethylbenzene	95-63-6	1.15E-03	1.66E-08	1.25E-04	1.57E-05
		Cumene	98-82-8	1.67E-04	2.40E-09	1.81E-05	2.28E-06
		Ethyl Benzene	100-41-4	2.97E-03	4.27E-08	3.21E-04	4.04E-05
		Styrene	100-42-5	1.28E-04	1.84E-09	1.38E-05	1.74E-06
		Toluene	108-88-3	4.41E-02	6.34E-07	4.77E-03	6.01E-04
		Hexane	110-54-3	5.36E-02	7.71E-07	5.79E-03	7.30E-04
		Cyclohexane	110-82-7	6.31E-03	9.07E-08	6.82E-04	8.59E-05
		2,2,4-Trimethylpentane	540-84-1	6.14E-02	8.83E-07	6.64E-03	8.36E-04
Xylene	1330-20-7	1.44E-02	2.08E-07	1.56E-03	1.97E-04		
286D	Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	Methanol	67-56-1	8.61E-04	1.24E-08	4.55E-06	5.73E-07
		Benzene	71-43-2	5.84E-03	8.39E-08	3.08E-05	3.88E-06
		Naphthalene	91-20-3	6.14E-06	8.83E-11	3.24E-08	4.09E-09
		1,2,4-Trimethylbenzene	95-63-6	2.56E-04	3.69E-09	1.35E-06	1.71E-07
		Cumene	98-82-8	4.19E-05	6.03E-10	2.22E-07	2.79E-08
		Ethyl Benzene	100-41-4	6.26E-04	9.00E-09	3.31E-06	4.17E-07
		Styrene	100-42-5	2.44E-05	3.51E-10	1.29E-07	1.63E-08
		Toluene	108-88-3	8.61E-03	1.24E-07	4.55E-05	5.73E-06
		Hexane	110-54-3	1.03E-02	1.49E-07	5.46E-05	6.88E-06
		Cyclohexane	110-82-7	1.23E-03	1.78E-08	6.52E-06	8.22E-07
		2,2,4-Trimethylpentane	540-84-1	1.17E-02	1.69E-07	6.20E-05	7.81E-06
Xylene	1330-20-7	2.84E-03	4.09E-08	1.50E-05	1.89E-06		
286E	Tk 566 degas Feb 6; Envent Thermal Oxidizer	Methanol	67-56-1	2.50E-04	3.59E-09	3.71E-05	4.68E-06
		Benzene	71-43-2	1.69E-03	2.43E-08	2.51E-04	3.17E-05

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
G7052		Naphthalene	91-20-3	9.99E-07	1.44E-11	1.48E-07	1.87E-08
		1,2,4-Trimethylbenzene	95-63-6	6.40E-05	9.21E-10	9.51E-06	1.20E-06
		Cumene	98-82-8	9.27E-06	1.33E-10	1.38E-06	1.74E-07
		Ethyl Benzene	100-41-4	1.64E-04	2.37E-09	2.44E-05	3.08E-06
		Styrene	100-42-5	7.09E-06	1.02E-10	1.05E-06	1.33E-07
		Toluene	108-88-3	2.44E-03	3.52E-08	3.63E-04	4.58E-05
		Hexane	110-54-3	2.97E-03	4.27E-08	4.42E-04	5.56E-05
		Cyclohexane	110-82-7	3.50E-04	5.03E-09	5.20E-05	6.55E-06
		2,2,4-Trimethylpentane	540-84-1	3.40E-03	4.90E-08	5.06E-04	6.37E-05
		Xylene	1330-20-7	8.01E-04	1.15E-08	1.19E-04	1.50E-05
286F	Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	Methanol	67-56-1	2.74E-04	3.94E-09	4.24E-05	5.35E-06
		Benzene	71-43-2	1.85E-03	2.67E-08	2.88E-04	3.62E-05
		Naphthalene	91-20-3	1.09E-06	1.57E-11	1.70E-07	2.14E-08
		1,2,4-Trimethylbenzene	95-63-6	7.02E-05	1.01E-09	1.09E-05	1.37E-06
		Cumene	98-82-8	1.02E-05	1.46E-10	1.57E-06	1.98E-07
		Ethyl Benzene	100-41-4	1.80E-04	2.59E-09	2.79E-05	3.52E-06
		Styrene	100-42-5	7.77E-06	1.12E-10	1.20E-06	1.52E-07
		Toluene	108-88-3	2.68E-03	3.85E-08	4.15E-04	5.23E-05
		Hexane	110-54-3	3.26E-03	4.68E-08	5.05E-04	6.36E-05
		Cyclohexane	110-82-7	3.83E-04	5.51E-09	5.94E-05	7.49E-06
		2,2,4-Trimethylpentane	540-84-1	3.73E-03	5.37E-08	5.78E-04	7.29E-05
Xylene	1330-20-7	8.78E-04	1.26E-08	1.36E-04	1.71E-05		
286G	Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	Methanol	67-56-1	4.51E-03	6.49E-08	1.50E-03	1.89E-04
		Benzene	71-43-2	3.06E-02	4.40E-07	1.02E-02	1.28E-03
		Naphthalene	91-20-3	1.80E-05	2.59E-10	6.01E-06	7.58E-07
		1,2,4-Trimethylbenzene	95-63-6	1.16E-03	1.66E-08	3.85E-04	4.86E-05
		Cumene	98-82-8	1.67E-04	2.41E-09	5.58E-05	7.03E-06
		Ethyl Benzene	100-41-4	2.97E-03	4.27E-08	9.90E-04	1.25E-04
		Styrene	100-42-5	1.28E-04	1.84E-09	4.27E-05	5.38E-06

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Toluene	108-88-3	4.41E-02	6.35E-07	1.47E-02	1.85E-03
		Hexane	110-54-3	5.37E-02	7.72E-07	1.79E-02	2.25E-03
		Cyclohexane	110-82-7	6.32E-03	9.08E-08	2.11E-03	2.65E-04
		2,2,4-Trimethylpentane	540-84-1	6.15E-02	8.84E-07	2.05E-02	2.58E-03
		Xylene	1330-20-7	1.45E-02	2.08E-07	4.82E-03	6.07E-04
286H	Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	Methanol	67-56-1	6.78E-03	9.76E-08	6.75E-04	8.50E-05
		Benzene	71-43-2	4.60E-02	6.61E-07	4.57E-03	5.76E-04
		Naphthalene	91-20-3	2.71E-05	3.90E-10	2.70E-06	3.40E-07
		1,2,4-Trimethylbenzene	95-63-6	1.74E-03	2.50E-08	1.73E-04	2.18E-05
		Cumene	98-82-8	2.52E-04	3.62E-09	2.50E-05	3.16E-06
		Ethyl Benzene	100-41-4	4.47E-03	6.43E-08	4.45E-04	5.60E-05
		Styrene	100-42-5	1.93E-04	2.77E-09	1.92E-05	2.41E-06
		Toluene	108-88-3	6.64E-02	9.55E-07	6.61E-03	8.32E-04
		Hexane	110-54-3	8.07E-02	1.16E-06	8.03E-03	1.01E-03
		Cyclohexane	110-82-7	9.50E-03	1.37E-07	9.45E-04	1.19E-04
		2,2,4-Trimethylpentane	540-84-1	9.25E-02	1.33E-06	9.20E-03	1.16E-03
Xylene	1330-20-7	2.18E-02	3.13E-07	2.16E-03	2.73E-04		
286I	Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	Methanol	67-56-1	6.77E-03	9.73E-08	1.18E-03	1.48E-04
		Benzene	71-43-2	4.59E-02	6.60E-07	7.98E-03	1.01E-03
		Naphthalene	91-20-3	2.71E-05	3.89E-10	4.71E-06	5.93E-07
		1,2,4-Trimethylbenzene	95-63-6	1.74E-03	2.50E-08	3.02E-04	3.80E-05
		Cumene	98-82-8	2.51E-04	3.61E-09	4.37E-05	5.50E-06
		Ethyl Benzene	100-41-4	4.46E-03	6.41E-08	7.75E-04	9.77E-05
		Styrene	100-42-5	1.92E-04	2.76E-09	3.34E-05	4.21E-06
		Toluene	108-88-3	6.62E-02	9.53E-07	1.15E-02	1.45E-03
		Hexane	110-54-3	8.05E-02	1.16E-06	1.40E-02	1.76E-03
		Cyclohexane	110-82-7	9.48E-03	1.36E-07	1.65E-03	2.08E-04
		2,2,4-Trimethylpentane	540-84-1	9.23E-02	1.33E-06	1.60E-02	2.02E-03
Xylene	1330-20-7	2.17E-02	3.12E-07	3.77E-03	4.76E-04		

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
286J	Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	Methanol	67-56-1	4.50E-03	6.48E-08	9.64E-04	1.22E-04
		Benzene	71-43-2	3.05E-02	4.39E-07	6.54E-03	8.24E-04
		Naphthalene	91-20-3	1.80E-05	2.59E-10	3.86E-06	4.86E-07
		1,2,4-Trimethylbenzene	95-63-6	1.15E-03	1.66E-08	2.47E-04	3.12E-05
		Cumene	98-82-8	1.67E-04	2.40E-09	3.58E-05	4.51E-06
		Ethyl Benzene	100-41-4	2.97E-03	4.27E-08	6.35E-04	8.00E-05
		Styrene	100-42-5	1.28E-04	1.84E-09	2.74E-05	3.45E-06
		Toluene	108-88-3	4.41E-02	6.34E-07	9.44E-03	1.19E-03
		Hexane	110-54-3	5.36E-02	7.71E-07	1.15E-02	1.45E-03
		Cyclohexane	110-82-7	6.31E-03	9.07E-08	1.35E-03	1.70E-04
		2,2,4-Trimethylpentane	540-84-1	6.14E-02	8.83E-07	1.31E-02	1.66E-03
Xylene	1330-20-7	1.44E-02	2.08E-07	3.09E-03	3.90E-04		
286K	Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	Methanol	67-56-1	4.50E-03	6.48E-08	1.10E-03	1.39E-04
		Benzene	71-43-2	3.05E-02	4.39E-07	7.48E-03	9.43E-04
		Naphthalene	91-20-3	1.80E-05	2.59E-10	4.42E-06	5.56E-07
		1,2,4-Trimethylbenzene	95-63-6	1.15E-03	1.66E-08	2.83E-04	3.57E-05
		Cumene	98-82-8	1.67E-04	2.40E-09	4.10E-05	5.16E-06
		Ethyl Benzene	100-41-4	2.97E-03	4.27E-08	7.27E-04	9.16E-05
		Styrene	100-42-5	1.28E-04	1.84E-09	3.13E-05	3.95E-06
		Toluene	108-88-3	4.41E-02	6.34E-07	1.08E-02	1.36E-03
		Hexane	110-54-3	5.36E-02	7.71E-07	1.31E-02	1.66E-03
		Cyclohexane	110-82-7	6.31E-03	9.07E-08	1.55E-03	1.95E-04
		2,2,4-Trimethylpentane	540-84-1	6.14E-02	8.83E-07	1.50E-02	1.90E-03
Xylene	1330-20-7	1.44E-02	2.08E-07	3.54E-03	4.46E-04		
286L	Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	Methanol	67-56-1	6.80E-03	9.78E-08	5.85E-04	7.37E-05
		Benzene	71-43-2	4.61E-02	6.63E-07	3.96E-03	4.99E-04
		Naphthalene	91-20-3	2.72E-05	3.91E-10	2.34E-06	2.95E-07
		1,2,4-Trimethylbenzene	95-63-6	1.74E-03	2.51E-08	1.50E-04	1.89E-05
		Cumene	98-82-8	2.52E-04	3.63E-09	2.17E-05	2.73E-06

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Ethyl Benzene	100-41-4	4.48E-03	6.44E-08	3.85E-04	4.85E-05
		Styrene	100-42-5	1.93E-04	2.78E-09	1.66E-05	2.09E-06
		Toluene	108-88-3	6.66E-02	9.57E-07	5.72E-03	7.21E-04
		Hexane	110-54-3	8.09E-02	1.16E-06	6.96E-03	8.77E-04
		Cyclohexane	110-82-7	9.52E-03	1.37E-07	8.19E-04	1.03E-04
		2,2,4-Trimethylpentane	540-84-1	9.27E-02	1.33E-06	7.97E-03	1.00E-03
		Xylene	1330-20-7	2.18E-02	3.14E-07	1.87E-03	2.36E-04
286M	Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	Methanol	67-56-1	4.49E-03	6.46E-08	1.17E-03	1.48E-04
		Benzene	71-43-2	3.04E-02	4.38E-07	7.95E-03	1.00E-03
		Naphthalene	91-20-3	1.80E-05	2.58E-10	4.69E-06	5.91E-07
		1,2,4-Trimethylbenzene	95-63-6	1.15E-03	1.66E-08	3.01E-04	3.79E-05
		Cumene	98-82-8	1.67E-04	2.40E-09	4.35E-05	5.48E-06
		Ethyl Benzene	100-41-4	2.96E-03	4.25E-08	7.72E-04	9.73E-05
		Styrene	100-42-5	1.27E-04	1.83E-09	3.33E-05	4.19E-06
		Toluene	108-88-3	4.40E-02	6.32E-07	1.15E-02	1.45E-03
		Hexane	110-54-3	5.34E-02	7.69E-07	1.40E-02	1.76E-03
		Cyclohexane	110-82-7	6.29E-03	9.05E-08	1.64E-03	2.07E-04
		2,2,4-Trimethylpentane	540-84-1	6.12E-02	8.81E-07	1.60E-02	2.01E-03
Xylene	1330-20-7	1.44E-02	2.07E-07	3.76E-03	4.74E-04		
286N	Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	Methanol	67-56-1	4.48E-03	6.44E-08	4.48E-04	5.64E-05
		Benzene	71-43-2	3.04E-02	4.37E-07	3.04E-03	3.82E-04
		Naphthalene	91-20-3	1.79E-05	2.58E-10	1.79E-06	2.26E-07
		1,2,4-Trimethylbenzene	95-63-6	1.15E-03	1.65E-08	1.15E-04	1.45E-05
		Cumene	98-82-8	1.66E-04	2.39E-09	1.66E-05	2.09E-06
		Ethyl Benzene	100-41-4	2.95E-03	4.24E-08	2.95E-04	3.72E-05
		Styrene	100-42-5	1.27E-04	1.83E-09	1.27E-05	1.60E-06
		Toluene	108-88-3	4.38E-02	6.30E-07	4.38E-03	5.52E-04
		Hexane	110-54-3	5.33E-02	7.67E-07	5.33E-03	6.71E-04
Cyclohexane	110-82-7	6.27E-03	9.02E-08	6.27E-04	7.90E-05		

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		2,2,4-Trimethylpentane	540-84-1	6.11E-02	8.78E-07	6.11E-03	7.69E-04
		Xylene	1330-20-7	1.44E-02	2.07E-07	1.44E-03	1.81E-04
286O	Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	Methanol	67-56-1	6.79E-03	9.77E-08	4.69E-04	5.91E-05
		Benzene	71-43-2	4.60E-02	6.62E-07	3.18E-03	4.01E-04
		Naphthalene	91-20-3	2.72E-05	3.91E-10	1.88E-06	2.37E-07
		1,2,4-Trimethylbenzene	95-63-6	1.74E-03	2.50E-08	1.20E-04	1.52E-05
		Cumene	98-82-8	2.52E-04	3.63E-09	1.74E-05	2.19E-06
		Ethyl Benzene	100-41-4	4.47E-03	6.43E-08	3.09E-04	3.90E-05
		Styrene	100-42-5	1.93E-04	2.77E-09	1.33E-05	1.68E-06
		Toluene	108-88-3	6.65E-02	9.56E-07	4.59E-03	5.79E-04
		Hexane	110-54-3	8.08E-02	1.16E-06	5.59E-03	7.04E-04
		Cyclohexane	110-82-7	9.51E-03	1.37E-07	6.57E-04	8.28E-05
		2,2,4-Trimethylpentane	540-84-1	9.26E-02	1.33E-06	6.40E-03	8.06E-04
		Xylene	1330-20-7	2.18E-02	3.13E-07	1.50E-03	1.90E-04
286P	Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	Methanol	67-56-1	7.46E-05	1.07E-09	8.14E-07	1.03E-07
		Benzene	71-43-2	5.05E-04	7.27E-09	5.52E-06	6.95E-07
		Naphthalene	91-20-3	2.98E-07	4.29E-12	3.26E-09	4.10E-10
		1,2,4-Trimethylbenzene	95-63-6	1.91E-05	2.75E-10	2.09E-07	2.63E-08
		Cumene	98-82-8	2.77E-06	3.98E-11	3.02E-08	3.81E-09
		Ethyl Benzene	100-41-4	4.91E-05	7.07E-10	5.36E-07	6.76E-08
		Styrene	100-42-5	2.12E-06	3.04E-11	2.31E-08	2.91E-09
		Toluene	108-88-3	7.30E-04	1.05E-08	7.97E-06	1.00E-06
		Hexane	110-54-3	8.87E-04	1.28E-08	9.69E-06	1.22E-06
		Cyclohexane	110-82-7	1.04E-04	1.50E-09	1.14E-06	1.44E-07
		2,2,4-Trimethylpentane	540-84-1	1.02E-03	1.46E-08	1.11E-05	1.40E-06
		Xylene	1330-20-7	2.39E-04	3.44E-09	2.61E-06	3.29E-07
288_1A to 288_1E	Fugitives - Tank farm and ethanol rack	Methanol	67-56-1	3.80E+00	5.47E-05	4.34E-04	5.47E-05
		Benzene	71-43-2	3.26E+01	4.69E-04	3.72E-03	4.69E-04
		Naphthalene	91-20-3	1.24E+01	1.78E-04	1.41E-03	1.78E-04

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		1,2,4-Trimethylbenzene	95-63-6	7.27E+01	1.05E-03	8.30E-03	1.05E-03
		Cumene	98-82-8	4.97E+00	7.15E-05	5.68E-04	7.15E-05
		Ethyl Benzene	100-41-4	3.51E+01	5.04E-04	4.00E-03	5.04E-04
		Styrene	100-42-5	2.12E+00	3.05E-05	2.42E-04	3.05E-05
		Toluene	108-88-3	1.65E+02	2.38E-03	1.89E-02	2.38E-03
		Hexane	110-54-3	3.55E+01	5.11E-04	4.06E-03	5.11E-04
		Cyclohexane	110-82-7	6.58E+00	9.46E-05	7.51E-04	9.46E-05
		2,2,4-Trimethylpentane	540-84-1	1.28E+02	1.84E-03	1.46E-02	1.84E-03
		Xylene	1330-20-7	1.94E+02	2.79E-03	2.22E-02	2.79E-03
		Methyl t-Butyl ether (MTBE)	1634-04-4	4.66E-04	6.70E-09	5.32E-08	6.70E-09
288_2A to 288_2B	Fugitives - Chemical load rack and tank farm	Methanol	67-56-1	9.60E+01	1.38E-03	1.10E-02	1.38E-03
		IPA	67-63-0	1.71E+02	2.47E-03	1.96E-02	2.47E-03
		Dimethyl Formamide	68-12-2	4.11E-01	5.91E-06	4.69E-05	5.91E-06
		n-Butanol	71-36-3	1.55E+00	2.22E-05	1.76E-04	2.22E-05
		Benzene	71-43-2	1.23E-01	1.76E-06	1.40E-05	1.76E-06
		Sec-butyl alcohol	78-92-2	7.98E-01	1.15E-05	9.11E-05	1.15E-05
		MEK	78-93-3	2.66E+02	3.83E-03	3.04E-02	3.83E-03
		Naphthalene	91-20-3	7.33E+00	1.05E-04	8.37E-04	1.05E-04
		1,2,4-Trimethylbenzene	95-63-6	9.39E+01	1.35E-03	1.07E-02	1.35E-03
		Cumene	98-82-8	1.46E+01	2.10E-04	1.67E-03	2.10E-04
		Ethyl Benzene	100-41-4	9.23E-02	1.33E-06	1.05E-05	1.33E-06
		Propylene glycol monomethyl ether	107-98-2	8.57E+01	1.23E-03	9.78E-03	1.23E-03
		MIBK	108-10-1	8.82E+01	1.27E-03	1.01E-02	1.27E-03
		Propylene glycol monomethyl ether	108-65-6	8.57E+01	1.23E-03	9.78E-03	1.23E-03
		Toluene	108-88-3	9.60E+01	1.38E-03	1.10E-02	1.38E-03
		Hexane	110-54-3	8.80E+01	1.27E-03	1.00E-02	1.27E-03
		Cyclohexane	110-82-7	1.34E+00	1.93E-05	1.53E-04	1.93E-05
		Ethylene Glycol Monobutyl Ether	111-76-2	9.15E+01	1.32E-03	1.04E-02	1.32E-03
Diethylene Glycol Monobutyl Ether	112-34-5	8.57E+01	1.23E-03	9.78E-03	1.23E-03		

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
292A	Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	Xylene	1330-20-7	1.02E+02	1.47E-03	1.16E-02	1.47E-03
		PAH	1151	3.58E-06	5.15E-11	3.05E-07	3.84E-08
		Formaldehyde	50-00-0	5.41E-04	7.78E-09	4.60E-05	5.80E-06
		Benzene	71-43-2	2.54E-04	3.66E-09	2.16E-05	2.73E-06
		Acetaldehyde	75-07-0	1.36E-04	1.96E-09	1.16E-05	1.46E-06
		Naphthalene	91-20-3	1.07E-05	1.54E-10	9.14E-07	1.15E-07
		Ethyl Benzene	100-41-4	3.01E-04	4.33E-09	2.56E-05	3.22E-06
		Acrolein	107-02-8	8.59E-05	1.24E-09	7.31E-06	9.21E-07
		Toluene	108-88-3	1.16E-03	1.67E-08	9.90E-05	1.25E-05
		Hexane	110-54-3	2.00E-04	2.88E-09	1.71E-05	2.15E-06
		Xylene	1330-20-7	8.63E-04	1.24E-08	7.34E-05	9.25E-06
Ammonia	7664-41-7	1.07E-01	1.54E-06	9.14E-03	1.15E-03		
292B	Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	PAH	1151	3.72E-06	5.35E-11	2.38E-07	3.00E-08
		Formaldehyde	50-00-0	5.62E-04	8.08E-09	3.59E-05	4.53E-06
		Benzene	71-43-2	2.64E-04	3.80E-09	1.69E-05	2.13E-06
		Acetaldehyde	75-07-0	1.41E-04	2.03E-09	9.04E-06	1.14E-06
		Naphthalene	91-20-3	1.12E-05	1.61E-10	7.14E-07	9.00E-08
		Ethyl Benzene	100-41-4	3.12E-04	4.49E-09	2.00E-05	2.52E-06
		Acrolein	107-02-8	8.93E-05	1.28E-09	5.71E-06	7.20E-07
		Toluene	108-88-3	1.21E-03	1.74E-08	7.74E-05	9.75E-06
		Hexane	110-54-3	2.08E-04	3.00E-09	1.33E-05	1.68E-06
		Xylene	1330-20-7	8.97E-04	1.29E-08	5.74E-05	7.23E-06
		Ammonia	7664-41-7	1.12E-01	1.61E-06	7.14E-03	9.00E-04
292C	Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	PAH	1151	2.70E-06	3.88E-11	2.92E-07	3.68E-08
		Formaldehyde	50-00-0	4.08E-04	5.86E-09	4.41E-05	5.55E-06
		Benzene	71-43-2	1.92E-04	2.76E-09	2.07E-05	2.61E-06
		Acetaldehyde	75-07-0	1.03E-04	1.48E-09	1.11E-05	1.40E-06
		Naphthalene	91-20-3	8.10E-06	1.17E-10	8.76E-07	1.10E-07
		Ethyl Benzene	100-41-4	2.27E-04	3.26E-09	2.45E-05	3.09E-06

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Acrolein	107-02-8	6.48E-05	9.32E-10	7.01E-06	8.83E-07
		Toluene	108-88-3	8.78E-04	1.26E-08	9.49E-05	1.20E-05
		Hexane	110-54-3	1.51E-04	2.17E-09	1.63E-05	2.06E-06
		Xylene	1330-20-7	6.51E-04	9.36E-09	7.03E-05	8.86E-06
		Ammonia	7664-41-7	8.10E-02	1.17E-06	8.76E-03	1.10E-03
294A	Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	PAH	1151	3.62E-06	5.21E-11	5.38E-07	6.78E-08
		Formaldehyde	50-00-0	3.95E-04	5.68E-09	5.86E-05	7.39E-06
		Benzene	71-43-2	1.85E-04	2.66E-09	2.74E-05	3.46E-06
		Acetaldehyde	75-07-0	1.01E-04	1.46E-09	1.51E-05	1.90E-06
		Naphthalene	91-20-3	1.09E-05	1.56E-10	1.61E-06	2.03E-07
		Ethyl Benzene	100-41-4	2.21E-04	3.18E-09	3.28E-05	4.13E-06
		Acrolein	107-02-8	8.69E-05	1.25E-09	1.29E-05	1.63E-06
		Toluene	108-88-3	8.51E-04	1.22E-08	1.26E-04	1.59E-05
		Hexane	110-54-3	1.48E-04	2.13E-09	2.21E-05	2.78E-06
		Xylene	1330-20-7	6.34E-04	9.11E-09	9.41E-05	1.19E-05
		Ammonia	7664-41-7	1.09E-01	1.56E-06	1.61E-02	2.03E-03
294B	Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	PAH	1151	2.64E-06	3.80E-11	4.09E-07	5.16E-08
		Formaldehyde	50-00-0	2.88E-04	4.14E-09	4.46E-05	5.62E-06
		Benzene	71-43-2	1.35E-04	1.94E-09	2.09E-05	2.63E-06
		Acetaldehyde	75-07-0	7.39E-05	1.06E-09	1.15E-05	1.44E-06
		Naphthalene	91-20-3	7.92E-06	1.14E-10	1.23E-06	1.55E-07
		Ethyl Benzene	100-41-4	1.61E-04	2.32E-09	2.50E-05	3.15E-06
		Acrolein	107-02-8	6.34E-05	9.11E-10	9.82E-06	1.24E-06
		Toluene	108-88-3	6.20E-04	8.92E-09	9.62E-05	1.21E-05
		Hexane	110-54-3	1.08E-04	1.56E-09	1.68E-05	2.11E-06
		Xylene	1330-20-7	4.62E-04	6.65E-09	7.16E-05	9.03E-06
		Ammonia	7664-41-7	7.92E-02	1.14E-06	1.23E-02	1.55E-03
295A	Tk 573 degas Feb 3; Envent Thermal Oxidizer	PAH	1151	2.13E-06	3.06E-11	7.10E-07	8.95E-08
		Formaldehyde	50-00-0	2.32E-04	3.34E-09	7.74E-05	9.75E-06

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
	G7052	Benzene	71-43-2	1.09E-04	1.56E-09	3.62E-05	4.56E-06
		Acetaldehyde	75-07-0	5.96E-05	8.58E-10	1.99E-05	2.50E-06
		Naphthalene	91-20-3	6.39E-06	9.19E-11	2.13E-06	2.68E-07
		Ethyl Benzene	100-41-4	1.30E-04	1.87E-09	4.33E-05	5.46E-06
		Acrolein	107-02-8	5.11E-05	7.35E-10	1.70E-05	2.15E-06
		Toluene	108-88-3	5.01E-04	7.20E-09	1.67E-04	2.10E-05
		Hexane	110-54-3	8.73E-05	1.26E-09	2.91E-05	3.67E-06
		Xylene	1330-20-7	3.73E-04	5.36E-09	1.24E-04	1.57E-05
		Ammonia	7664-41-7	6.39E-02	9.19E-07	2.13E-02	2.68E-03
295B	Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	PAH	1151	6.15E-06	8.85E-11	6.12E-07	7.71E-08
		Formaldehyde	50-00-0	6.70E-04	9.64E-09	6.67E-05	8.40E-06
		Benzene	71-43-2	3.14E-04	4.51E-09	3.12E-05	3.93E-06
		Acetaldehyde	75-07-0	1.72E-04	2.48E-09	1.71E-05	2.16E-06
		Naphthalene	91-20-3	1.85E-05	2.65E-10	1.84E-06	2.31E-07
		Ethyl Benzene	100-41-4	3.75E-04	5.40E-09	3.73E-05	4.70E-06
		Acrolein	107-02-8	1.48E-04	2.12E-09	1.47E-05	1.85E-06
		Toluene	108-88-3	1.45E-03	2.08E-08	1.44E-04	1.81E-05
		Hexane	110-54-3	2.52E-04	3.63E-09	2.51E-05	3.16E-06
		Xylene	1330-20-7	1.08E-03	1.55E-08	1.07E-04	1.35E-05
295C	Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	PAH	1151	3.40E-06	4.89E-11	5.91E-07	7.45E-08
		Formaldehyde	50-00-0	3.71E-04	5.33E-09	6.45E-05	8.12E-06
		Benzene	71-43-2	1.73E-04	2.49E-09	3.02E-05	3.80E-06
		Acetaldehyde	75-07-0	9.52E-05	1.37E-09	1.66E-05	2.09E-06
		Naphthalene	91-20-3	1.02E-05	1.47E-10	1.77E-06	2.24E-07
		Ethyl Benzene	100-41-4	2.07E-04	2.98E-09	3.61E-05	4.54E-06
		Acrolein	107-02-8	8.16E-05	1.17E-09	1.42E-05	1.79E-06
		Toluene	108-88-3	7.99E-04	1.15E-08	1.39E-04	1.75E-05
		Hexane	110-54-3	1.39E-04	2.01E-09	2.42E-05	3.05E-06

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Xylene	1330-20-7	5.95E-04	8.56E-09	1.03E-04	1.30E-05
		Ammonia	7664-41-7	1.02E-01	1.47E-06	1.77E-02	2.24E-03
295D	Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	PAH	1151	4.70E-06	6.76E-11	1.01E-06	1.27E-07
		Formaldehyde	50-00-0	5.12E-04	7.37E-09	1.10E-04	1.38E-05
		Benzene	71-43-2	2.40E-04	3.45E-09	5.13E-05	6.47E-06
		Acetaldehyde	75-07-0	1.32E-04	1.89E-09	2.82E-05	3.55E-06
		Naphthalene	91-20-3	1.41E-05	2.03E-10	3.02E-06	3.80E-07
		Ethyl Benzene	100-41-4	2.87E-04	4.12E-09	6.14E-05	7.74E-06
		Acrolein	107-02-8	1.13E-04	1.62E-09	2.42E-05	3.04E-06
		Toluene	108-88-3	1.10E-03	1.59E-08	2.37E-04	2.98E-05
		Hexane	110-54-3	1.93E-04	2.77E-09	4.13E-05	5.20E-06
		Xylene	1330-20-7	8.23E-04	1.18E-08	1.76E-04	2.22E-05
Ammonia	7664-41-7	1.41E-01	2.03E-06	3.02E-02	3.80E-03		
295E	Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	PAH	1151	1.80E-06	2.59E-11	4.41E-07	5.56E-08
		Formaldehyde	50-00-0	1.96E-04	2.82E-09	4.81E-05	6.06E-06
		Benzene	71-43-2	9.18E-05	1.32E-09	2.25E-05	2.84E-06
		Acetaldehyde	75-07-0	5.04E-05	7.25E-10	1.24E-05	1.56E-06
		Naphthalene	91-20-3	5.40E-06	7.77E-11	1.32E-06	1.67E-07
		Ethyl Benzene	100-41-4	1.10E-04	1.58E-09	2.69E-05	3.39E-06
		Acrolein	107-02-8	4.32E-05	6.21E-10	1.06E-05	1.33E-06
		Toluene	108-88-3	4.23E-04	6.08E-09	1.04E-04	1.31E-05
		Hexane	110-54-3	7.38E-05	1.06E-09	1.81E-05	2.28E-06
		Xylene	1330-20-7	3.15E-04	4.53E-09	7.72E-05	9.73E-06
Ammonia	7664-41-7	5.40E-02	7.77E-07	1.32E-02	1.67E-03		
295F	Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	PAH	1151	5.64E-06	8.11E-11	4.85E-07	6.11E-08
		Formaldehyde	50-00-0	6.15E-04	8.84E-09	5.29E-05	6.66E-06
		Benzene	71-43-2	2.88E-04	4.14E-09	2.47E-05	3.12E-06
		Acetaldehyde	75-07-0	1.58E-04	2.27E-09	1.36E-05	1.71E-06
		Naphthalene	91-20-3	1.69E-05	2.43E-10	1.45E-06	1.83E-07

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Ethyl Benzene	100-41-4	3.44E-04	4.95E-09	2.96E-05	3.73E-06
		Acrolein	107-02-8	1.35E-04	1.95E-09	1.16E-05	1.47E-06
		Toluene	108-88-3	1.33E-03	1.91E-08	1.14E-04	1.44E-05
		Hexane	110-54-3	2.31E-04	3.33E-09	1.99E-05	2.51E-06
		Xylene	1330-20-7	9.87E-04	1.42E-08	8.49E-05	1.07E-05
		Ammonia	7664-41-7	1.69E-01	2.43E-06	1.45E-02	1.83E-03
295G	Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	PAH	1151	1.41E-06	2.03E-11	3.68E-07	4.64E-08
		Formaldehyde	50-00-0	1.54E-04	2.21E-09	4.01E-05	5.06E-06
		Benzene	71-43-2	7.19E-05	1.03E-09	1.88E-05	2.37E-06
		Acetaldehyde	75-07-0	3.95E-05	5.68E-10	1.03E-05	1.30E-06
		Naphthalene	91-20-3	4.23E-06	6.08E-11	1.10E-06	1.39E-07
		Ethyl Benzene	100-41-4	8.60E-05	1.24E-09	2.25E-05	2.83E-06
		Acrolein	107-02-8	3.38E-05	4.87E-10	8.84E-06	1.11E-06
		Toluene	108-88-3	3.31E-04	4.77E-09	8.65E-05	1.09E-05
		Hexane	110-54-3	5.78E-05	8.32E-10	1.51E-05	1.90E-06
		Xylene	1330-20-7	2.47E-04	3.55E-09	6.44E-05	8.12E-06
		Ammonia	7664-41-7	4.23E-02	6.08E-07	1.10E-02	1.39E-03
295H	Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	PAH	1151	5.53E-06	7.95E-11	5.53E-07	6.97E-08
		Formaldehyde	50-00-0	6.03E-04	8.67E-09	6.03E-05	7.59E-06
		Benzene	71-43-2	2.82E-04	4.06E-09	2.82E-05	3.55E-06
		Acetaldehyde	75-07-0	1.55E-04	2.23E-09	1.55E-05	1.95E-06
		Naphthalene	91-20-3	1.66E-05	2.39E-10	1.66E-06	2.09E-07
		Ethyl Benzene	100-41-4	3.37E-04	4.85E-09	3.37E-05	4.25E-06
		Acrolein	107-02-8	1.33E-04	1.91E-09	1.33E-05	1.67E-06
		Toluene	108-88-3	1.30E-03	1.87E-08	1.30E-04	1.64E-05
		Hexane	110-54-3	2.27E-04	3.26E-09	2.27E-05	2.86E-06
		Xylene	1330-20-7	9.68E-04	1.39E-08	9.68E-05	1.22E-05
		Ammonia	7664-41-7	1.66E-01	2.39E-06	1.66E-02	2.09E-03
295I	Tk 729 degas Feb 13;	PAH	1151	4.74E-06	6.82E-11	3.28E-07	4.13E-08

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
	Event Thermal Oxidizer G7052	Formaldehyde	50-00-0	5.17E-04	7.43E-09	3.57E-05	4.50E-06
		Benzene	71-43-2	2.42E-04	3.48E-09	1.67E-05	2.10E-06
		Acetaldehyde	75-07-0	1.33E-04	1.91E-09	9.17E-06	1.16E-06
		Naphthalene	91-20-3	1.42E-05	2.05E-10	9.83E-07	1.24E-07
		Ethyl Benzene	100-41-4	2.89E-04	4.16E-09	2.00E-05	2.52E-06
		Acrolein	107-02-8	1.14E-04	1.64E-09	7.86E-06	9.91E-07
		Toluene	108-88-3	1.11E-03	1.60E-08	7.70E-05	9.70E-06
		Hexane	110-54-3	1.94E-04	2.80E-09	1.34E-05	1.69E-06
		Xylene	1330-20-7	8.30E-04	1.19E-08	5.73E-05	7.22E-06
		Ammonia	7664-41-7	1.42E-01	2.05E-06	9.83E-03	1.24E-03
298_1A to 298_1D	Portable diesel ICEs - Fuels tank farm	Diesel Exhaust Particulate	9901	1.45E+02	2.08E-03	3.98E-01	5.02E-02
298_2A to 298_2B	Portable diesel ICEs - Chemical load rack and tank farm	Diesel Exhaust Particulate	9901	5.81E+01	8.36E-04	2.68E-01	3.37E-02
298_4	RM Electric diesel generators	Diesel Exhaust Particulate	9901	8.83E+00	1.27E-04	2.08E-02	2.62E-03
298_5	WCES diesel ICEs	Diesel Exhaust Particulate	9901	7.27E+00	1.05E-04	6.63E-02	8.35E-03
299_1A to 299_1D	Portable gasoline ICEs - Fuels tank farm	Formaldehyde	50-00-0	4.93E-01	7.09E-06	1.23E-02	1.56E-03
		Methanol	67-56-1	1.11E-01	1.59E-06	2.77E-03	3.49E-04
		Benzene	71-43-2	5.44E-01	7.82E-06	1.36E-02	1.72E-03
		Acetaldehyde	75-07-0	1.19E-01	1.70E-06	2.97E-03	3.74E-04
		MEK	78-93-3	9.48E-03	1.36E-07	2.37E-04	2.99E-05
		Naphthalene	91-20-3	2.05E-02	2.95E-07	5.14E-04	6.48E-05
		1,2,4-Trimethylbenzene	95-63-6	1.99E-01	2.86E-06	4.99E-03	6.28E-04
		Ethyl Benzene	100-41-4	2.37E-01	3.41E-06	5.94E-03	7.48E-04
		Styrene	100-42-5	2.05E-02	2.95E-07	5.14E-04	6.48E-05
1,3-Butadiene	106-99-0	1.31E-01	1.89E-06	3.28E-03	4.14E-04		

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Acrolein	107-02-8	2.84E-02	4.09E-07	7.12E-04	8.98E-05
		Toluene	108-88-3	1.07E+00	1.54E-05	2.69E-02	3.39E-03
		Hexane	110-54-3	2.07E-01	2.98E-06	5.18E-03	6.53E-04
		Xylene	1330-20-7	9.48E-01	1.36E-05	2.37E-02	2.99E-03
		Methyl t-Butyl ether (MTBE)	1634-04-4	2.94E-01	4.23E-06	7.36E-03	9.27E-04
		Manganese & Compounds	7439-96-5	4.71E-04	6.78E-09	1.18E-05	1.49E-06
		Nickel & Compounds	7440-02-0	4.71E-04	6.78E-09	1.18E-05	1.49E-06
		Copper & Compounds	7440-50-8	4.71E-04	6.78E-09	1.18E-05	1.49E-06
		Chlorine	7782-50-5	6.50E-02	9.35E-07	1.63E-03	2.05E-04
299_2A to 299_2B	Portable gasoline ICEs - Chemical load rack and tank farm	Formaldehyde	50-00-0	1.25E-01	1.80E-06	4.14E-03	5.21E-04
		Methanol	67-56-1	2.80E-02	4.03E-07	9.28E-04	1.17E-04
		Benzene	71-43-2	1.38E-01	1.98E-06	4.56E-03	5.75E-04
		Acetaldehyde	75-07-0	3.00E-02	4.32E-07	9.95E-04	1.25E-04
		MEK	78-93-3	2.40E-03	3.46E-08	7.96E-05	1.00E-05
		Naphthalene	91-20-3	5.20E-03	7.48E-08	1.72E-04	2.17E-05
		1,2,4-Trimethylbenzene	95-63-6	5.04E-02	7.25E-07	1.67E-03	2.11E-04
		Ethyl Benzene	100-41-4	6.00E-02	8.64E-07	1.99E-03	2.51E-04
		Styrene	100-42-5	5.20E-03	7.48E-08	1.72E-04	2.17E-05
		1,3-Butadiene	106-99-0	3.32E-02	4.78E-07	1.10E-03	1.39E-04
		Acrolein	107-02-8	7.21E-03	1.04E-07	2.39E-04	3.01E-05
		Toluene	108-88-3	2.72E-01	3.91E-06	9.00E-03	1.13E-03
		Hexane	110-54-3	5.24E-02	7.54E-07	1.74E-03	2.19E-04
		Xylene	1330-20-7	2.40E-01	3.45E-06	7.96E-03	1.00E-03
		Methyl t-Butyl ether (MTBE)	1634-04-4	7.45E-02	1.07E-06	2.47E-03	3.11E-04
		Manganese & Compounds	7439-96-5	1.19E-04	1.72E-09	3.96E-06	4.98E-07
		Nickel & Compounds	7440-02-0	1.19E-04	1.72E-09	3.96E-06	4.98E-07
Copper & Compounds	7440-50-8	1.19E-04	1.72E-09	3.96E-06	4.98E-07		
Chlorine	7782-50-5	1.65E-02	2.37E-07	5.45E-04	6.87E-05		
299_3	AECOM Generator - SVES	Formaldehyde	50-00-0	3.88E-03	5.59E-08	1.41E-03	1.78E-04

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

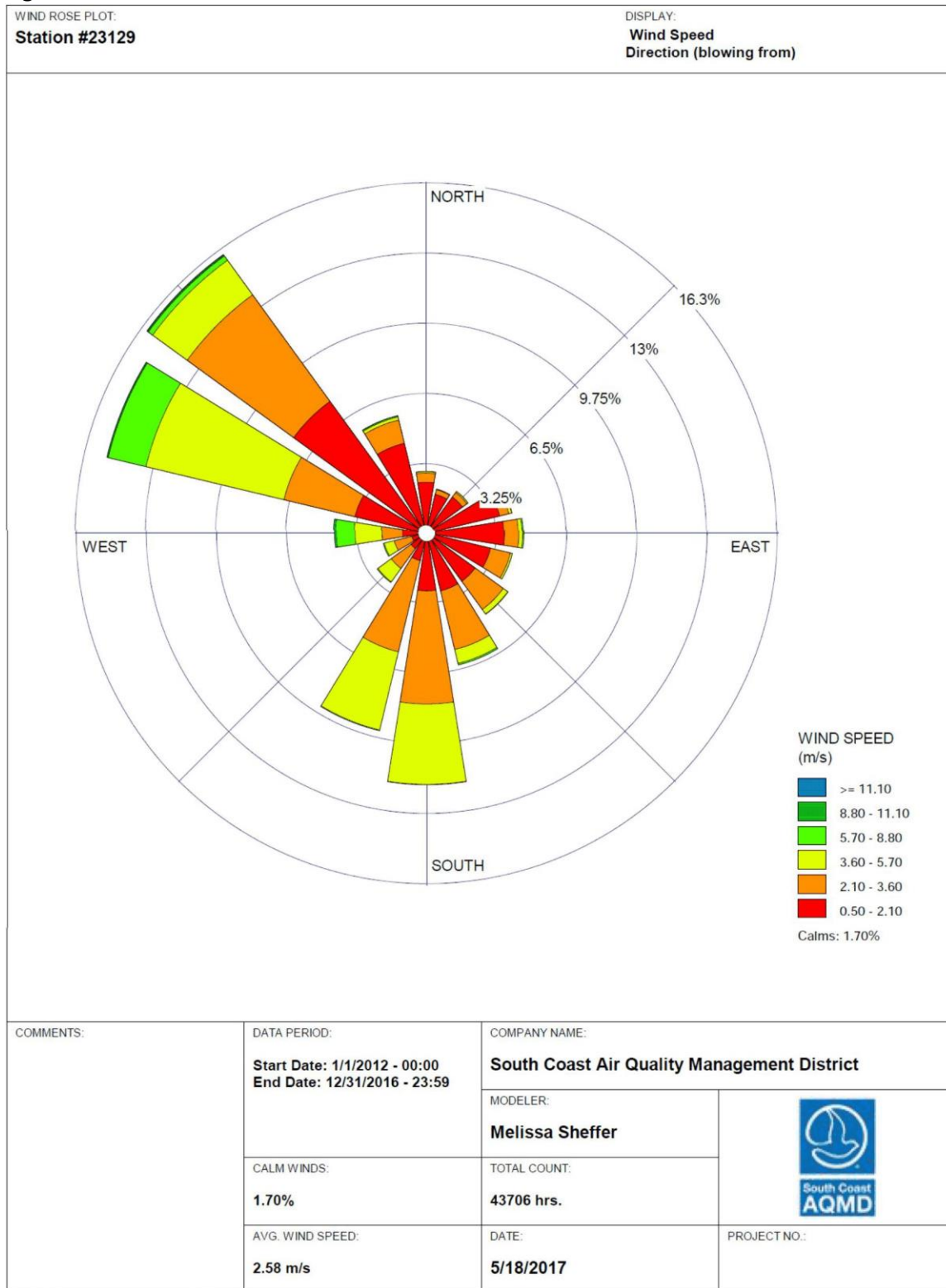
Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
					area	Methanol	67-56-1
		Benzene	71-43-2	4.28E-03	6.16E-08	1.56E-03	1.96E-04
		Acetaldehyde	75-07-0	9.34E-04	1.34E-08	3.39E-04	4.28E-05
		MEK	78-93-3	7.47E-05	1.07E-09	2.72E-05	3.42E-06
		Naphthalene	91-20-3	1.62E-04	2.33E-09	5.88E-05	7.41E-06
		1,2,4-Trimethylbenzene	95-63-6	1.57E-03	2.26E-08	5.70E-04	7.19E-05
		Ethyl Benzene	100-41-4	1.87E-03	2.69E-08	6.79E-04	8.55E-05
		Styrene	100-42-5	1.62E-04	2.33E-09	5.88E-05	7.41E-06
		1,3-Butadiene	106-99-0	1.03E-03	1.49E-08	3.76E-04	4.73E-05
		Acrolein	107-02-8	2.24E-04	3.22E-09	8.15E-05	1.03E-05
		Toluene	108-88-3	8.45E-03	1.22E-07	3.07E-03	3.87E-04
		Hexane	110-54-3	1.63E-03	2.35E-08	5.93E-04	7.47E-05
		Xylene	1330-20-7	7.47E-03	1.07E-07	2.72E-03	3.42E-04
		Methyl t-Butyl ether (MTBE)	1634-04-4	2.32E-03	3.33E-08	8.42E-04	1.06E-04
		Manganese & Compounds	7439-96-5	3.71E-06	5.34E-11	1.35E-06	1.70E-07
		Nickel & Compounds	7440-02-0	3.71E-06	5.34E-11	1.35E-06	1.70E-07
		Copper & Compounds	7440-50-8	3.71E-06	5.34E-11	1.35E-06	1.70E-07
		Chlorine	7782-50-5	5.12E-04	7.36E-09	1.86E-04	2.35E-05
299_5	WCES gasoline ICEs	Formaldehyde	50-00-0	1.20E-01	1.72E-06	3.00E-03	3.78E-04
		Methanol	67-56-1	2.69E-02	3.87E-07	6.74E-04	8.49E-05
		Benzene	71-43-2	1.32E-01	1.90E-06	3.31E-03	4.17E-04
		Acetaldehyde	75-07-0	2.88E-02	4.14E-07	7.22E-04	9.10E-05
		MEK	78-93-3	2.31E-03	3.32E-08	5.78E-05	7.28E-06
		Naphthalene	91-20-3	4.99E-03	7.18E-08	1.25E-04	1.58E-05
		1,2,4-Trimethylbenzene	95-63-6	4.84E-02	6.96E-07	1.21E-03	1.53E-04
		Ethyl Benzene	100-41-4	5.76E-02	8.29E-07	1.44E-03	1.82E-04
		Styrene	100-42-5	4.99E-03	7.18E-08	1.25E-04	1.58E-05
		1,3-Butadiene	106-99-0	3.19E-02	4.59E-07	7.99E-04	1.01E-04
		Acrolein	107-02-8	6.92E-03	9.95E-08	1.73E-04	2.18E-05

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Toluene	108-88-3	2.61E-01	3.75E-06	6.54E-03	8.24E-04
		Hexane	110-54-3	5.03E-02	7.24E-07	1.26E-03	1.59E-04
		Xylene	1330-20-7	2.30E-01	3.32E-06	5.78E-03	7.28E-04
		Methyl t-Butyl ether (MTBE)	1634-04-4	7.15E-02	1.03E-06	1.79E-03	2.26E-04
		Manganese & Compounds	7439-96-5	1.15E-04	1.65E-09	2.87E-06	3.62E-07
		Nickel & Compounds	7440-02-0	1.15E-04	1.65E-09	2.87E-06	3.62E-07
		Copper & Compounds	7440-50-8	1.15E-04	1.65E-09	2.87E-06	3.62E-07
		Chlorine	7782-50-5	1.58E-02	2.27E-07	3.96E-04	4.99E-05
8A	Chemical's Side VCU (Uncombusted Truck Vapors)	PAH	1151	2.18E-15	3.13E-20	8.73E-19	1.10E-19
		Benzene	71-43-2	2.08E-04	2.99E-09	8.33E-08	1.05E-08
		Naphthalene	91-20-3	6.12E-05	8.81E-10	2.46E-08	3.10E-09
		1,2,4-Trimethylbenzene	95-63-6	2.94E-04	4.23E-09	1.18E-07	1.49E-08
		Cumene	98-82-8	1.14E-04	1.63E-09	4.56E-08	5.75E-09
		Ethyl Benzene	100-41-4	3.28E-04	4.71E-09	1.32E-07	1.66E-08
		Toluene	108-88-3	2.25E-03	3.23E-08	9.02E-07	1.14E-07
		Hexane	110-54-3	4.20E-05	6.05E-10	1.69E-08	2.13E-09
		Cyclohexane	110-82-7	2.68E-03	3.86E-08	1.08E-06	1.36E-07
		Benzo(g,h,i)perylene	191-24-2	4.32E-18	6.22E-23	1.74E-21	2.19E-22
		Xylene	1330-20-7	1.05E-03	1.51E-08	4.22E-07	5.32E-08
8B	Chemicals Rack (truck fugitives)	PAH	1151	1.75E-13	2.52E-18	1.43E-16	1.81E-17
		Benzene	71-43-2	1.67E-02	2.41E-07	1.37E-05	1.72E-06
		Naphthalene	91-20-3	4.94E-03	7.10E-08	4.04E-06	5.09E-07
		1,2,4-Trimethylbenzene	95-63-6	2.37E-02	3.42E-07	1.94E-05	2.45E-06
		Cumene	98-82-8	9.17E-03	1.32E-07	7.50E-06	9.45E-07
		Ethyl Benzene	100-41-4	2.64E-02	3.80E-07	2.16E-05	2.72E-06
		Toluene	108-88-3	1.81E-01	2.61E-06	1.48E-04	1.87E-05
		Hexane	110-54-3	3.39E-03	4.88E-08	2.77E-06	3.49E-07
		Cyclohexane	110-82-7	2.16E-01	3.11E-06	1.77E-04	2.23E-05
Benzo(g,h,i)perylene	191-24-2	3.49E-16	5.02E-21	2.85E-19	3.59E-20		

Source ID	Source Description	Substance Name	CAS Number	Annual Average Emission Rate		Maximum 1-Hr Emission Rate	
				lb/yr	g/s	lb/hr	g/s
		Xylene	1330-20-7	8.48E-02	1.22E-06	6.94E-05	8.74E-06
999_1A to 999_1E	Painting - Tank farm and ethanol rack	MEK	78-93-3	1.56E+02	2.25E-03	8.49E-02	1.07E-02
		Ethyl Benzene	100-41-4	6.03E+01	8.68E-04	3.28E-02	4.13E-03
		Propylene glycol monomethyl ether	107-98-2	3.92E+00	5.64E-05	2.13E-03	2.68E-04
		MIBK	108-10-1	4.71E+01	6.77E-04	2.56E-02	3.22E-03
		Propylene glycol monomethyl ether	108-65-6	1.56E+01	2.25E-04	8.49E-03	1.07E-03
		Toluene	108-88-3	6.15E+00	8.85E-05	3.34E-03	4.21E-04
		Hexamethylene Diisocyanate Monomer	822-06-0	3.24E+00	4.66E-05	1.76E-03	2.22E-04
		Xylene	1330-20-7	1.83E+02	2.64E-03	9.97E-02	1.26E-02
999_2A to 999_2B	Painting - Chemical load rack and tank farm	MEK	78-93-3	6.93E+01	9.97E-04	5.25E-02	6.61E-03
		Ethyl Benzene	100-41-4	1.21E+01	1.74E-04	9.16E-03	1.15E-03
		MIBK	108-10-1	9.29E+00	1.34E-04	7.04E-03	8.87E-04
		Propylene glycol monomethyl ether	108-65-6	6.93E+00	9.97E-05	5.25E-03	6.61E-04
		Hexamethylene Diisocyanate Monomer	822-06-0	1.14E+00	1.64E-05	8.64E-04	1.09E-04
		Xylene	1330-20-7	3.50E+01	5.03E-04	2.65E-02	3.34E-03

APPENDIX E. WINDROSE

Figure E-1. Windrose



WRPLOT View - Lakes Environmental Software

APPENDIX F. SENSITIVE RECEPTORS

Table F-1. Description and Location of Sensitive Receptors

Description	Address	Rec. #	UTM Coordinates (NAD83)	
			Easting (m)	Northing (m)
Schools				
Bursch Elementary	2505 West 156th St., Compton, CA 90220	7752	383888	3750861
Compton High	601 South Acacia St., Compton, CA 90220	7753	386524	3750757
Laurel Street Elementary	1321 West Laurel St., Compton, CA 90220	7754	384868	3751015
Longfellow Elementary	1101 South Dwight St., Compton, CA 90220	7755	385228	3750148
Robert F. Kennedy Elementary	1305 South Oleander St., Compton, CA 90220	7756	386379	3749931
Walton Middle	900 West Greenleaf Ave., Compton, CA 90220	7757	385458	3749472
Del Amo Seminary Junior	2601 E Victoria St., Compton, CA 90220	7758	387053	3747869
Del Amo Seminary Senior	2601 E Victoria St., Compton, CA 90220	7759	387317	3748114
Emerson Elementary	1011 East Caldwell St., Compton, CA 90221	7760	387991	3750057
Kelly Elementary	2320 East Alondra Blvd., Compton, CA 90221	7761	389278	3750392
Roosevelt Middle	1200 East Alondra Blvd., Compton, CA 90221	7762	388135	3750421
Environmental Charter Middle	812 West 165th Pl., Gardena, CA 90247	7763	380768	3749651
Denker Avenue Elementary	1620 West 162nd St., Gardena, CA 90247	7764	379254	3749992
Gardena Elementary	647 West Gardena Blvd., Gardena, CA 90247	7765	381001	3749857
Robert E. Peary Middle	1415 West Gardena Blvd., Gardena, CA 90247	7766	379757	3749911
St. Anthony of Padua	1003 West 163rd St., Gardena, CA 90247	7767	380445	3750000
Gardena Senior High	1301 West 182nd St., Gardena, CA 90248	7768	379995	3748259
New Millennium Secondary	1301 West 182nd St. Ste. B, Gardena, CA 90248	7769	379963	3748135
One Hundred Eighty-Sixth Street Elementary	1581 West 186th St., Gardena, CA 90248	7770	379185	3747649
Pacific Lutheran High School	1473 West 182nd St., Gardena, CA 90248	7771	379538	3748057
Hoover Middle	3501 Country Club Dr., Lakewood, CA 90712	7772	393458	3745055
Madison Elementary	2801 Bomberry St., Lakewood, CA 90712	7773	392819	3744891
Riley Elementary	3319 Sandwood St., Lakewood, CA 90712	7774	393365	3745481
Abraham Lincoln	15324 California Ave., Paramount, CA 90723	7775	392892	3750929
Frank J. Zamboni	15733 South Orange Ave., Paramount, CA 90723	7776	391034	3750639
Leona Jackson	7220 Jackson St., Paramount, CA 90723	7777	391619	3750043
Wesley Gaines	7340 East Jackson St., Paramount, CA 90723	7778	391814	3750021
Ralph Bunche Elementary	16223 South Haskins Ln., Carson, CA 90746	7779	383316	3750056
Ambler Avenue Elementary	319 East Sherman Dr., Carson, CA 90746	7780	382449	3749370
Carson Christian School	17705 Central Ave., Carson, CA 90746	7781	384467	3748482
Towne Avenue Elementary	18924 Towne Ave., Carson, CA 90746	7782	382757	3747168
Alvarado Elementary	1900 East 21st St., Signal Hill, CA 90755	7783	391817	3740012
Jessie Nelson Academy	1951 Cherry Ave., Signal Hill, CA 90755	7784	391724	3739827

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

Description	Address	Rec. #	UTM Coordinates (NAD83) Easting/Northing	
			(m)	(m)
Signal Hill Elementary	2285 Walnut Ave., Signal Hill, CA 90755	7785	391389	3740452
Olivia Nieto Herrera Elementary	1620 Temple Ave., Long Beach, CA 90804	7786	392745	3739208
Richard D. Browning High	2120 Obispo Ave., Long Beach, CA 90804	7787	393197	3740163
Gethsemane Baptist Christian	6095 Orange Ave., Long Beach, CA 90805	7788	391066	3747783
Grant Elementary	1225 East 64th St., Long Beach, CA 90805	7789	391184	3748533
Hamilton Middle	1060 East 70th St., Long Beach, CA 90805	7790	390921	3749605
Harte Elementary	1671 East Phillips St., Long Beach, CA 90805	7791	391626	3747154
Jordan High	6500 Atlantic Ave., Long Beach, CA 90805	7792	390416	3748481
King Elementary	145 East Artesia Blvd., Long Beach, CA 90805	7793	388858	3748905
McKinley Elementary	6822 Paramount Blvd., Long Beach, CA 90805	7794	392765	3749320
Powell Academy for Success	150 Victoria St., Long Beach, CA 90805	7795	388961	3747693
Spectrum Center Schools- Long Beach Jordan Plus HS	171 West Bort St., Long Beach, CA 90805	7796	388563	3748527
Bobbie Smith Elementary	565 East Hill St., Long Beach, CA 90806	7797	390222	3740382
Robinson Academy	2750 Pine Ave., Long Beach, CA 90806	7798	389757	3741464
Westerly School of Long Beach	2950 East 29th St., Long Beach, CA 90806	7799	393005	3741389
Barton Elementary	1100 East Del Amo Blvd., Long Beach, CA 90807	7800	390986	3745657
Hughes Middle	3846 California Ave., Long Beach, CA 90807	7801	390830	3743733
Longfellow Elementary	1101 South Dwight St., Compton, CA 90220	7802	390638	3743624
Parkridge Private School	3605 Long Beach Blvd. Ste. 101, Long Beach, CA 90807	7803	389912	3743127
St. Barnabas Elementary	3980 Marron Ave., Long Beach, CA 90807	7804	391073	3744067
Polytechnic High	1600 Atlantic Ave., Long Beach, CA 90813	7805	390404	3739166
Roosevelt Elementary	1574 Linden Ave., Long Beach, CA 90813	7806	390164	3739069
Whittier Elementary	1761 Walnut Ave., Long Beach, CA 90813	7807	391465	3739352
Mary Butler School	1400 E 20th St, Long Beach, CA 90806	7808	391299	3739868
John Muir Charter School	16425 Ishida Ave, Gardena, CA 90248	7809	383179	3749917
Riley High School-Gardena	1618 W. 184th St, Gardena, CA 90248	7810	379229	3747669
SEA Charter School	4205 E Alondra Blvd, Compton, CA 90221	7811	389316	3750499
Burroughs Elementary	1260 E 33rd St., Signal Hill, CA 90755	7812	391255	3742472
Caldwell Elementary	2300 W Caldwell St., Compton, CA 90220	7813	384443	3749876
Andrew Carnegie Middle School	21820 Bonita St, Carson, CA 90745	7814	383558	3744007
Annalee Elementary School	19410 Annalee Ave, Carson, CA 90746	7815	384218	3746693
Avalon High School	1425 N Avalon Blvd, Wilmington, CA 90744	7816	383044	3739793
Banning High School	1527 Lakme Ave, Wilmington, CA 90744	7817	383286	3740026
Banning-Marine Avenue Adult Center	1468 N Marine Ave, Wilmington, CA 90744	7818	382948	3739923
Bethune Mary School	2101 San Gabriel Ave, Long Beach, CA 90810	7819	386721	3739987

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

Description	Address	Rec. #	UTM Coordinates (NAD83) Easting/Northing	
			(m)	(m)
Bonita Street Elementary School	21929 Bonita St, Carson, CA 90745	7820	383370	3743858
Broad Avenue Elementary School	24815 Broad Ave, Wilmington, CA 90744	7821	383158	3740800
Broadacres Elementary School	19424 Broadacres Ave, Carson, CA 90746	7822	385396	3746688
Cabrillo High School	2001 Santa Fe Ave, Long Beach, CA 90810	7823	387473	3739922
Carson Elementary School	161 E Carson St, Carson, CA 90745	7824	382022	3744352
Carson High School	22328 S Main St, Carson, CA 90745	7825	382048	3743274
Carson Montessori Academy	812 E Carson St, Carson, CA 90745	7826	383307	3744170
Catskill Elementary School	23536 Catskill Ave, Carson, CA 90745	7827	382435	3742047
Curtiss Middle School	1254 E Helmick St, Carson, CA 90746	7828	384293	3746322
Del Amo Elementary School	21228 Water St, Carson, CA 90745	7829	385247	3744738
Elizabeth Hudson Elementary School	2335 Webster Ave, Long Beach, CA 90810	7830	387091	3740595
Fries Avenue Elementary School	1301 N Fries Ave, Wilmington, CA 90744	7831	382836	3739449
Garfield Head Start Elementary School	2240 Baltic Ave, Long Beach, CA 90810	7832	387692	3740405
Golden Wings Academy Inc	20715 S Avalon Blvd # 360, Carson, CA 90746	7833	383115	3745483
Gulf Avenue Elementary School	828 W L St, Wilmington, CA 90744	7834	382164	3739057
Holy Family Grammar School	1122 E Robidoux St, Wilmington, CA 90744	7835	384401	3739366
John Muir Elementary School	3038 Delta Ave, Long Beach, CA 90810	7836	387914	3742030
Long Beach Brethren Elementary School	3601 Linden Ave, Long Beach, CA 90807	7837	390143	3743190
Long Beach Japanese School	1766 Seabright Ave, Long Beach, CA 90813	7838	387304	3739447
Long Beach Job Corp Dynamic Educational	1903 Santa Fe Ave, Long Beach, CA 90810	7839	387472	3739724
Long Beach School for Adult	3701 E Willow St, Long Beach, CA 90815	7840	389368	3739487
Long Beach Child Development	2209 Seabright Ave, Long Beach, CA 90810	7841	387287	3740345
Miller Children's Hospital	2801 Atlantic Ave, Long Beach, CA 90806	7842	390121	3741522
Normont Elementary School	1001 W 253rd St, Harbor City, CA 90710	7843	380300	3740328
Oakwood Academy School	3850 Long Beach Boulevard, Long Beach, CA 90807	7844	389995	3743777
Pacific Harbor Elementary School	1530 N Wilmington Blvd, Wilmington, CA 90744	7845	381903	3740040
Phineas Banning Senior High School	1527 Lakme Ave, Wilmington, CA 90744	7846	383288	3740032
Rancho Dominguez Preparatory School	4110 Santa Fe Ave, Long Beach, CA 90810	7847	387538	3744360
Robinson (Jackie) School	2750 Pine Ave, Long Beach, CA 90806	7848	389694	3741418
St Philomena School	21832 S Main St, Carson, CA 90745	7849	382031	3743958
St. Lucy's School	2320 Cota Ave, Long Beach, CA 90810	7850	387437	3740571

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

Description	Address	Rec. #	UTM Coordinates (NAD83) Easting/Northing	
			(m)	(m)
Volunteers of America - Head Start Preschool	1135 257th St, Harbor City, CA 90710	7851	379911	3739748
Webster Elementary School	1755 W 32nd Way, Long Beach, CA 90810	7852	387380	3742512
White Middle School	22102 S Figueroa St, Carson, CA 90745	7853	381089	3743544
Will J. Reid High School	2153 W Hill St, Long Beach, CA 90810	7854	387037	3740324
William Logan Stephens Junior High	1830 W Columbia St, Long Beach, CA 90810	7855	387367	3741657
Wilmington Christian School	24910 S Avalon Blvd, Wilmington, CA 90744	7856	383005	3740658
Wilmington Junior High School	1700 Gulf Ave, Wilmington, CA 90744	7857	382039	3740361
Wilmington Park Elementary School	1140 Mahar Ave, Wilmington, CA 90744	7858	384618	3739222
Hospitals				
Long Beach Doctors Hospital	1725 Pacific Avenue, Long Beach, CA 90813	7927	389447	3739344
Promise Hospital of East Los Angeles	16453 Colorado Ave, Paramount, CA 90723	7928	392515	3749923
Kindred Hospital South Bay	1246 W 155th St, Gardena, CA 90247	7929	380031	3750719
Harbor-UCLA Medical Center	1000 W Carson St, Torrance, CA 90509	7930	380471	3744060
Hillcrest Care Center	3401 Cedar Ave, Long Beach, CA 90807	7931	389343	3742818
Jonathan Jaques Children's Center Hospital	701 E 28th St, Long Beach, CA 90806	7932	390345	3741550
Kaiser Permanente South Bay Medical Center	23701 S Main St, Carson, CA 90745	7933	381895	3741791
MemorialCare Heart and Vascular Institute Long Beach Memorial Medical Center	2801 Atlantic Ave, Long Beach, CA 90806	7934	390121	3741522
College Medical Center	2776 Pacific Avenue, Long Beach, CA 90806	7935	389587	3741419
Royal Care Skilled Nursing Care Center	2725 Pacific Avenue, Long Beach, CA 90806	7936	389480	3741357
Santa Fe Convalescent Hospital	3294 Santa Fe Ave, Long Beach, CA 90810	7937	387542	3742485
The Palmcrest Grand Care Center, Inc	3503 Cedar Ave, Long Beach, CA 90807	7938	389279	3742980
Daycare Centers				
Heavenly Vision Education Center Inc.	600-604 W Alondra Blvd, Compton, CA 90220	7859	385913	3750437
Wiz Child Center	225 W. Alondra Blvd, Compton, CA 90220	7860	386640	3750501
Junioriversity	2400 S. Central Ave, Compton, CA 90220	7861	384545	3748418
Emerson State Preschool	1011 E. Caldwell Street, Compton, CA 90221	7862	387939	3750034
Gardena Christian Academy	16311 South Western Avenue, Gardena, CA 90247	7863	378896	3749897
Gardena Valley Christian Pre-School	1409 West 182nd Street, Gardena, CA 90247	7864	379778	3748075
St Anthony's Day Nursery	1044 W. 163rd Street, Gardena, CA 90247	7865	380429	3749953
Yasuragi Child Care Center	16110 La Salle Avenue, Gardena, CA 90247	7866	379299	3750109

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

Description	Address	Rec. #	UTM Coordinates (NAD83) Easting/Northing	
			(m)	(m)
Baby Geniuses Early Learning Center	15328 S. Vermont, Gardena, CA 90247	7867	380583	3750911
Gardena Early Education Center	1350 West 177th Street, Gardena, CA 90248	7868	380085	3748533
YMCA Of Metropolitan of L.A. Gardena/Carson Br.	1000 W. Artesia Blvd., Gardena, CA 90248	7869	380524	3748711
Emmanuel Preschool	15941 Virginia Ave., Paramount, CA 90723	7870	393183	3750334
Gaines State Preschool	7340 E. Jackson Street, Paramount, CA 90723	7871	391862	3750044
Little Angels Preschool	18419 South Avalon Blvd, Carson, CA 90746	7872	382785	3747617
Oak Tree Academy	1710 Redondo Avenue, Long Beach, CA 90804	7873	393335	3739282
Cultural Caboose, The	1037 South Street, Long Beach, CA 90805	7874	390811	3747306
Giant Steps Childrens Center	6951 Obispo Ave., Long Beach, CA 90805	7875	393094	3749534
LBUSD-Grant Child Development Center	6405 Walnut Ave, Long Beach, CA 90805	7876	391488	3748503
YMCA GLB 70th St State Preschool	700 East 70th St., Long Beach, CA 90805	7877	390527	3749643
YMCA GLB First Friendships State Preschool	6650 Orange Avenue, Long Beach, CA 90805	7878	391143	3749003
Long Beach City College Child Development-PCC	1305 E. Pacific Coast Hwy., Long Beach, CA 90806	7879	391324	3739550
Signal Hill Head Start	2285 Walnut Avenue, Signal Hill, CA 90806	7880	391388	3740453
John G Whittier Preschool	1424 E Esther St, Long Beach, CA 90813	7881	391353	3739360
Castle in The Sky Child Daycare	1639 E Hill Street, Signal Hill, CA 90755	7882	391554	3740301
California Heights Parent Participation Nursery School	1500 E Carson St, Long Beach, CA 90807	7883	391437	3744157
Davenport Daycare	2727 Harvey Way, Lakewood, CA 90712	7884	392788	3744716
Little Feet Home Preschool	4509 Gundry Ave, Long Beach, CA 90807	7885	391448	3745018
Whitcomb Family Daycare	4503 Walnut Ave, Long Beach, CA 90807	7886	391584	3744927
Barreto Family Child Care	2608 Yearling St, Lakewood, CA 90712	7887	392594	3746048
Love in Action Family Child Care	2503 Eckleson St, Lakewood, CA 90712	7888	392481	3746002
Best Steps Family Child Care	2528 Deerford St, Lakewood, CA 90712	7889	392530	3745609
24 Que Family Daycare	4756 Vangold Ave, Lakewood, CA 90712	7890	392427	3745507
Subasinghe Family Day Care	4740 Obispo Ave, Lakewood, CA 90712	7891	393126	3745502
Scott Family Childcare Learning Center	1424 E Washington St, Long Beach, CA 90805	7892	391327	3746700
Pinkribbon Childcare	1560 E 63rd St, Long Beach, CA 90805	7893	391489	3748251
All About Kids Learning Center	1310 E Artesia Blvd, Long Beach, CA 90805	7894	391245	3748853
Sonias Kiddie Kollege LFCCH	6561 Gardenia Ave, Long Beach, CA 90805	7895	391830	3748795
Little People Dev Place	6619 Rose Ave, Lakewood, CA 90805	7896	391687	3748933
21st Century Child Care	330 South St, Long Beach, CA 90805	7897	390006	3747249
Little Genius Child Care	127 E Gordon St, Long Beach, CA 90808	7898	389076	3747859
Rising Stars Day Care	228 E Harcourt St, Long Beach, CA 90805	7899	389214	3748159

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

Description	Address	Rec. #	UTM Coordinates (NAD83) Easting/Northing	
			(m)	(m)
Narvaez Family Daycare	224 Artesia Blvd, Long Beach, CA 90805	7900	389074	3748838
Em Family Child Care	5879 Lewis Ave, Long Beach, CA 90805	7901	390820	3747434
Fun 2 Learn	5942 Orange Ave, Long Beach, CA 90805	7902	391119	3747631
A to Z Family Child Care	821 E Radbard St, Carson, CA 90746	7903	383494	3748557
Little Stars Daycare	17404 Prondall Ct, Carson, CA 90746	7904	383789	3748765
CSUDH Infant-Toddler Development Center	1000 E Victoria St, Carson, CA 90747	7905	383743	3748047
Miller's Family Day Care	18719 S Avalon Blvd, Carson, CA 90746	7906	382835	3747380
Smith Family Daycare	603 E University Dr, Carson, CA 90746	7907	382919	3747182
Joy Daycare	17923 S Denker Ave, Gardena, CA 90248	7908	379276	3748244
Owusu Family Child Care	17224 S. Hoover St, Gardena, CA 90247	7909	381024	3749011
Mariposa Child & Infant Center	1316 W 169th Pl, Gardena, CA 90247	7910	379934	3749276
Howe Family Daycare	1331 W 162nd St, Gardena, CA 90247	7911	379897	3750088
Playful Melodies WeeCare	15712 Brighton Ave Apt D, Gardena, CA 90247	7912	379724	3750542
Quick Learning Center	15411 S Western Ave, Gardena, CA 90247	7913	378894	3750884
C & D Daycare	15540 McKinley Ave, Compton, CA 90220	7914	383451	3750757
Morris Family Daycare Owner	904 S Nestor Ave, Compton, CA 90220	7915	384716	3750449
Noah's Ark Family Child Care	1714 W Claude St, Compton, CA 90220	7916	384640	3750194
Community Housing Services Childcare	530 Alondra Blvd, Compton, CA 90220	7917	385961	3750443
Parker Family Child Care	516 S Chester Ave, Compton, CA 90220	7918	387718	3750808
Vision 2000 & Beyond	6635 Falcon Ave, Long Beach, CA 90805	7919	391389	3748959
Casillas Family Childcare	16402 Parkshire Ct., Paramount, CA 90723	7920	393297	3750035
First Baptist Church	1360 Broad Ave, Wilmington, CA 90744	7921	383243	3739694
Long Beach Day Nursery	1548 Chestnut Ave, Long Beach, CA 90813	7922	389275	3739143
Old King Cole Day Care	3300 Oregon Ave, Long Beach, CA 90806	7923	388848	3742528
Wilmington Boys and Girls Club	1444 W Q St, Wilmington, CA 90744	7924	381354	3740025
Wilmington Park Children's Center	1419 E Young St, Wilmington, CA 90744	7925	384655	3739221
Wilmington YMCA	1121 N Avalon Blvd, Wilmington, CA 90744	7926	383050	3739071

APPENDIX G. RECEPTOR GRID DIAGRAMS

Figure G-1. All Receptor Locations

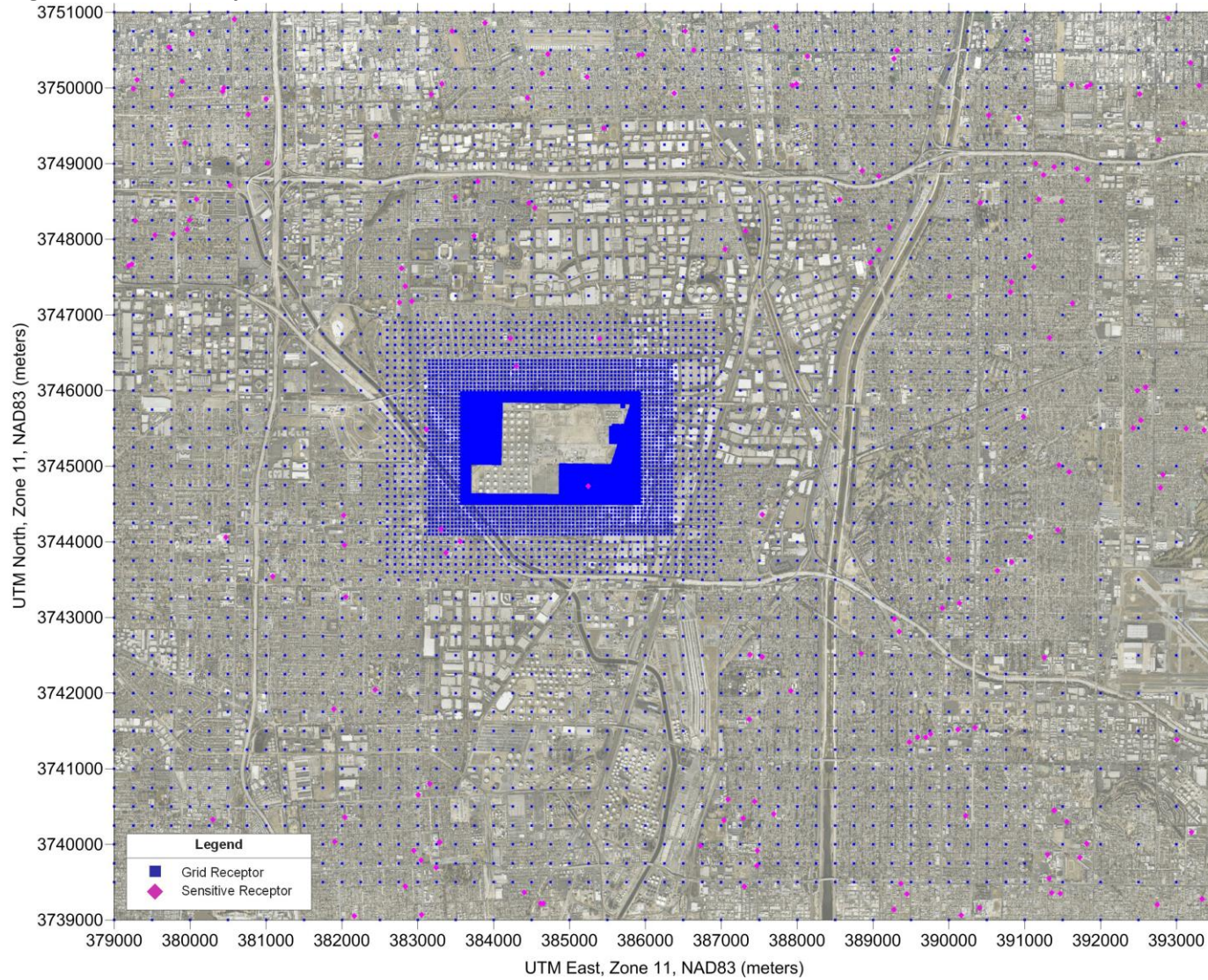


Figure G-2. Near-Field Receptor Grid

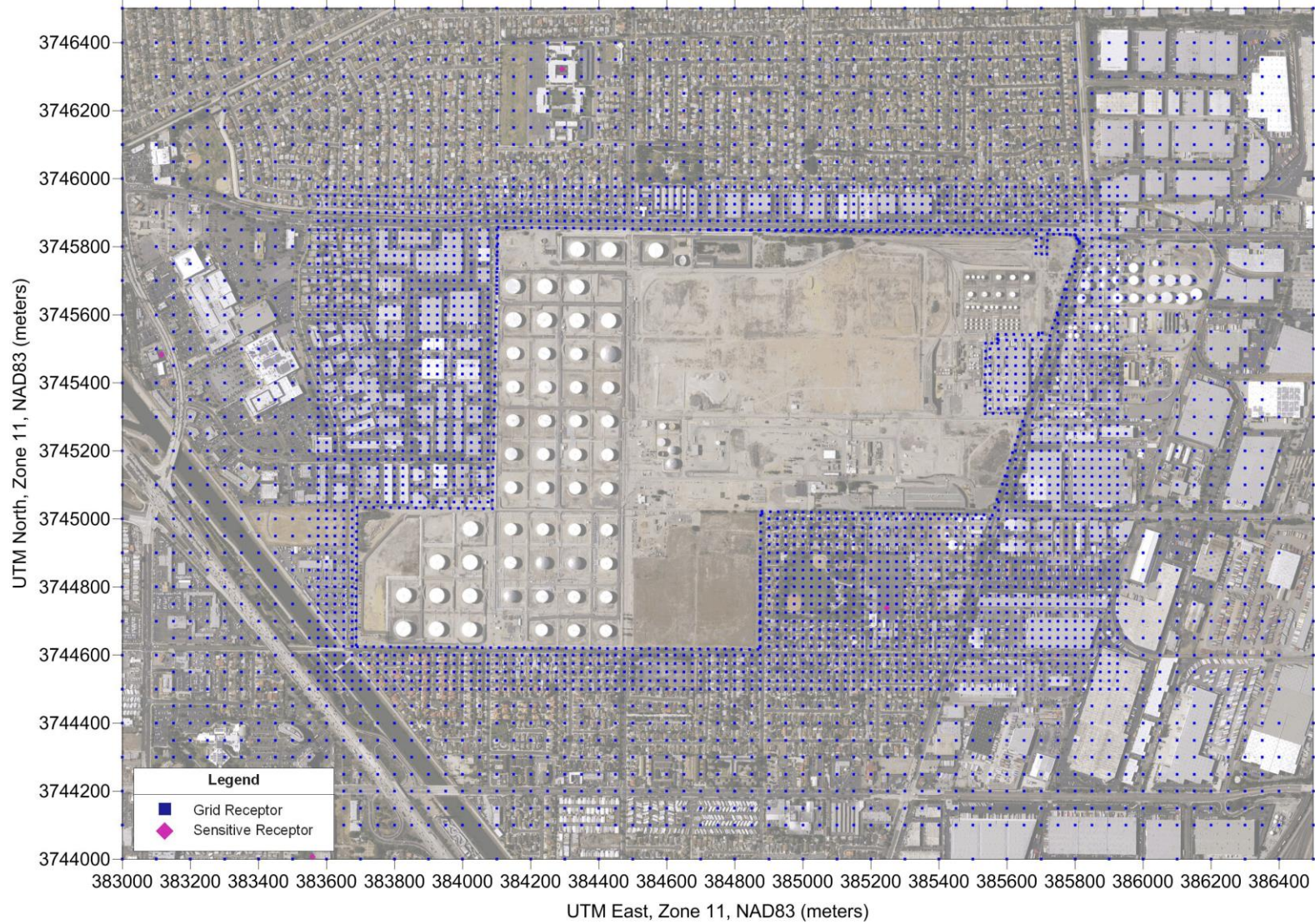
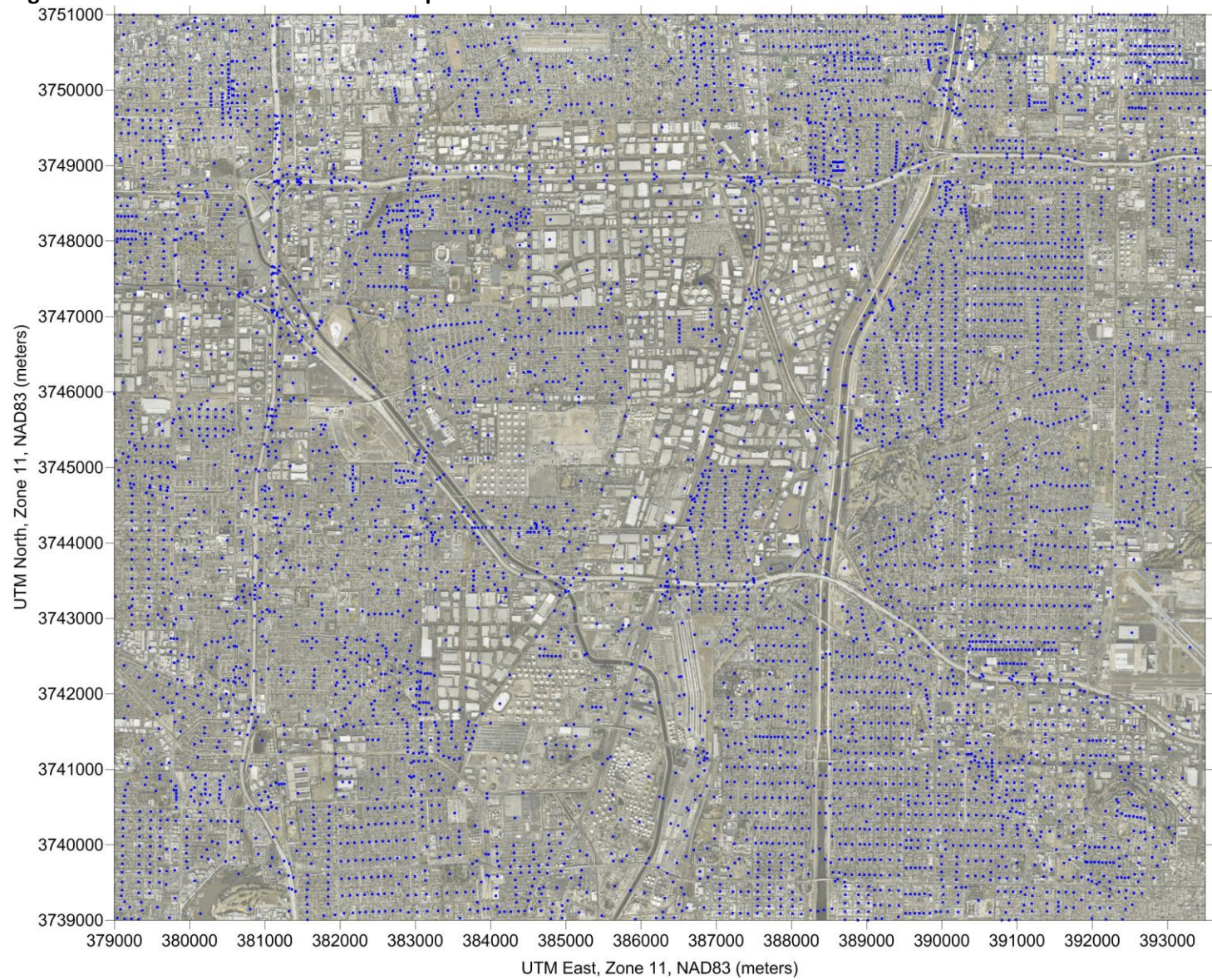


Figure G-3. Census Tract Centroids Receptor Grid



APPENDIX H. AMBIENT AIR CONCENTRATIONS

Table H-1. Annual Average Toxic Substance Concentrations at Maximum Impacted Cancer Receptors

Pollutant	CAS Number	Annual average concentration ($\mu\text{g}/\text{m}^3$)			
		PMI Rec #112 X=385536.5 Y=3745424.6	MEIR Rec #696 X=384025 Y=3744600	MEIW Rec #112 X=385536.5 Y=3745424.6	Max sensitive Rec #7829 X=385246.8 Y=3744738.0
Benzene	71-43-2	8.10E-03	8.14E-02	8.10E-03	2.22E-02
Naphthalene	91-20-3	1.11E-02	7.66E-03	1.11E-02	1.51E-03
1,2,4-Trimethylbenzene	95-63-6	1.60E-01	1.01E-01	1.60E-01	1.69E-02
Cumene	98-82-8	3.05E-02	2.36E-02	3.05E-02	3.57E-03
Ethyl Benzene	100-41-4	2.33E-02	1.60E-01	2.33E-02	2.21E-02
Toluene	108-88-3	1.74E-01	5.61E-01	1.74E-01	9.21E-02
Xylene	1330-20-7	2.17E-01	2.81E-01	2.17E-01	5.18E-02
Methyl t-Butyl Ether (MTBE)	1634-04-4	1.83E-04	1.17E-04	1.83E-04	2.50E-04
PAH	1151	5.01E-08	5.08E-09	5.01E-08	1.63E-08
Formaldehyde	50-00-0	2.22E-04	7.03E-05	2.22E-04	2.23E-05
Acetaldehyde	75-07-0	5.33E-05	1.69E-05	5.33E-05	5.38E-06
Acrolein	107-02-8	1.38E-05	4.15E-06	1.38E-05	1.57E-06
Hexane	110-54-3	1.46E-01	3.68E-01	1.46E-01	6.37E-02
Ammonia	7664-41-7	1.60E-03	1.62E-04	1.60E-03	5.20E-04
Methanol	67-56-1	1.36E-01	1.23E-02	1.36E-01	5.11E-03
n-Butanol	71-36-3	2.18E-03	9.57E-06	2.18E-03	3.22E-05
Propylene Glycol Monomethyl Ether	107-98-2	4.58E-01	1.18E-03	4.58E-01	2.87E-03
Propylene Glycol Monomethyl Ether Acetate	108-65-6	1.29E-01	2.12E-03	1.29E-01	2.38E-03
Cyclohexane	110-82-7	1.24E-02	1.98E-02	1.24E-02	1.23E-02
Styrene	100-42-5	7.88E-05	8.23E-04	7.88E-05	2.03E-04
2,2,4-Trimethylpentane	540-84-1	1.45E-02	1.67E-01	1.45E-02	4.52E-02
Diethylene Glycol Monobutyl Ether	112-34-5	1.21E-01	5.31E-04	1.21E-01	1.79E-03
Dimethyl Formamide	68-12-2	5.79E-04	2.54E-06	5.79E-04	8.58E-06
Sec-Butyl Alcohol	78-92-2	1.12E-03	4.94E-06	1.12E-03	1.66E-05
MEK	78-93-3	4.57E-01	1.76E-02	4.57E-01	1.15E-02
MIBK	108-10-1	1.36E-01	5.27E-03	1.36E-01	3.38E-03
Ethylene Glycol Monobutyl Ether	111-76-2	1.29E-01	5.67E-04	1.29E-01	1.91E-03
IPA	67-63-0	2.41E-01	1.06E-03	2.41E-01	3.58E-03
2-Methylnaphthalene	91-57-6	1.71E-07	2.40E-07	1.71E-07	7.60E-07
o-Cresol	95-48-7	5.09E-07	7.11E-07	5.09E-07	2.26E-06
Phenol	108-95-2	9.40E-08	1.31E-07	9.40E-08	4.17E-07
Chloroform	67-66-3	1.18E-06	1.36E-06	1.18E-06	3.75E-06
Chloromethane	74-87-3	9.94E-07	1.14E-06	9.94E-07	3.17E-06

Pollutant	CAS Number	Annual average concentration ($\mu\text{g}/\text{m}^3$)			
		PMI Rec #112 X=385536.5 Y=3745424.6	MEIR Rec #696 X=384025 Y=3744600	MEIW Rec #112 X=385536.5 Y=3745424.6	Max sensitive Rec #7829 X=385246.8 Y=3744738.0
Vinyl Chloride	75-01-4	1.15E-06	1.32E-06	1.15E-06	3.65E-06
Bromoform	75-25-2	3.01E-06	3.47E-06	3.01E-06	9.60E-06
Bromodichloromethane	75-27-4	1.64E-06	1.89E-06	1.64E-06	5.24E-06
1,1-Dichloroethane	75-34-3	2.22E-06	2.55E-06	2.22E-06	7.07E-06
Vinylidene Chloride	75-35-4	1.23E-06	1.42E-06	1.23E-06	3.93E-06
Tert-Butyl Alcohol	75-65-0	3.14E-06	3.62E-06	3.14E-06	1.00E-05
Dichlorodifluoromethane	75-71-8	1.83E-06	2.11E-06	1.83E-06	5.83E-06
Trichloroethylene	79-01-6	2.32E-05	2.67E-05	2.32E-05	7.38E-05
1,2-Dichloroethane	107-06-2	8.45E-05	9.72E-05	8.45E-05	2.69E-04
Chlorobenzene	108-90-7	2.14E-06	2.47E-06	2.14E-06	6.83E-06
Dibromochloromethane	124-48-1	2.17E-06	2.50E-06	2.17E-06	6.91E-06
Tetrachloroethylene	127-18-4	1.75E-05	2.01E-05	1.75E-05	5.57E-05
Diesel Exhaust Particulate	9901	9.86E-02	2.01E-02	9.86E-02	5.73E-03
1,3-Butadiene	106-99-0	5.72E-05	1.85E-05	5.72E-05	5.22E-06
Manganese & Compounds	7439-96-5	2.06E-07	6.64E-08	2.06E-07	1.88E-08
Nickel & Compounds	7440-02-0	2.06E-07	6.64E-08	2.06E-07	1.88E-08
Copper & Compounds	7440-50-8	2.06E-07	6.64E-08	2.06E-07	1.88E-08
Chlorine	7782-50-5	2.84E-05	9.16E-06	2.84E-05	2.59E-06
Benzo(g,h,i)perylene	191-24-2	5.44E-19	2.43E-21	5.44E-19	1.00E-20
Hexamethylene Diisocyanate Monomer	822-06-0	1.36E-03	3.29E-04	1.36E-03	1.16E-04

Table H-2. Annual Average Toxic Substance Concentrations at Maximum Impacted Chronic Receptors

Pollutant	CAS Number	Annual average concentration ($\mu\text{g}/\text{m}^3$)			
		PMI Rec #112 X=385536.5 Y=3745424.6	MEIR Rec #707 X=384300 Y=3744600	MEIW Rec #112 X=385536.5 Y=3745424.6	Max sensitive Rec #7829 X=385246.8 Y=3744738.0
Benzene	71-43-2	8.10E-03	1.04E-01	8.10E-03	2.22E-02
Naphthalene	91-20-3	1.11E-02	3.38E-03	1.11E-02	1.51E-03
1,2,4-Trimethylbenzene	95-63-6	1.60E-01	3.45E-02	1.60E-01	1.69E-02
Cumene	98-82-8	3.05E-02	5.61E-03	3.05E-02	3.57E-03
Ethyl Benzene	100-41-4	2.33E-02	4.67E-02	2.33E-02	2.21E-02
Toluene	108-88-3	1.74E-01	2.52E-01	1.74E-01	9.21E-02
Xylene	1330-20-7	2.17E-01	1.40E-01	2.17E-01	5.18E-02
Methyl t-Butyl Ether (MTBE)	1634-04-4	1.83E-04	1.36E-04	1.83E-04	2.50E-04
PAH	1151	5.01E-08	5.65E-09	5.01E-08	1.63E-08
Formaldehyde	50-00-0	2.22E-04	6.23E-05	2.22E-04	2.23E-05
Acetaldehyde	75-07-0	5.33E-05	1.50E-05	5.33E-05	5.38E-06
Acrolein	107-02-8	1.38E-05	3.69E-06	1.38E-05	1.57E-06
Hexane	110-54-3	1.46E-01	2.18E-01	1.46E-01	6.37E-02
Ammonia	7664-41-7	1.60E-03	1.80E-04	1.60E-03	5.20E-04
Methanol	67-56-1	1.36E-01	1.59E-02	1.36E-01	5.11E-03
n-Butanol	71-36-3	2.18E-03	1.19E-05	2.18E-03	3.22E-05
Propylene Glycol Monomethyl Ether	107-98-2	4.58E-01	1.34E-03	4.58E-01	2.87E-03
Propylene Glycol Monomethyl Ether Acetate	108-65-6	1.29E-01	2.10E-03	1.29E-01	2.38E-03
Cyclohexane	110-82-7	1.24E-02	2.51E-02	1.24E-02	1.23E-02
Styrene	100-42-5	7.88E-05	8.94E-04	7.88E-05	2.03E-04
2,2,4-Trimethylpentane	540-84-1	1.45E-02	2.03E-01	1.45E-02	4.52E-02
Diethylene Glycol Monobutyl Ether	112-34-5	1.21E-01	6.60E-04	1.21E-01	1.79E-03
Dimethyl Formamide	68-12-2	5.79E-04	3.16E-06	5.79E-04	8.58E-06
Sec-Butyl alcohol	78-92-2	1.12E-03	6.14E-06	1.12E-03	1.66E-05
MEK	78-93-3	4.57E-01	1.64E-02	4.57E-01	1.15E-02
MIBK	108-10-1	1.36E-01	4.91E-03	1.36E-01	3.38E-03
Ethylene Glycol Monobutyl Ether	111-76-2	1.29E-01	7.05E-04	1.29E-01	1.91E-03
IPA	67-63-0	2.41E-01	1.32E-03	2.41E-01	3.58E-03
2-Methylnaphthalene	91-57-6	1.71E-07	3.12E-07	1.71E-07	7.60E-07
o-Cresol	95-48-7	5.09E-07	9.27E-07	5.09E-07	2.26E-06
Phenol	108-95-2	9.40E-08	1.71E-07	9.40E-08	4.17E-07
Chloroform	67-66-3	1.18E-06	1.79E-06	1.18E-06	3.75E-06
Chloromethane	74-87-3	9.94E-07	1.51E-06	9.94E-07	3.17E-06
Vinyl Chloride	75-01-4	1.15E-06	1.74E-06	1.15E-06	3.65E-06
Bromoform	75-25-2	3.01E-06	4.57E-06	3.01E-06	9.60E-06
Bromodichloromethane	75-27-4	1.64E-06	2.49E-06	1.64E-06	5.24E-06
1,1-Dichloroethane	75-34-3	2.22E-06	3.36E-06	2.22E-06	7.07E-06

Pollutant	CAS Number	Annual average concentration ($\mu\text{g}/\text{m}^3$)			
		PMI Rec #112 X=385536.5 Y=3745424.6	MEIR Rec #707 X=384300 Y=3744600	MEIW Rec #112 X=385536.5 Y=3745424.6	Max sensitive Rec #7829 X=385246.8 Y=3744738.0
Vinylidene Chloride	75-35-4	1.23E-06	1.87E-06	1.23E-06	3.93E-06
Tert-Butyl Alcohol	75-65-0	3.14E-06	4.77E-06	3.14E-06	1.00E-05
Dichlorodifluoromethane	75-71-8	1.83E-06	2.78E-06	1.83E-06	5.83E-06
Trichloroethylene	79-01-6	2.32E-05	3.51E-05	2.32E-05	7.38E-05
1,2-Dichloroethane	107-06-2	8.45E-05	1.28E-04	8.45E-05	2.69E-04
Chlorobenzene	108-90-7	2.14E-06	3.25E-06	2.14E-06	6.83E-06
Dibromochloromethane	124-48-1	2.17E-06	3.29E-06	2.17E-06	6.91E-06
Tetrachloroethylene	127-18-4	1.75E-05	2.65E-05	1.75E-05	5.57E-05
Diesel Exhaust Particulate	9901	9.86E-02	1.76E-02	9.86E-02	5.73E-03
1,3-Butadiene	106-99-0	5.72E-05	1.63E-05	5.72E-05	5.22E-06
Manganese & Compounds	7439-96-5	2.06E-07	5.87E-08	2.06E-07	1.88E-08
Nickel & Compounds	7440-02-0	2.06E-07	5.87E-08	2.06E-07	1.88E-08
Copper & Compounds	7440-50-8	2.06E-07	5.87E-08	2.06E-07	1.88E-08
Chlorine	7782-50-5	2.84E-05	8.09E-06	2.84E-05	2.59E-06
Benzo(g,h,i)perylene	191-24-2	5.44E-19	3.10E-21	5.44E-19	1.00E-20
Hexamethylene Diisocyanate Monomer	822-06-0	1.36E-03	2.96E-04	1.36E-03	1.16E-04

Table H-3. Annual Average Toxic Substance Concentrations at Maximum Impacted 8-Hr Chronic Receptors

Pollutant	CAS Number	Annual average concentration ($\mu\text{g}/\text{m}^3$)			
		PMI Rec #262 X=384037.3 Y=3745030.8	MEIR Rec #707 X=384300 Y=3744600	MEIW Rec #262 X=384037.3 Y=3745030.8	Max sensitive Rec #7829 X=385246.8 Y=3744738.0
Benzene	71-43-2	1.68E-01	1.04E-01	1.68E-01	2.22E-02
Naphthalene	91-20-3	5.01E-03	3.38E-03	5.01E-03	1.51E-03
1,2,4-Trimethylbenzene	95-63-6	5.36E-02	3.45E-02	5.36E-02	1.69E-02
Cumene	98-82-8	8.88E-03	5.61E-03	8.88E-03	3.57E-03
Ethyl Benzene	100-41-4	7.15E-02	4.67E-02	7.15E-02	2.21E-02
Toluene	108-88-3	4.04E-01	2.52E-01	4.04E-01	9.21E-02
Xylene	1330-20-7	2.11E-01	1.40E-01	2.11E-01	5.18E-02
Methyl t-Butyl Ether (MTBE)	1634-04-4	2.12E-04	1.36E-04	2.12E-04	2.50E-04
PAH	1151	8.52E-09	5.65E-09	8.52E-09	1.63E-08
Formaldehyde	50-00-0	6.25E-05	6.23E-05	6.25E-05	2.23E-05
Acetaldehyde	75-07-0	1.50E-05	1.50E-05	1.50E-05	5.38E-06
Acrolein	107-02-8	3.76E-06	3.69E-06	3.76E-06	1.57E-06
Hexane	110-54-3	3.50E-01	2.18E-01	3.50E-01	6.37E-02
Ammonia	7664-41-7	2.71E-04	1.80E-04	2.71E-04	5.20E-04
Methanol	67-56-1	2.51E-02	1.59E-02	2.51E-02	5.11E-03
n-Butanol	71-36-3	1.20E-05	1.19E-05	1.20E-05	3.22E-05
Propylene Glycol Monomethyl Ether	107-98-2	1.34E-03	1.34E-03	1.34E-03	2.87E-03
Propylene Glycol Monomethyl Ether Acetate	108-65-6	2.13E-03	2.10E-03	2.13E-03	2.38E-03
Cyclohexane	110-82-7	4.19E-02	2.51E-02	4.19E-02	1.23E-02
Styrene	100-42-5	1.40E-03	8.94E-04	1.40E-03	2.03E-04
2,2,4-Trimethylpentane	540-84-1	2.62E-01	2.03E-01	2.62E-01	4.52E-02
Diethylene Glycol Monobutyl Ether	112-34-5	6.65E-04	6.60E-04	6.65E-04	1.79E-03
Dimethyl Formamide	68-12-2	3.19E-06	3.16E-06	3.19E-06	8.58E-06
Sec-Butyl alcohol	78-92-2	6.18E-06	6.14E-06	6.18E-06	1.66E-05
MEK	78-93-3	1.67E-02	1.64E-02	1.67E-02	1.15E-02
MIBK	108-10-1	5.01E-03	4.91E-03	5.01E-03	3.38E-03
Ethylene Glycol Monobutyl Ether	111-76-2	7.09E-04	7.05E-04	7.09E-04	1.91E-03
IPA	67-63-0	1.33E-03	1.32E-03	1.33E-03	3.58E-03
2-Methylnaphthalene	91-57-6	5.58E-07	3.12E-07	5.58E-07	7.60E-07
o-Cresol	95-48-7	1.66E-06	9.27E-07	1.66E-06	2.26E-06
Phenol	108-95-2	3.06E-07	1.71E-07	3.06E-07	4.17E-07
Chloroform	67-66-3	2.97E-06	1.79E-06	2.97E-06	3.75E-06
Chloromethane	74-87-3	2.50E-06	1.51E-06	2.50E-06	3.17E-06
Vinyl Chloride	75-01-4	2.88E-06	1.74E-06	2.88E-06	3.65E-06
Bromoform	75-25-2	7.58E-06	4.57E-06	7.58E-06	9.60E-06

Pollutant	CAS Number	Annual average concentration ($\mu\text{g}/\text{m}^3$)			
		PMI Rec #262 X=384037.3 Y=3745030.8	MEIR Rec #707 X=384300 Y=3744600	MEIW Rec #262 X=384037.3 Y=3745030.8	Max sensitive Rec #7829 X=385246.8 Y=3744738.0
Bromodichloromethane	75-27-4	4.14E-06	2.49E-06	4.14E-06	5.24E-06
1,1-Dichloroethane	75-34-3	5.59E-06	3.36E-06	5.59E-06	7.07E-06
Vinylidene Chloride	75-35-4	3.11E-06	1.87E-06	3.11E-06	3.93E-06
Tert-Butyl Alcohol	75-65-0	7.91E-06	4.77E-06	7.91E-06	1.00E-05
Dichlorodifluoromethane	75-71-8	4.61E-06	2.78E-06	4.61E-06	5.83E-06
Trichloroethylene	79-01-6	5.84E-05	3.51E-05	5.84E-05	7.38E-05
1,2-Dichloroethane	107-06-2	2.13E-04	1.28E-04	2.13E-04	2.69E-04
Chlorobenzene	108-90-7	5.40E-06	3.25E-06	5.40E-06	6.83E-06
Dibromochloromethane	124-48-1	5.46E-06	3.29E-06	5.46E-06	6.91E-06
Tetrachloroethylene	127-18-4	4.40E-05	2.65E-05	4.40E-05	5.57E-05
Diesel Exhaust Particulate	9901	1.72E-02	1.76E-02	1.72E-02	5.73E-03
1,3-Butadiene	106-99-0	1.63E-05	1.63E-05	1.63E-05	5.22E-06
Manganese & Compounds	7439-96-5	5.85E-08	5.87E-08	5.85E-08	1.88E-08
Nickel & Compounds	7440-02-0	5.85E-08	5.87E-08	5.85E-08	1.88E-08
Copper & Compounds	7440-50-8	5.85E-08	5.87E-08	5.85E-08	1.88E-08
Chlorine	7782-50-5	8.07E-06	8.09E-06	8.07E-06	2.59E-06
Benzo(g,h,i)perylene	191-24-2	2.98E-21	3.10E-21	2.98E-21	1.00E-20
Hexamethylene Diisocyanate Monomer	822-06-0	3.02E-04	2.96E-04	3.02E-04	1.16E-04

Table H-4. Maximum One-Hour Average Toxic Substance Concentrations at Maximum Impacted Acute Receptors

Pollutant	CAS Number	Maximum 1-hour average concentration ($\mu\text{g}/\text{m}^3$)			
		PMI Rec #264 X=384087 Y=3745030.3	MEIR Rec #2801 X=384425 Y=3745900	MEIW Rec #264 X=384087 Y=3745030.3	Max sensitive Rec #7828 X=384293.0 Y=3746322.0
Benzene	71-43-2	3.48E+01	2.27E+01	3.48E+01	3.02E+00
Naphthalene	91-20-3	1.34E+01	1.39E+01	1.34E+01	1.88E+00
1,2,4-Trimethylbenzene	95-63-6	1.55E+02	1.40E+02	1.55E+02	2.06E+01
Cumene	98-82-8	3.09E+01	4.02E+01	3.09E+01	5.85E+00
Ethyl Benzene	100-41-4	1.95E+02	2.09E+02	1.95E+02	2.94E+01
Toluene	108-88-3	6.38E+02	7.41E+02	6.38E+02	1.02E+02
Xylene	1330-20-7	3.78E+02	3.42E+02	3.78E+02	4.80E+01
Methyl t-Butyl ether (MTBE)	1634-04-4	1.10E-01	7.01E-02	1.10E-01	3.78E-02
PAH	1151	2.56E-05	6.50E-06	2.56E-05	4.41E-06
Formaldehyde	50-00-0	1.29E-01	7.69E-02	1.29E-01	4.26E-02
Acetaldehyde	75-07-0	3.10E-02	1.85E-02	3.10E-02	1.02E-02
Acrolein	107-02-8	7.87E-03	4.55E-03	7.87E-03	2.53E-03
Hexane	110-54-3	3.07E+02	2.84E+02	3.07E+02	4.11E+01
Ammonia	7664-41-7	7.71E-01	1.98E-01	7.71E-01	1.35E-01
Methanol	67-56-1	4.18E+00	2.79E-01	4.18E+00	8.87E-02
n-Butanol	71-36-3	2.21E-04	3.34E-04	2.21E-04	2.47E-04
Propylene glycol monomethyl ether	107-98-2	2.19E+00	3.06E+00	2.19E+00	2.24E+00
Propylene glycol monomethyl ether acetate	108-65-6	6.63E-02	5.06E-02	6.63E-02	3.16E-02
Cyclohexane	110-82-7	2.10E+01	2.67E+02	2.10E+01	3.17E+01
Styrene	100-42-5	1.73E+00	1.00E-01	1.73E+00	2.58E-02
2,2,4-Trimethylpentane	540-84-1	1.10E+02	6.60E+00	1.10E+02	1.65E+00
Diethylene Glycol Monobutyl Ether	112-34-5	1.99E-02	2.93E-02	1.99E-02	2.15E-02
Dimethyl Formamide	68-12-2	5.90E-05	8.90E-05	5.90E-05	6.59E-05
Sec-butyl alcohol	78-92-2	1.14E-04	1.73E-04	1.14E-04	1.28E-04
MEK	78-93-3	5.78E-01	3.76E-01	5.78E-01	2.20E-01
MIBK	108-10-1	1.66E-01	1.02E-01	1.66E-01	5.84E-02
Ethylene Glycol Monobutyl Ether	111-76-2	1.31E-02	1.98E-02	1.31E-02	1.47E-02
IPA	67-63-0	2.46E-02	3.71E-02	2.46E-02	2.75E-02
2-Methylnaphthalene	91-57-6	1.21E-04	8.43E-05	1.21E-04	4.32E-05
o-Cresol	95-48-7	3.59E-04	2.50E-04	3.59E-04	1.28E-04
Phenol	108-95-2	6.64E-05	4.62E-05	6.64E-05	2.37E-05
Chloroform	67-66-3	3.80E-05	3.05E-05	3.80E-05	1.47E-05
Chloromethane	74-87-3	3.20E-05	2.57E-05	3.20E-05	1.24E-05
Vinyl Chloride	75-01-4	3.69E-05	2.97E-05	3.69E-05	1.43E-05
Bromoform	75-25-2	9.72E-05	7.80E-05	9.72E-05	3.75E-05
Bromodichloromethane	75-27-4	5.30E-05	4.26E-05	5.30E-05	2.05E-05

Pollutant	CAS Number	Maximum 1-hour average concentration ($\mu\text{g}/\text{m}^3$)			
		PMI Rec #264 X=384087 Y=3745030.3	MEIR Rec #2801 X=384425 Y=3745900	MEIW Rec #264 X=384087 Y=3745030.3	Max sensitive Rec #7828 X=384293.0 Y=3746322.0
1,1-Dichloroethane	75-34-3	7.15E-05	5.74E-05	7.15E-05	2.76E-05
Vinylidene Chloride	75-35-4	3.98E-05	3.19E-05	3.98E-05	1.54E-05
Tert-Butyl Alcohol	75-65-0	1.01E-04	8.14E-05	1.01E-04	3.92E-05
Dichlorodifluoromethane	75-71-8	5.89E-05	4.73E-05	5.89E-05	2.27E-05
Trichloroethylene	79-01-6	7.47E-04	6.00E-04	7.47E-04	2.88E-04
1,2-Dichloroethane	107-06-2	2.72E-03	2.19E-03	2.72E-03	1.05E-03
Chlorobenzene	108-90-7	6.90E-05	5.54E-05	6.90E-05	2.66E-05
Dibromochloromethane	124-48-1	6.98E-05	5.61E-05	6.98E-05	2.70E-05
Tetrachloroethylene	127-18-4	5.64E-04	4.52E-04	5.64E-04	2.18E-04
Diesel Exhaust Particulate	9901	4.08E+00	2.58E+00	4.08E+00	1.51E+00
1,3-Butadiene	106-99-0	3.34E-02	2.02E-02	3.34E-02	1.12E-02
Manganese & Compounds	7439-96-5	1.20E-04	7.27E-05	1.20E-04	4.02E-05
Nickel & Compounds	7440-02-0	1.20E-04	7.27E-05	1.20E-04	4.02E-05
Copper & Compounds	7440-50-8	1.20E-04	7.27E-05	1.20E-04	4.02E-05
Chlorine	7782-50-5	1.66E-02	1.00E-02	1.66E-02	5.54E-03
Benzo(g,h,i)perylene	191-24-2	3.29E-19	4.45E-19	3.29E-19	3.15E-19
Hexamethylene Diisocyanate Monomer	822-06-0	1.09E-02	6.26E-03	1.09E-02	3.43E-03

APPENDIX I. RISK CONTRIBUTION BY SUBSTANCE

Table I-1. Cancer Risk by Substance at PMI, MEIR, MEIW, and Maximum Sensitive Receptors

Pollutant	CAS Number	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Total risk	Fraction	Total risk	Fraction	Total risk	Fraction	Total risk	Fraction
Diesel Exhaust Particulate	9901	7.3E-05	97.8%	1.5E-05	67.9%	6.1E-06	97.8%	4.3E-06	70.7%
Naphthalene	91-20-3	9.0E-07	1.2%	6.2E-07	2.8%	7.5E-08	1.2%	1.2E-07	2.0%
Benzene	71-43-2	5.5E-07	0.7%	5.5E-06	24.9%	4.6E-08	0.7%	1.5E-06	24.8%
Ethyl Benzene	100-41-4	1.4E-07	0.2%	9.4E-07	4.3%	1.1E-08	0.2%	1.3E-07	2.2%
1,3-Butadiene	106-99-0	2.3E-08	0.0%	7.5E-09	0.0%	1.9E-09	0.0%	2.1E-09	0.0%
1,2-Dichloroethane	107-06-2	4.1E-09	0.0%	4.7E-09	0.0%	3.4E-10	0.0%	1.3E-08	0.2%
Formaldehyde	50-00-0	3.2E-09	0.0%	1.0E-09	0.0%	2.6E-10	0.0%	3.2E-10	0.0%
PAH	1151	3.1E-09	0.0%	3.1E-10	0.0%	7.3E-11	0.0%	9.9E-10	0.0%
Acetaldehyde	75-07-0	3.6E-10	0.0%	1.1E-10	0.0%	3.0E-11	0.0%	3.6E-11	0.0%
Tetrachloroethylene	127-18-4	2.5E-10	0.0%	2.9E-10	0.0%	2.1E-11	0.0%	7.9E-10	0.0%
Methyl t-Butyl ether (MTBE)	1634-04-4	2.2E-10	0.0%	1.4E-10	0.0%	1.9E-11	0.0%	3.0E-10	0.0%
Vinyl Chloride	75-01-4	2.1E-10	0.0%	2.4E-10	0.0%	1.7E-11	0.0%	6.7E-10	0.0%
Nickel & Compounds	7440-02-0	1.3E-10	0.0%	4.1E-11	0.0%	1.1E-11	0.0%	1.2E-11	0.0%
Trichloroethylene	79-01-6	1.1E-10	0.0%	1.3E-10	0.0%	9.1E-12	0.0%	3.5E-10	0.0%
Chloroform	67-66-3	1.5E-11	0.0%	1.7E-11	0.0%	1.3E-12	0.0%	4.8E-11	0.0%
1,1-Dichloroethane	75-34-3	8.6E-12	0.0%	9.9E-12	0.0%	7.1E-13	0.0%	2.7E-11	0.0%
Total		7.5E-05	100.0%	2.2E-05	100.0%	6.2E-06	100.0%	6.0E-06	100.0%

Table I-2. Chronic Risk by Substance at PMI, MEIR, MEIW, and Maximum Sensitive Receptors¹²

Pollutant	CAS Number	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		HI	Fraction	HI	Fraction	HI	Fraction	HI	Fraction
Hexamethylene Diisocyanate Monomer	822-06-0	4.5E-02	65.7%	0.0E+00	0.0%	4.5E-02	65.7%	0.0E+00	0.0%
Diesel Exhaust Particulate	9901	2.0E-02	28.6%	0.0E+00	0.0%	2.0E-02	28.6%	0.0E+00	0.0%
Ethylene Glycol Monobutyl Ether	111-76-2	1.6E-03	2.3%	0.0E+00	0.0%	1.6E-03	2.3%	0.0E+00	0.0%
Naphthalene	91-20-3	1.2E-03	1.8%	0.0E+00	0.0%	1.2E-03	1.8%	0.0E+00	0.0%
Toluene	108-88-3	5.8E-04	0.8%	0.0E+00	0.0%	5.8E-04	0.8%	0.0E+00	0.0%
Xylene	1330-20-7	3.1E-04	0.5%	0.0E+00	0.0%	3.1E-04	0.5%	0.0E+00	0.0%
Chlorine	7782-50-5	1.4E-04	0.2%	0.0E+00	0.0%	1.4E-04	0.2%	0.0E+00	0.0%
Acrolein	107-02-8	3.9E-05	0.1%	0.0E+00	0.0%	3.9E-05	0.1%	0.0E+00	0.0%
Formaldehyde	50-00-0	2.5E-05	0.0%	0.0E+00	0.0%	2.5E-05	0.0%	0.0E+00	0.0%
Benzene	71-43-2	0.0E+00	0.0%	3.5E-02	100.0%	0.0E+00	0.0%	7.4E-03	100.0%
Nickel & Compounds	7440-02-0	1.5E-05	0.0%	4.2E-06	0.0%	1.5E-05	0.0%	1.3E-06	0.0%
Ammonia	7664-41-7	8.0E-06	0.0%	0.0E+00	0.0%	8.0E-06	0.0%	0.0E+00	0.0%
Dimethyl Formamide	68-12-2	7.2E-06	0.0%	0.0E+00	0.0%	7.2E-06	0.0%	0.0E+00	0.0%
Acetaldehyde	75-07-0	3.8E-07	0.0%	0.0E+00	0.0%	3.8E-07	0.0%	0.0E+00	0.0%
Total		6.9E-02	100.0%	3.5E-02	100.0%	6.9E-02	100.0%	7.4E-03	100.0%

¹² To calculate maximum chronic risk, HARP determines risk from all chemicals for all pathways, and the pathway with the highest total is considered the maximum. If a chemical contributes risk to one or more pathways but does not affect the pathway with the highest risk, it is not listed in this table. For this project, the pathway with the highest chronic risk at the PMI, MEIR, MEIW, and maximum sensitive receptor was the hematological system.

Table I-3. 8-Hr Chronic Risk by Substance at PMI, MEIR, MEIW, and Maximum Sensitive Receptors¹³

Pollutant	CAS Number	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Benzene	71-43-2	5.6E-02	100.0%	3.5E-02	100.0%	5.6E-02	100.0%	7.4E-03	100.0%
Total		5.6E-02	100.0%	3.5E-02	100.0%	5.6E-02	100.0%	7.4E-03	100.0%

¹³ To calculate maximum 8-hr chronic risk, HARP determines risk from all chemicals for all pathways, and the pathway with the highest total is considered the maximum. If a chemical contributes risk to one or more pathways but does not affect the pathway with the highest risk, it is not listed in this table. For this project, the pathway with the highest 8-hr chronic risk at the PMI, MEIR, MEIW, and maximum sensitive receptor was the hematological system.

Table I-4. Acute Risk by Substance at PMI, MEIR, MEIW, and Maximum Sensitive Receptors¹⁴

Pollutant	CAS Number	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Benzene	71-43-2	1.3E+00	98.7%	8.4E-01	97.7%	1.3E+00	98.7%	1.1E-01	97.6%
Toluene	108-88-3	1.7E-02	1.3%	2.0E-02	2.3%	1.7E-02	1.3%	2.8E-03	2.4%
Styrene	100-42-5	8.2E-05	0.0%	4.8E-06	0.0%	8.2E-05	0.0%	1.2E-06	0.0%
1,3-Butadiene	106-99-0	5.1E-05	0.0%	3.1E-05	0.0%	5.1E-05	0.0%	1.7E-05	0.0%
Chloroform	67-66-3	2.5E-07	0.0%	2.0E-07	0.0%	2.5E-07	0.0%	9.8E-08	0.0%
Total		1.3E+00	100.0%	8.6E-01	100.0%	1.3E+00	100.0%	1.1E-01	100.0%

¹⁴ To calculate maximum acute risk, HARP determines risk from all chemicals for all pathways, and the pathway with the highest total is considered the maximum. If a chemical contributes risk to one or more pathways but does not affect the pathway with the highest risk, it is not listed in this table. For this project, the pathway with the highest acute risk at the PMI, MEIR, MEIW, and maximum sensitive receptor was the reproductive/development system.

APPENDIX J. RISK CONTRIBUTION BY SOURCE

Table J-1. Cancer Risk by Source at PMI, MEIR, MEIW, and Maximum Sensitive Receptors

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction
Portable diesel ICEs - Chemical load rack and tank farm	298_2A to 2B	7.2E-05	95.9%	2.7E-07	1.2%	6.0E-06	95.9%	9.0E-07	14.9%
Portable diesel ICEs - Fuels tank farm	298_1A to 1D	1.1E-06	1.5%	1.4E-05	65.7%	9.3E-08	1.5%	2.3E-06	38.2%
Fugitives - Chemical load rack and tank farm	288_2A to 2B	8.5E-07	1.1%	3.7E-09	0.0%	7.1E-08	1.1%	1.3E-08	0.2%
RM Electric diesel generators	298_4	2.3E-07	0.3%	9.2E-08	0.4%	1.9E-08	0.3%	7.7E-07	12.7%
Ethanol Load Rack (truck fugitives)	22B	1.4E-07	0.2%	1.2E-07	0.6%	1.2E-08	0.2%	3.9E-07	6.4%
WCES diesel ICEs	298_5	1.0E-07	0.1%	1.1E-07	0.5%	8.5E-09	0.1%	2.9E-07	4.7%
Painting - Chemical load rack and tank farm	999_2A to 2B	8.2E-08	0.1%	4.4E-10	0.0%	6.9E-09	0.1%	1.5E-09	0.0%
Portable gasoline ICEs - Chemical load rack and tank farm	299_2A to 2B	4.3E-08	0.1%	1.6E-10	0.0%	3.6E-09	0.1%	5.4E-10	0.0%
Fugitives - Tank farm and ethanol rack	288_1A to 1E	4.2E-08	0.1%	3.8E-07	1.7%	3.5E-09	0.1%	9.5E-08	1.6%
Fire Pump	14	2.3E-08	0.0%	9.6E-10	0.0%	1.9E-09	0.0%	2.9E-09	0.0%
568 IFR Storage Tank - Gasoline	125	2.1E-08	0.0%	3.6E-08	0.2%	1.8E-09	0.0%	8.6E-08	1.4%
572 IFR Storage Tank - Gasoline	216	2.0E-08	0.0%	2.5E-08	0.1%	1.7E-09	0.0%	6.5E-08	1.1%
564A IFR Storage Tank - Gasoline	113	2.0E-08	0.0%	4.5E-08	0.2%	1.7E-09	0.0%	8.8E-08	1.5%
573 IFR Storage Tank - Gasoline	217	1.9E-08	0.0%	3.0E-08	0.1%	1.6E-09	0.0%	6.5E-08	1.1%
565 IFR Storage Tank - Gasoline	114	1.7E-08	0.0%	5.4E-08	0.2%	1.4E-09	0.0%	7.2E-08	1.2%
569 IFR Storage Tank - Gasoline	116	1.4E-08	0.0%	3.1E-08	0.1%	1.2E-09	0.0%	5.6E-08	0.9%
48-1A VFR Storage Tank - Renewable Diesel	165	1.4E-08	0.0%	3.8E-10	0.0%	1.1E-09	0.0%	1.0E-09	0.0%
561 IFR Storage Tank - Gasoline	112	1.4E-08	0.0%	6.0E-08	0.3%	1.1E-09	0.0%	5.4E-08	0.9%
560 IFR Storage Tank - Gasoline	111	1.3E-08	0.0%	4.3E-08	0.2%	1.1E-09	0.0%	5.8E-08	1.0%
566 IFR Storage Tank - Gasoline	115	1.3E-08	0.0%	5.0E-08	0.2%	1.1E-09	0.0%	5.0E-08	0.8%

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Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction
570 IFR Storage Tank - Gasoline	280	1.3E-08	0.0%	3.4E-08	0.2%	1.1E-09	0.0%	4.8E-08	0.8%
580 VFR Storage Tank - Distillate fuel oil no. 2	122	1.2E-08	0.0%	8.2E-09	0.0%	9.9E-10	0.0%	2.3E-08	0.4%
562 IFR Storage Tank - Gasoline	277	1.1E-08	0.0%	6.3E-08	0.3%	9.1E-10	0.0%	3.9E-08	0.6%
733 IFR Storage Tank - Gasoline	247	1.0E-08	0.0%	1.9E-07	0.9%	8.7E-10	0.0%	2.7E-08	0.4%
567 IFR Storage Tank - Gasoline	279	1.0E-08	0.0%	5.0E-08	0.2%	8.5E-10	0.0%	3.7E-08	0.6%
582 VFR Storage Tank - Jet A	124	1.0E-08	0.0%	1.1E-08	0.0%	8.5E-10	0.0%	2.5E-08	0.4%
514 IFR Storage Tank - Gasoline	270	1.0E-08	0.0%	1.0E-07	0.5%	8.3E-10	0.0%	3.2E-08	0.5%
729 IFR Storage Tank - Gasoline	119	1.0E-08	0.0%	3.2E-07	1.4%	8.3E-10	0.0%	2.4E-08	0.4%
581 VFR Storage Tank - Distillate fuel oil no. 2	132	9.7E-09	0.0%	8.4E-09	0.0%	8.1E-10	0.0%	2.1E-08	0.4%
730 IFR Storage Tank - Gasoline	118	9.7E-09	0.0%	4.5E-07	2.0%	8.0E-10	0.0%	2.1E-08	0.4%
505 IFR Storage Tank - Gasoline	236	9.4E-09	0.0%	1.8E-07	0.8%	7.8E-10	0.0%	2.6E-08	0.4%
725 IFR Storage Tank - Gasoline	282	9.3E-09	0.0%	5.8E-07	2.6%	7.7E-10	0.0%	2.0E-08	0.3%
726 IFR Storage Tank - Gasoline	283	9.0E-09	0.0%	9.3E-07	4.2%	7.5E-10	0.0%	1.9E-08	0.3%
515 IFR Storage Tank - Gasoline	271	8.9E-09	0.0%	1.1E-07	0.5%	7.4E-10	0.0%	2.5E-08	0.4%
587 VFR Storage Tank - Jet A	107	8.8E-09	0.0%	8.5E-09	0.0%	7.3E-10	0.0%	1.9E-08	0.3%
511 IFR Storage Tank - Gasoline	276	8.6E-09	0.0%	1.9E-07	0.9%	7.2E-10	0.0%	2.2E-08	0.4%
18-21 VFR Storage Tank - CYC 150	149	7.8E-09	0.0%	1.3E-10	0.0%	6.5E-10	0.0%	3.8E-10	0.0%
727 IFR Storage Tank - Gasoline	218	7.7E-09	0.0%	1.1E-06	4.8%	6.4E-10	0.0%	1.5E-08	0.3%
585 VFR Storage Tank - Jet A	123	7.6E-09	0.0%	4.9E-09	0.0%	6.3E-10	0.0%	1.2E-08	0.2%
506 IFR Storage Tank - Gasoline	275	7.4E-09	0.0%	2.1E-07	0.9%	6.2E-10	0.0%	1.9E-08	0.3%
48-4 VFR Storage Tank - Biodiesel	86	6.6E-09	0.0%	1.6E-10	0.0%	5.5E-10	0.0%	4.2E-10	0.0%
720 VFR Storage Tank - Distillate fuel oil no. 2	105	5.9E-09	0.0%	1.5E-09	0.0%	4.9E-10	0.0%	3.8E-09	0.1%
563 IFR Storage Tank - Gasoline	278	5.7E-09	0.0%	4.2E-08	0.2%	4.7E-10	0.0%	1.9E-08	0.3%
578 VFR Storage Tank - Jet A	121	5.6E-09	0.0%	8.0E-09	0.0%	4.7E-10	0.0%	1.7E-08	0.3%
588 VFR Storage Tank; Renewable diesel	117B	5.4E-09	0.0%	2.0E-09	0.0%	4.5E-10	0.0%	5.1E-09	0.1%
574 VFR Storage Tank - Jet A	102	5.2E-09	0.0%	1.0E-08	0.0%	4.3E-10	0.0%	1.9E-08	0.3%

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Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction
579 VFR Storage Tank - Jet A	103	5.2E-09	0.0%	8.9E-09	0.0%	4.3E-10	0.0%	1.6E-08	0.3%
Bioreactor	245	5.2E-09	0.0%	5.9E-09	0.0%	4.3E-10	0.0%	1.6E-08	0.3%
48-3 VFR Storage Tank - Biodiesel	156	4.6E-09	0.0%	1.2E-10	0.0%	3.8E-10	0.0%	3.2E-10	0.0%
575 VFR Storage Tank - Jet A	108	4.5E-09	0.0%	1.1E-08	0.0%	3.8E-10	0.0%	1.6E-08	0.3%
48-6 VFR Storage Tank - Biodiesel	87	4.5E-09	0.0%	1.6E-10	0.0%	3.7E-10	0.0%	4.1E-10	0.0%
589 VFR Storage Tank - Renewable Diesel	106	4.4E-09	0.0%	2.1E-09	0.0%	3.7E-10	0.0%	5.1E-09	0.1%
Painting - Tank farm and ethanol rack	999_1A to 1E	4.1E-09	0.0%	3.5E-08	0.2%	3.4E-10	0.0%	1.0E-08	0.2%
503 IFR Storage Tank - Transmix	262	4.0E-09	0.0%	2.2E-07	1.0%	3.3E-10	0.0%	9.6E-09	0.2%
Chemical's Side VCU (NG Combustion)	13	3.0E-09	0.0%	9.2E-11	0.0%	8.8E-11	0.0%	2.0E-10	0.0%
509 DEFR Storage Tank - Gasoline	266	2.7E-09	0.0%	3.1E-08	0.1%	2.2E-10	0.0%	8.2E-09	0.1%
722 VFR Storage Tank - Jet A	101	2.7E-09	0.0%	8.7E-07	3.9%	2.2E-10	0.0%	5.4E-09	0.1%
Chemicals Rack (truck fugitives)	8B	2.6E-09	0.0%	1.2E-11	0.0%	2.2E-10	0.0%	4.8E-11	0.0%
510 DEFR Storage Tank - Gasoline	267	2.6E-09	0.0%	4.0E-08	0.2%	2.1E-10	0.0%	7.2E-09	0.1%
723 VFR Storage Tank - Jet A	100	2.5E-09	0.0%	3.0E-07	1.3%	2.1E-10	0.0%	4.8E-09	0.1%
18-24 VFR Storage Tank - CYC 100	142	2.0E-09	0.0%	2.7E-11	0.0%	1.7E-10	0.0%	8.4E-11	0.0%
18-30 VFR Storage Tank - CYC 100	134	2.0E-09	0.0%	2.4E-11	0.0%	1.6E-10	0.0%	7.5E-11	0.0%
507A DEFR Storage Tank - Gasoline	264	1.9E-09	0.0%	7.3E-08	0.3%	1.6E-10	0.0%	4.5E-09	0.1%
1134 DEFR Storage Tank - Transmix	215	1.7E-09	0.0%	2.2E-09	0.0%	1.4E-10	0.0%	7.7E-09	0.1%
Soil Vapor Extraction Unit Thermal Oxidizer (Uncombusted Vapors)	233	1.2E-09	0.0%	7.0E-10	0.0%	1.0E-10	0.0%	2.9E-09	0.0%
1515 DEFR Storage Tank - Transmix	219	1.1E-09	0.0%	1.3E-09	0.0%	8.8E-11	0.0%	4.6E-09	0.1%
Portable gasoline ICEs - Fuels tank farm	299_1A to 1D	1.1E-09	0.0%	1.4E-08	0.1%	8.7E-11	0.0%	2.2E-09	0.0%
Contractor WW Treatment - MI Water and Tk 1134 (uncombusted vapors)	291	9.3E-10	0.0%	1.3E-09	0.0%	7.7E-11	0.0%	4.1E-09	0.1%
588 VFR Storage Tank; Distillate fuel oil no. 2	117A	7.4E-10	0.0%	2.8E-10	0.0%	6.2E-11	0.0%	6.9E-10	0.0%
30-8 VFR Storage Tank - Distillate fuel oil no. 2	227	6.6E-10	0.0%	1.9E-11	0.0%	5.5E-11	0.0%	5.5E-11	0.0%

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction
WCES gasoline ICEs	299_5	4.7E-10	0.0%	5.1E-10	0.0%	3.9E-11	0.0%	1.3E-09	0.0%
513 IFR Storage Tank - Denatured Ethanol	269	3.7E-10	0.0%	2.6E-09	0.0%	3.1E-11	0.0%	1.3E-09	0.0%
512 IFR Storage Tank - Denatured Ethanol	268	3.5E-10	0.0%	1.8E-09	0.0%	2.9E-11	0.0%	1.4E-09	0.0%
508 IFR Storage Tank - Denatured Ethanol	265	3.5E-10	0.0%	2.9E-09	0.0%	2.9E-11	0.0%	1.2E-09	0.0%
504 IFR Storage Tank - Denatured Ethanol	263	3.5E-10	0.0%	4.3E-09	0.0%	2.9E-11	0.0%	1.1E-09	0.0%
576 DEFR Storage Tank - Jet A	272	3.3E-10	0.0%	3.1E-10	0.0%	2.8E-11	0.0%	8.3E-10	0.0%
583 IFR Storage Tank - Distillate fuel oil no. 2	220	3.3E-10	0.0%	4.3E-10	0.0%	2.7E-11	0.0%	8.7E-10	0.0%
501 IFR Storage Tank - Denatured Ethanol	260	3.2E-10	0.0%	5.5E-09	0.0%	2.7E-11	0.0%	9.0E-10	0.0%
586 IFR Storage Tank - Jet A	274	3.1E-10	0.0%	2.5E-10	0.0%	2.6E-11	0.0%	5.9E-10	0.0%
502 IFR Storage Tank - Denatured Ethanol	261	3.0E-10	0.0%	9.1E-09	0.0%	2.5E-11	0.0%	7.7E-10	0.0%
Soil Vapor Extraction Unit Thermal Oxidizer (NG Combustion)	24	2.6E-10	0.0%	9.2E-11	0.0%	8.2E-12	0.0%	1.5E-09	0.0%
577 IFR Storage Tank - Jet A	273	2.4E-10	0.0%	2.8E-10	0.0%	2.0E-11	0.0%	6.8E-10	0.0%
Ethanol Rack VCU (Uncombusted Truck Vapors)	22A	1.6E-10	0.0%	7.3E-11	0.0%	1.4E-11	0.0%	3.0E-10	0.0%
Misc unmetered equipm (NG)	287	5.1E-11	0.0%	1.2E-11	0.0%	1.6E-12	0.0%	1.8E-10	0.0%
Ethanol Rack VCU (NG Combustion)	23	4.4E-11	0.0%	6.2E-13	0.0%	1.3E-12	0.0%	2.0E-10	0.0%
WW Treatment Sep-Nov - GEM ThermOx F89304 (NG combustion)	297	3.7E-11	0.0%	5.2E-11	0.0%	1.2E-12	0.0%	3.9E-10	0.0%
AECOM Generator - SVES area	299_3	2.6E-11	0.0%	1.1E-11	0.0%	2.2E-12	0.0%	3.1E-11	0.0%
2549 VFR Storage Tank - Contact Water	284	1.0E-11	0.0%	2.2E-13	0.0%	8.3E-13	0.0%	6.3E-13	0.0%
Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	286O	9.8E-12	0.0%	8.9E-12	0.0%	8.1E-13	0.0%	6.4E-11	0.0%
2550 VFR Storage Tank - Contact Water	285	9.7E-12	0.0%	2.2E-13	0.0%	8.0E-13	0.0%	6.2E-13	0.0%
Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	293	8.4E-12	0.0%	7.6E-12	0.0%	2.6E-13	0.0%	1.3E-10	0.0%
Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	286L	4.6E-12	0.0%	8.7E-12	0.0%	3.8E-13	0.0%	1.9E-11	0.0%
Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	286A	4.2E-12	0.0%	2.4E-12	0.0%	3.5E-13	0.0%	1.3E-11	0.0%

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction
Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	286K	3.1E-12	0.0%	5.3E-12	0.0%	2.6E-13	0.0%	1.3E-11	0.0%
Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	286J	2.6E-12	0.0%	1.4E-11	0.0%	2.2E-13	0.0%	7.3E-12	0.0%
Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	286H	2.3E-12	0.0%	2.3E-12	0.0%	1.9E-13	0.0%	1.1E-11	0.0%
Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	286G	2.1E-12	0.0%	1.2E-12	0.0%	1.7E-13	0.0%	6.5E-12	0.0%
Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	296	1.7E-12	0.0%	2.9E-12	0.0%	4.8E-14	0.0%	2.5E-11	0.0%
Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	286I	1.4E-12	0.0%	8.9E-12	0.0%	1.2E-13	0.0%	4.8E-12	0.0%
Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	286N	1.4E-12	0.0%	3.3E-12	0.0%	1.1E-13	0.0%	5.8E-12	0.0%
30-4 VFR Storage Tank; Toluene (vents to chemical side RTO)	182	1.2E-12	0.0%	3.6E-14	0.0%	9.7E-14	0.0%	3.3E-14	0.0%
Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	286M	1.1E-12	0.0%	8.3E-12	0.0%	9.2E-14	0.0%	3.5E-12	0.0%
Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	286C	9.1E-13	0.0%	8.4E-12	0.0%	7.5E-14	0.0%	2.6E-12	0.0%
Chemical's Side VCU (Uncombusted Truck Vapors)	8A	8.4E-13	0.0%	2.6E-14	0.0%	7.0E-14	0.0%	2.4E-14	0.0%
Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	286B	8.4E-13	0.0%	1.7E-11	0.0%	7.0E-14	0.0%	2.2E-12	0.0%
6004 VFR Storage Tank; VMP HT (vents to chemical side RTO)	190	6.3E-13	0.0%	1.9E-14	0.0%	5.3E-14	0.0%	1.8E-14	0.0%
921 VFR Storage Tank; Groundwater (vents to cc)	5	5.4E-13	0.0%	6.2E-13	0.0%	4.5E-14	0.0%	1.4E-12	0.0%
Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	286D	3.9E-13	0.0%	2.3E-13	0.0%	3.3E-14	0.0%	1.3E-12	0.0%
Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	292B	3.9E-13	0.0%	6.5E-13	0.0%	1.2E-14	0.0%	3.9E-12	0.0%
Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	292A	3.1E-13	0.0%	1.6E-12	0.0%	9.5E-15	0.0%	2.1E-12	0.0%

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction
Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	295D	3.1E-13	0.0%	1.8E-13	0.0%	9.0E-15	0.0%	2.5E-12	0.0%
Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	295H	2.7E-13	0.0%	2.7E-13	0.0%	7.9E-15	0.0%	3.3E-12	0.0%
Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	292C	2.7E-13	0.0%	5.2E-13	0.0%	8.3E-15	0.0%	2.6E-12	0.0%
Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	295F	1.8E-13	0.0%	9.0E-13	0.0%	5.2E-15	0.0%	1.5E-12	0.0%
Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	295B	1.7E-13	0.0%	3.4E-12	0.0%	4.8E-15	0.0%	1.0E-12	0.0%
Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	295A	1.4E-13	0.0%	8.2E-14	0.0%	4.1E-15	0.0%	1.1E-12	0.0%
Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	295I	1.4E-13	0.0%	9.0E-13	0.0%	4.1E-15	0.0%	1.2E-12	0.0%
Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	294A	1.3E-13	0.0%	9.7E-13	0.0%	3.7E-15	0.0%	9.7E-13	0.0%
Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	294B	1.2E-13	0.0%	2.8E-13	0.0%	3.4E-15	0.0%	1.2E-12	0.0%
Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	295C	9.9E-14	0.0%	9.2E-13	0.0%	2.9E-15	0.0%	6.8E-13	0.0%
Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	295G	9.4E-14	0.0%	5.4E-14	0.0%	2.7E-15	0.0%	7.1E-13	0.0%
18-5 VFR Storage Tank; VMP HT (vents to chemical side RTO)	29	9.4E-14	0.0%	2.9E-15	0.0%	7.8E-15	0.0%	2.7E-15	0.0%
Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	295E	8.4E-14	0.0%	9.5E-14	0.0%	2.4E-15	0.0%	9.7E-13	0.0%
Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	286E	8.1E-14	0.0%	9.1E-14	0.0%	6.7E-15	0.0%	3.8E-13	0.0%
Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	286F	6.0E-14	0.0%	3.0E-13	0.0%	5.0E-15	0.0%	2.0E-13	0.0%
Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	286P	2.3E-14	0.0%	4.0E-14	0.0%	1.9E-15	0.0%	1.4E-13	0.0%
2551 VFR Storage Tank - Groundwater	170	6.9E-15	0.0%	9.4E-15	0.0%	5.8E-16	0.0%	2.2E-14	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction	Total Risk	Fraction
12-14 VFR Storage Tank; Slop (vents to chemical side RTO)	173	4.5E-16	0.0%	1.4E-17	0.0%	3.7E-17	0.0%	1.3E-17	0.0%
48-2A VFR Storage Tank; Methyl alcohol (vents to chemical side RTO)	25	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-4 VFR Storage Tank; Normal Butyl Acetate (vents to chemical side RTO)	30	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-3 VFR Storage Tank; Hexane (-n) (vents to chemical side RTO)	31	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-3 VFR Storage Tank - GLYCOL ETHER PM	80	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-4 VFR Storage Tank - Lubricity Additive	81	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-17 VFR Storage Tank - Glycol Ether PM Acetate	84	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-22 VFR Storage Tank - Butyl Dioxitol	152	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-1 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	178	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-2 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	179	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-6 VFR Storage Tank; TOL WHT (vents to chemical side RTO)	185	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-9 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	210	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-13 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	213	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-16 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	214	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-6 VFR Storage Tank; Methyl isobutyl ketone (vents to chemical side RTO)	221	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-33 VFR Storage Tank; Glycol Ether EB (vents to chemical side RTO)	222	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-10 VFR Storage Tank; Xylenes (mixed isomers) (vents to chemical side RTO)	223	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Total		7.5E-05	100.0%	2.2E-05	100.0%	6.2E-06	100.0%	6.0E-06	100.0%

Table J-2. Chronic Risk by Source at PMI, MEIR, MEIW, and Maximum Sensitive Receptors

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Painting - Chemical load rack and tank farm	999_2A to 2B	4.4E-02	64.0%	0.0E+00	0.0%	4.4E-02	64.0%	0.0E+00	0.0%
Portable diesel ICEs - Chemical load rack and tank farm	298_2A to 2B	1.9E-02	28.1%	0.0E+00	0.0%	1.9E-02	28.1%	0.0E+00	0.0%
Fugitives - Chemical load rack and tank farm	288_2A to 2B	3.4E-03	4.9%	3.1E-07	0.0%	3.4E-03	4.9%	8.5E-07	0.0%
Painting - Tank farm and ethanol rack	999_1A to 1E	1.2E-03	1.8%	0.0E+00	0.0%	1.2E-03	1.8%	0.0E+00	0.0%
Portable diesel ICEs - Fuels tank farm	298_1A to 1D	3.0E-04	0.4%	0.0E+00	0.0%	3.0E-04	0.4%	0.0E+00	0.0%
Portable gasoline ICEs - Chemical load rack and tank farm	299_2A to 2B	2.1E-04	0.3%	4.2E-07	0.0%	2.1E-04	0.3%	1.1E-06	0.0%
RM Electric diesel generators	298_4	6.2E-05	0.1%	0.0E+00	0.0%	6.2E-05	0.1%	0.0E+00	0.0%
WCES diesel ICEs	298_5	2.7E-05	0.0%	0.0E+00	0.0%	2.7E-05	0.0%	0.0E+00	0.0%
Fugitives - Tank farm and ethanol rack	288_1A to 1E	2.7E-05	0.0%	1.1E-03	3.0%	2.7E-05	0.0%	3.0E-04	4.1%
582 VFR Storage Tank - Jet A	124	1.8E-05	0.0%	0.0E+00	0.0%	1.8E-05	0.0%	0.0E+00	0.0%
587 VFR Storage Tank - Jet A	107	1.6E-05	0.0%	0.0E+00	0.0%	1.6E-05	0.0%	0.0E+00	0.0%
585 VFR Storage Tank - Jet A	123	1.3E-05	0.0%	0.0E+00	0.0%	1.3E-05	0.0%	0.0E+00	0.0%
12-4 VFR Storage Tank - Lubricity Additive	81	1.3E-05	0.0%	0.0E+00	0.0%	1.3E-05	0.0%	0.0E+00	0.0%
Ethanol Load Rack (truck fugitives)	22B	1.1E-05	0.0%	8.6E-04	2.5%	1.1E-05	0.0%	1.9E-03	25.6%
Chemical's Side VCU (NG Combustion)	13	1.1E-05	0.0%	2.5E-08	0.0%	1.1E-05	0.0%	2.4E-08	0.0%
48-1A VFR Storage Tank - Renewable Diesel	165	1.0E-05	0.0%	1.5E-06	0.0%	1.0E-05	0.0%	3.4E-06	0.0%
578 VFR Storage Tank - Jet A	121	1.0E-05	0.0%	0.0E+00	0.0%	1.0E-05	0.0%	0.0E+00	0.0%
574 VFR Storage Tank - Jet A	102	9.3E-06	0.0%	0.0E+00	0.0%	9.3E-06	0.0%	0.0E+00	0.0%
579 VFR Storage Tank - Jet A	103	9.3E-06	0.0%	0.0E+00	0.0%	9.3E-06	0.0%	0.0E+00	0.0%
580 VFR Storage Tank - Distillate fuel oil no. 2	122	9.0E-06	0.0%	3.2E-05	0.1%	9.0E-06	0.0%	7.4E-05	1.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
575 VFR Storage Tank - Jet A	108	8.1E-06	0.0%	0.0E+00	0.0%	8.1E-06	0.0%	0.0E+00	0.0%
18-21 VFR Storage Tank - CYC 150	149	7.5E-06	0.0%	2.3E-07	0.0%	7.5E-06	0.0%	5.8E-07	0.0%
581 VFR Storage Tank - Distillate fuel oil no. 2	132	7.3E-06	0.0%	3.3E-05	0.1%	7.3E-06	0.0%	7.0E-05	1.0%
Fire Pump	14	6.1E-06	0.0%	0.0E+00	0.0%	6.1E-06	0.0%	0.0E+00	0.0%
Portable gasoline ICEs - Fuels tank farm	299_1A to 1D	5.2E-06	0.0%	2.5E-05	0.1%	5.2E-06	0.0%	4.6E-06	0.1%
48-4 VFR Storage Tank - Biodiesel	86	5.0E-06	0.0%	6.1E-07	0.0%	5.0E-06	0.0%	1.4E-06	0.0%
722 VFR Storage Tank - Jet A	101	4.8E-06	0.0%	0.0E+00	0.0%	4.8E-06	0.0%	0.0E+00	0.0%
723 VFR Storage Tank - Jet A	100	4.5E-06	0.0%	0.0E+00	0.0%	4.5E-06	0.0%	0.0E+00	0.0%
720 VFR Storage Tank - Distillate fuel oil no. 2	105	4.4E-06	0.0%	5.8E-06	0.0%	4.4E-06	0.0%	1.3E-05	0.2%
588 VFR Storage Tank; Renewable diesel	117B	4.1E-06	0.0%	7.4E-06	0.0%	4.1E-06	0.0%	1.7E-05	0.2%
48-3 VFR Storage Tank - Biodiesel	156	3.5E-06	0.0%	4.5E-07	0.0%	3.5E-06	0.0%	1.0E-06	0.0%
48-6 VFR Storage Tank - Biodiesel	87	3.4E-06	0.0%	6.2E-07	0.0%	3.4E-06	0.0%	1.4E-06	0.0%
589 VFR Storage Tank - Renewable Diesel	106	3.4E-06	0.0%	7.7E-06	0.0%	3.4E-06	0.0%	1.7E-05	0.2%
572 IFR Storage Tank - Gasoline	216	3.1E-06	0.0%	1.5E-04	0.4%	3.1E-06	0.0%	3.1E-04	4.2%
568 IFR Storage Tank - Gasoline	125	2.9E-06	0.0%	2.3E-04	0.7%	2.9E-06	0.0%	4.1E-04	5.5%
564A IFR Storage Tank - Gasoline	113	2.7E-06	0.0%	3.2E-04	0.9%	2.7E-06	0.0%	4.2E-04	5.6%
573 IFR Storage Tank - Gasoline	217	2.6E-06	0.0%	1.7E-04	0.5%	2.6E-06	0.0%	3.1E-04	4.2%
565 IFR Storage Tank - Gasoline	114	2.4E-06	0.0%	3.5E-04	1.0%	2.4E-06	0.0%	3.4E-04	4.6%
WCES gasoline ICEs	299_5	2.3E-06	0.0%	1.5E-06	0.0%	2.3E-06	0.0%	2.8E-06	0.0%
18-24 VFR Storage Tank - CYC 100	142	2.2E-06	0.0%	1.6E-07	0.0%	2.2E-06	0.0%	4.1E-07	0.0%
561 IFR Storage Tank - Gasoline	112	2.2E-06	0.0%	4.3E-04	1.2%	2.2E-06	0.0%	2.5E-04	3.4%
18-30 VFR Storage Tank - CYC 100	134	2.1E-06	0.0%	1.5E-07	0.0%	2.1E-06	0.0%	3.7E-07	0.0%
566 IFR Storage Tank - Gasoline	115	2.1E-06	0.0%	3.1E-04	0.9%	2.1E-06	0.0%	2.3E-04	3.1%
Chemicals Rack (truck fugitives)	8B	2.0E-06	0.0%	4.9E-08	0.0%	2.0E-06	0.0%	1.6E-07	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
569 IFR Storage Tank - Gasoline	116	1.6E-06	0.0%	1.9E-04	0.6%	1.6E-06	0.0%	2.7E-04	3.6%
730 IFR Storage Tank - Gasoline	118	1.3E-06	0.0%	2.3E-03	6.6%	1.3E-06	0.0%	1.0E-04	1.4%
570 IFR Storage Tank - Gasoline	280	1.2E-06	0.0%	2.1E-04	0.6%	1.2E-06	0.0%	2.3E-04	3.2%
560 IFR Storage Tank - Gasoline	111	1.2E-06	0.0%	3.3E-04	1.0%	1.2E-06	0.0%	2.8E-04	3.8%
726 IFR Storage Tank - Gasoline	283	1.2E-06	0.0%	1.9E-03	5.5%	1.2E-06	0.0%	8.9E-05	1.2%
733 IFR Storage Tank - Gasoline	247	1.2E-06	0.0%	1.5E-03	4.2%	1.2E-06	0.0%	1.3E-04	1.7%
729 IFR Storage Tank - Gasoline	119	1.1E-06	0.0%	2.8E-03	8.1%	1.1E-06	0.0%	1.1E-04	1.5%
725 IFR Storage Tank - Gasoline	282	1.1E-06	0.0%	3.7E-03	10.7%	1.1E-06	0.0%	9.8E-05	1.3%
514 IFR Storage Tank - Gasoline	270	1.1E-06	0.0%	7.7E-04	2.2%	1.1E-06	0.0%	1.5E-04	2.0%
562 IFR Storage Tank - Gasoline	277	1.1E-06	0.0%	4.3E-04	1.2%	1.1E-06	0.0%	1.9E-04	2.6%
515 IFR Storage Tank - Gasoline	271	1.0E-06	0.0%	9.6E-04	2.8%	1.0E-06	0.0%	1.2E-04	1.6%
Soil Vapor Extraction Unit Thermal Oxidizer (NG Combustion)	24	9.7E-07	0.0%	6.3E-08	0.0%	9.7E-07	0.0%	2.5E-07	0.0%
567 IFR Storage Tank - Gasoline	279	9.2E-07	0.0%	3.3E-04	0.9%	9.2E-07	0.0%	1.8E-04	2.4%
727 IFR Storage Tank - Gasoline	218	9.0E-07	0.0%	1.0E-03	2.9%	9.0E-07	0.0%	7.4E-05	1.0%
511 IFR Storage Tank - Gasoline	276	8.6E-07	0.0%	1.9E-03	5.5%	8.6E-07	0.0%	1.1E-04	1.5%
505 IFR Storage Tank - Gasoline	236	8.2E-07	0.0%	1.9E-03	5.6%	8.2E-07	0.0%	1.3E-04	1.7%
506 IFR Storage Tank - Gasoline	275	7.0E-07	0.0%	2.6E-03	7.3%	7.0E-07	0.0%	9.1E-05	1.2%
588 VFR Storage Tank; Distillate fuel oil no. 2	117A	5.5E-07	0.0%	1.0E-06	0.0%	5.5E-07	0.0%	2.3E-06	0.0%
30-8 VFR Storage Tank - Distillate fuel oil no. 2	227	5.1E-07	0.0%	7.6E-08	0.0%	5.1E-07	0.0%	1.8E-07	0.0%
563 IFR Storage Tank - Gasoline	278	4.8E-07	0.0%	3.0E-04	0.9%	4.8E-07	0.0%	9.1E-05	1.2%
576 DEFR Storage Tank - Jet A	272	4.6E-07	0.0%	0.0E+00	0.0%	4.6E-07	0.0%	0.0E+00	0.0%
586 IFR Storage Tank - Jet A	274	4.5E-07	0.0%	0.0E+00	0.0%	4.5E-07	0.0%	0.0E+00	0.0%
503 IFR Storage Tank - Transmix	262	3.6E-07	0.0%	5.7E-03	16.3%	3.6E-07	0.0%	4.7E-05	0.6%
577 IFR Storage Tank - Jet A	273	3.5E-07	0.0%	0.0E+00	0.0%	3.5E-07	0.0%	0.0E+00	0.0%
509 DEFR Storage Tank - Gasoline	266	3.4E-07	0.0%	2.8E-04	0.8%	3.4E-07	0.0%	3.9E-05	0.5%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Contractor WW Treatment - MI Water and Tk 1134 (uncombusted vapors)	291	2.9E-07	0.0%	6.7E-06	0.0%	2.9E-07	0.0%	1.6E-05	0.2%
Soil Vapor Extraction Unit Thermal Oxidizer (Uncombusted Vapors)	233	2.8E-07	0.0%	3.5E-06	0.0%	2.8E-07	0.0%	1.3E-05	0.2%
510 DEFR Storage Tank - Gasoline	267	2.8E-07	0.0%	3.8E-04	1.1%	2.8E-07	0.0%	3.5E-05	0.5%
583 IFR Storage Tank - Distillate fuel oil no. 2	220	2.5E-07	0.0%	1.6E-06	0.0%	2.5E-07	0.0%	2.9E-06	0.0%
507A DEFR Storage Tank - Gasoline	264	2.0E-07	0.0%	9.6E-04	2.8%	2.0E-07	0.0%	2.1E-05	0.3%
Misc unmetered equipm (NG)	287	1.9E-07	0.0%	6.8E-09	0.0%	1.9E-07	0.0%	3.0E-08	0.0%
Ethanol Rack VCU (NG Combustion)	23	1.7E-07	0.0%	6.8E-09	0.0%	1.7E-07	0.0%	2.4E-08	0.0%
1134 DEFR Storage Tank - Transmix	215	1.6E-07	0.0%	1.5E-05	0.0%	1.6E-07	0.0%	3.8E-05	0.5%
WW Treatment Sep-Nov - GEM ThermOx F89304 (NG combustion)	297	1.4E-07	0.0%	2.6E-08	0.0%	1.4E-07	0.0%	6.2E-08	0.0%
AECOM Generator - SVES area	299_3	1.3E-07	0.0%	3.0E-08	0.0%	1.3E-07	0.0%	6.5E-08	0.0%
Bioreactor	245	1.0E-07	0.0%	3.0E-06	0.0%	1.0E-07	0.0%	6.3E-06	0.1%
1515 DEFR Storage Tank - Transmix	219	9.0E-08	0.0%	8.8E-06	0.0%	9.0E-08	0.0%	2.2E-05	0.3%
513 IFR Storage Tank - Denatured Ethanol	269	7.7E-08	0.0%	2.1E-05	0.1%	7.7E-08	0.0%	5.9E-06	0.1%
504 IFR Storage Tank - Denatured Ethanol	263	6.4E-08	0.0%	4.5E-05	0.1%	6.4E-08	0.0%	4.9E-06	0.1%
512 IFR Storage Tank - Denatured Ethanol	268	5.9E-08	0.0%	1.5E-05	0.0%	5.9E-08	0.0%	6.4E-06	0.1%
508 IFR Storage Tank - Denatured Ethanol	265	5.9E-08	0.0%	2.7E-05	0.1%	5.9E-08	0.0%	5.6E-06	0.1%
501 IFR Storage Tank - Denatured Ethanol	260	5.9E-08	0.0%	1.0E-04	0.3%	5.9E-08	0.0%	4.2E-06	0.1%
502 IFR Storage Tank - Denatured Ethanol	261	5.8E-08	0.0%	1.4E-04	0.4%	5.8E-08	0.0%	3.5E-06	0.0%
Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	293	3.1E-08	0.0%	2.9E-09	0.0%	3.1E-08	0.0%	2.1E-08	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
30-4 VFR Storage Tank; Toluene (vents to chemical side RTO)	182	1.8E-08	0.0%	1.7E-10	0.0%	1.8E-08	0.0%	1.6E-10	0.0%
Ethanol Rack VCU (Uncombusted Truck Vapors)	22A	1.3E-08	0.0%	4.2E-07	0.0%	1.3E-08	0.0%	1.5E-06	0.0%
Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	296	5.8E-09	0.0%	1.1E-09	0.0%	5.8E-09	0.0%	2.6E-09	0.0%
30-10 VFR Storage Tank; Xylenes (mixed isomers) (vents to chemical side RTO)	223	2.6E-09	0.0%	0.0E+00	0.0%	2.6E-09	0.0%	0.0E+00	0.0%
Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	292B	1.3E-09	0.0%	3.6E-10	0.0%	1.3E-09	0.0%	5.6E-10	0.0%
18-33 VFR Storage Tank; Glycol Ether EB (vents to chemical side RTO)	222	1.1E-09	0.0%	0.0E+00	0.0%	1.1E-09	0.0%	0.0E+00	0.0%
Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	295D	1.1E-09	0.0%	5.7E-11	0.0%	1.1E-09	0.0%	2.6E-10	0.0%
Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	292A	1.1E-09	0.0%	1.4E-09	0.0%	1.1E-09	0.0%	3.0E-10	0.0%
Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	295H	9.5E-10	0.0%	9.1E-11	0.0%	9.5E-10	0.0%	3.4E-10	0.0%
Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	292C	9.4E-10	0.0%	2.9E-10	0.0%	9.4E-10	0.0%	3.8E-10	0.0%
Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	286O	8.0E-10	0.0%	4.3E-08	0.0%	8.0E-10	0.0%	3.1E-07	0.0%
Chemical's Side VCU (Uncombusted Truck Vapors)	8A	6.3E-10	0.0%	8.0E-11	0.0%	6.3E-10	0.0%	7.8E-11	0.0%
Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	295F	6.2E-10	0.0%	3.5E-10	0.0%	6.2E-10	0.0%	1.5E-10	0.0%
Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	295B	5.7E-10	0.0%	7.9E-10	0.0%	5.7E-10	0.0%	1.1E-10	0.0%
Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	295A	5.0E-10	0.0%	2.6E-11	0.0%	5.0E-10	0.0%	1.1E-10	0.0%
Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	295I	4.9E-10	0.0%	3.7E-10	0.0%	4.9E-10	0.0%	1.2E-10	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	294A	4.5E-10	0.0%	5.6E-10	0.0%	4.5E-10	0.0%	1.0E-10	0.0%
Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	294B	4.0E-10	0.0%	1.1E-10	0.0%	4.0E-10	0.0%	1.3E-10	0.0%
2549 VFR Storage Tank - Contact Water	284	3.8E-10	0.0%	1.3E-09	0.0%	3.8E-10	0.0%	3.1E-09	0.0%
Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	286L	3.7E-10	0.0%	6.9E-08	0.0%	3.7E-10	0.0%	9.1E-08	0.0%
2550 VFR Storage Tank - Contact Water	285	3.6E-10	0.0%	1.3E-09	0.0%	3.6E-10	0.0%	3.0E-09	0.0%
Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	295C	3.4E-10	0.0%	7.2E-10	0.0%	3.4E-10	0.0%	7.2E-11	0.0%
Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	286A	3.4E-10	0.0%	1.5E-08	0.0%	3.4E-10	0.0%	6.3E-08	0.0%
Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	295G	3.3E-10	0.0%	1.7E-11	0.0%	3.3E-10	0.0%	7.5E-11	0.0%
Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	295E	2.9E-10	0.0%	3.3E-11	0.0%	2.9E-10	0.0%	1.0E-10	0.0%
Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	286K	2.6E-10	0.0%	4.1E-08	0.0%	2.6E-10	0.0%	6.5E-08	0.0%
Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	286J	2.1E-10	0.0%	1.7E-07	0.0%	2.1E-10	0.0%	3.6E-08	0.0%
Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	286H	1.9E-10	0.0%	1.5E-08	0.0%	1.9E-10	0.0%	5.6E-08	0.0%
Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	286G	1.7E-10	0.0%	7.4E-09	0.0%	1.7E-10	0.0%	3.2E-08	0.0%
12-14 VFR Storage Tank; Slop (vents to chemical side RTO)	173	1.4E-10	0.0%	9.9E-15	0.0%	1.4E-10	0.0%	9.6E-15	0.0%
Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	286I	1.1E-10	0.0%	7.1E-08	0.0%	1.1E-10	0.0%	2.3E-08	0.0%
Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	286N	1.1E-10	0.0%	2.4E-08	0.0%	1.1E-10	0.0%	2.8E-08	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	286M	9.0E-11	0.0%	9.3E-08	0.0%	9.0E-11	0.0%	1.7E-08	0.0%
Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	286C	7.4E-11	0.0%	1.3E-07	0.0%	7.4E-11	0.0%	1.3E-08	0.0%
Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	286B	6.8E-11	0.0%	7.7E-08	0.0%	6.8E-11	0.0%	1.1E-08	0.0%
Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	286D	3.3E-11	0.0%	1.4E-09	0.0%	3.3E-11	0.0%	6.4E-09	0.0%
Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	286E	6.6E-12	0.0%	6.1E-10	0.0%	6.6E-12	0.0%	1.9E-09	0.0%
921 VFR Storage Tank; Groundwater (vents to cc)	5	6.4E-12	0.0%	3.6E-09	0.0%	6.4E-12	0.0%	6.1E-09	0.0%
Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	286F	4.9E-12	0.0%	2.2E-09	0.0%	4.9E-12	0.0%	9.8E-10	0.0%
18-5 VFR Storage Tank; VMP HT (vents to chemical side RTO)	29	2.9E-12	0.0%	1.3E-11	0.0%	2.9E-12	0.0%	1.3E-11	0.0%
Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	286P	1.9E-12	0.0%	3.1E-10	0.0%	1.9E-12	0.0%	7.0E-10	0.0%
2551 VFR Storage Tank - Groundwater	170	8.2E-14	0.0%	5.7E-11	0.0%	8.2E-14	0.0%	9.3E-11	0.0%
6004 VFR Storage Tank; VMP HT (vents to chemical side RTO)	190	3.0E-14	0.0%	9.0E-11	0.0%	3.0E-14	0.0%	8.8E-11	0.0%
48-2A VFR Storage Tank; Methyl alcohol (vents to chemical side RTO)	25	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-4 VFR Storage Tank; Normal Butyl Acetate (vents to chemical side RTO)	30	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-3 VFR Storage Tank; Hexane (-n) (vents to chemical side RTO)	31	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-3 VFR Storage Tank - GLYCOL ETHER PM	80	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-17 VFR Storage Tank - Glycol Ether PM Acetate	84	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-22 VFR Storage Tank - Butyl Dioxitol	152	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
30-1 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	178	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-2 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	179	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-6 VFR Storage Tank; TOL WHT (vents to chemical side RTO)	185	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-9 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	210	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-13 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	213	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-16 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	214	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-6 VFR Storage Tank; Methyl isobutyl ketone (vents to chemical side RTO)	221	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Total		6.9E-02	100.0%	3.5E-02	100.0%	6.9E-02	100.0%	7.4E-03	100.0%

Table J-3. 8-Hr Chronic Risk by Source at PMI, MEIR, MEIW, and Maximum Sensitive Receptors

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
733 IFR Storage Tank - Gasoline	247	1.4E-02	25.0%	1.5E-03	4.2%	1.4E-02	25.0%	1.3E-04	1.7%
729 IFR Storage Tank - Gasoline	119	4.5E-03	8.0%	2.8E-03	8.1%	4.5E-03	8.0%	1.1E-04	1.5%
515 IFR Storage Tank - Gasoline	271	4.2E-03	7.5%	9.6E-04	2.8%	4.2E-03	7.5%	1.2E-04	1.6%
511 IFR Storage Tank - Gasoline	276	2.6E-03	4.6%	1.9E-03	5.5%	2.6E-03	4.6%	1.1E-04	1.5%
562 IFR Storage Tank - Gasoline	277	2.5E-03	4.4%	4.3E-04	1.2%	2.5E-03	4.4%	1.9E-04	2.6%
563 IFR Storage Tank - Gasoline	278	2.3E-03	4.2%	3.0E-04	0.9%	2.3E-03	4.2%	9.1E-05	1.2%
514 IFR Storage Tank - Gasoline	270	2.3E-03	4.0%	7.7E-04	2.2%	2.3E-03	4.0%	1.5E-04	2.0%
725 IFR Storage Tank - Gasoline	282	2.2E-03	4.0%	3.7E-03	10.7%	2.2E-03	4.0%	9.8E-05	1.3%
730 IFR Storage Tank - Gasoline	118	2.1E-03	3.8%	2.3E-03	6.6%	2.1E-03	3.8%	1.0E-04	1.4%
567 IFR Storage Tank - Gasoline	279	1.7E-03	3.1%	3.3E-04	0.9%	1.7E-03	3.1%	1.8E-04	2.4%
561 IFR Storage Tank - Gasoline	112	1.6E-03	2.9%	4.3E-04	1.2%	1.6E-03	2.9%	2.5E-04	3.4%
726 IFR Storage Tank - Gasoline	283	1.5E-03	2.7%	1.9E-03	5.5%	1.5E-03	2.7%	8.9E-05	1.2%
566 IFR Storage Tank - Gasoline	115	1.5E-03	2.6%	3.1E-04	0.9%	1.5E-03	2.6%	2.3E-04	3.1%
565 IFR Storage Tank - Gasoline	114	1.3E-03	2.4%	3.5E-04	1.0%	1.3E-03	2.4%	3.4E-04	4.6%
Fugitives - Tank farm and ethanol rack	288_1A to 1E	1.1E-03	1.9%	1.1E-03	3.0%	1.1E-03	1.9%	3.0E-04	4.1%
Ethanol Load Rack (truck fugitives)	22B	1.0E-03	1.8%	8.6E-04	2.5%	1.0E-03	1.8%	1.9E-03	25.6%
506 IFR Storage Tank - Gasoline	275	1.0E-03	1.8%	2.6E-03	7.3%	1.0E-03	1.8%	9.1E-05	1.2%
564A IFR Storage Tank - Gasoline	113	9.7E-04	1.7%	3.2E-04	0.9%	9.7E-04	1.7%	4.2E-04	5.6%
560 IFR Storage Tank - Gasoline	111	8.8E-04	1.6%	3.3E-04	1.0%	8.8E-04	1.6%	2.8E-04	3.8%
727 IFR Storage Tank - Gasoline	218	8.5E-04	1.5%	1.0E-03	2.9%	8.5E-04	1.5%	7.4E-05	1.0%
505 IFR Storage Tank - Gasoline	236	8.3E-04	1.5%	1.9E-03	5.6%	8.3E-04	1.5%	1.3E-04	1.7%
570 IFR Storage Tank - Gasoline	280	8.2E-04	1.5%	2.1E-04	0.6%	8.2E-04	1.5%	2.3E-04	3.2%
568 IFR Storage Tank - Gasoline	125	6.6E-04	1.2%	2.3E-04	0.7%	6.6E-04	1.2%	4.1E-04	5.5%
569 IFR Storage Tank - Gasoline	116	6.5E-04	1.2%	1.9E-04	0.6%	6.5E-04	1.2%	2.7E-04	3.6%
573 IFR Storage Tank - Gasoline	217	5.1E-04	0.9%	1.7E-04	0.5%	5.1E-04	0.9%	3.1E-04	4.2%
510 DEFR Storage Tank - Gasoline	267	4.7E-04	0.8%	3.8E-04	1.1%	4.7E-04	0.8%	3.5E-05	0.5%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
503 IFR Storage Tank - Transmix	262	4.2E-04	0.7%	5.7E-03	16.3%	4.2E-04	0.7%	4.7E-05	0.6%
507A DEFR Storage Tank - Gasoline	264	4.0E-04	0.7%	9.6E-04	2.8%	4.0E-04	0.7%	2.1E-05	0.3%
572 IFR Storage Tank - Gasoline	216	3.7E-04	0.7%	1.5E-04	0.4%	3.7E-04	0.7%	3.1E-04	4.2%
509 DEFR Storage Tank - Gasoline	266	2.9E-04	0.5%	2.8E-04	0.8%	2.9E-04	0.5%	3.9E-05	0.5%
581 VFR Storage Tank - Distillate fuel oil no. 2	132	7.9E-05	0.1%	3.3E-05	0.1%	7.9E-05	0.1%	7.0E-05	1.0%
580 VFR Storage Tank - Distillate fuel oil no. 2	122	6.6E-05	0.1%	3.2E-05	0.1%	6.6E-05	0.1%	7.4E-05	1.0%
513 IFR Storage Tank - Denatured Ethanol	269	4.3E-05	0.1%	2.1E-05	0.1%	4.3E-05	0.1%	5.9E-06	0.1%
512 IFR Storage Tank - Denatured Ethanol	268	2.3E-05	0.0%	1.5E-05	0.0%	2.3E-05	0.0%	6.4E-06	0.1%
1134 DEFR Storage Tank - Transmix	215	2.2E-05	0.0%	1.5E-05	0.0%	2.2E-05	0.0%	3.8E-05	0.5%
508 IFR Storage Tank - Denatured Ethanol	265	2.2E-05	0.0%	2.7E-05	0.1%	2.2E-05	0.0%	5.6E-06	0.1%
Portable gasoline ICEs - Fuels tank farm	299_1A to 1D	2.0E-05	0.0%	2.1E-05	0.1%	2.0E-05	0.0%	3.9E-06	0.1%
502 IFR Storage Tank - Denatured Ethanol	261	1.9E-05	0.0%	1.4E-04	0.4%	1.9E-05	0.0%	3.5E-06	0.0%
504 IFR Storage Tank - Denatured Ethanol	263	1.9E-05	0.0%	4.5E-05	0.1%	1.9E-05	0.0%	4.9E-06	0.1%
1515 DEFR Storage Tank - Transmix	219	1.5E-05	0.0%	8.8E-06	0.0%	1.5E-05	0.0%	2.2E-05	0.3%
589 VFR Storage Tank - Renewable Diesel	106	1.4E-05	0.0%	7.7E-06	0.0%	1.4E-05	0.0%	1.7E-05	0.2%
501 IFR Storage Tank - Denatured Ethanol	260	1.4E-05	0.0%	1.0E-04	0.3%	1.4E-05	0.0%	4.2E-06	0.1%
588 VFR Storage Tank; Renewable diesel	117B	1.3E-05	0.0%	7.4E-06	0.0%	1.3E-05	0.0%	1.7E-05	0.2%
Contractor WW Treatment - MI Water and Tk 1134 (uncombusted vapors)	291	1.2E-05	0.0%	6.7E-06	0.0%	1.2E-05	0.0%	1.6E-05	0.2%
720 VFR Storage Tank - Distillate fuel oil no. 2	105	9.2E-06	0.0%	5.8E-06	0.0%	9.2E-06	0.0%	1.3E-05	0.2%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Soil Vapor Extraction Unit Thermal Oxidizer (Uncombusted Vapors)	233	5.4E-06	0.0%	3.5E-06	0.0%	5.4E-06	0.0%	1.3E-05	0.2%
Bioreactor	245	5.0E-06	0.0%	3.0E-06	0.0%	5.0E-06	0.0%	6.3E-06	0.1%
583 IFR Storage Tank - Distillate fuel oil no. 2	220	4.5E-06	0.0%	1.6E-06	0.0%	4.5E-06	0.0%	2.9E-06	0.0%
588 VFR Storage Tank; Distillate fuel oil no. 2	117A	1.9E-06	0.0%	1.0E-06	0.0%	1.9E-06	0.0%	2.3E-06	0.0%
WCES gasoline ICEs	299_5	1.7E-06	0.0%	1.3E-06	0.0%	1.7E-06	0.0%	2.3E-06	0.0%
48-1A VFR Storage Tank - Renewable Diesel	165	1.6E-06	0.0%	1.5E-06	0.0%	1.6E-06	0.0%	3.4E-06	0.0%
48-6 VFR Storage Tank - Biodiesel	87	6.9E-07	0.0%	6.2E-07	0.0%	6.9E-07	0.0%	1.4E-06	0.0%
48-4 VFR Storage Tank - Biodiesel	86	6.7E-07	0.0%	6.1E-07	0.0%	6.7E-07	0.0%	1.4E-06	0.0%
Ethanol Rack VCU (Uncombusted Truck Vapors)	22A	5.7E-07	0.0%	4.2E-07	0.0%	5.7E-07	0.0%	1.5E-06	0.0%
48-3 VFR Storage Tank - Biodiesel	156	5.0E-07	0.0%	4.5E-07	0.0%	5.0E-07	0.0%	1.0E-06	0.0%
Portable gasoline ICEs - Chemical load rack and tank farm	299_2A to 2B	3.6E-07	0.0%	3.5E-07	0.0%	3.6E-07	0.0%	9.6E-07	0.0%
Fugitives - Chemical load rack and tank farm	288_2A to 2B	3.2E-07	0.0%	3.1E-07	0.0%	3.2E-07	0.0%	8.5E-07	0.0%
18-21 VFR Storage Tank - CYC 150	149	2.4E-07	0.0%	2.3E-07	0.0%	2.4E-07	0.0%	5.8E-07	0.0%
Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	286I	2.4E-07	0.0%	7.1E-08	0.0%	2.4E-07	0.0%	2.3E-08	0.0%
Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	286K	2.1E-07	0.0%	4.1E-08	0.0%	2.1E-07	0.0%	6.5E-08	0.0%
Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	286L	2.0E-07	0.0%	6.9E-08	0.0%	2.0E-07	0.0%	9.1E-08	0.0%
18-24 VFR Storage Tank - CYC 100	142	1.7E-07	0.0%	1.6E-07	0.0%	1.7E-07	0.0%	4.1E-07	0.0%
18-30 VFR Storage Tank - CYC 100	134	1.5E-07	0.0%	1.5E-07	0.0%	1.5E-07	0.0%	3.7E-07	0.0%
Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	286N	1.1E-07	0.0%	2.4E-08	0.0%	1.1E-07	0.0%	2.8E-08	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Soil Vapor Extraction Unit Thermal Oxidizer (NG Combustion)	24	9.8E-08	0.0%	6.3E-08	0.0%	9.8E-08	0.0%	2.5E-07	0.0%
Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	286B	9.7E-08	0.0%	7.7E-08	0.0%	9.7E-08	0.0%	1.1E-08	0.0%
Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	286J	8.9E-08	0.0%	1.7E-07	0.0%	8.9E-08	0.0%	3.6E-08	0.0%
Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	286C	8.4E-08	0.0%	1.3E-07	0.0%	8.4E-08	0.0%	1.3E-08	0.0%
30-8 VFR Storage Tank - Distillate fuel oil no. 2	227	8.2E-08	0.0%	7.6E-08	0.0%	8.2E-08	0.0%	1.8E-07	0.0%
Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	286O	6.8E-08	0.0%	4.3E-08	0.0%	6.8E-08	0.0%	3.1E-07	0.0%
Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	286M	5.5E-08	0.0%	9.3E-08	0.0%	5.5E-08	0.0%	1.7E-08	0.0%
Chemicals Rack (truck fugitives)	8B	4.8E-08	0.0%	4.9E-08	0.0%	4.8E-08	0.0%	1.6E-07	0.0%
WW Treatment Sep-Nov - GEM ThermOx F89304 (NG combustion)	297	4.6E-08	0.0%	2.6E-08	0.0%	4.6E-08	0.0%	6.2E-08	0.0%
Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	286H	3.2E-08	0.0%	1.5E-08	0.0%	3.2E-08	0.0%	5.6E-08	0.0%
Chemical's Side VCU (NG Combustion)	13	3.1E-08	0.0%	2.5E-08	0.0%	3.1E-08	0.0%	2.4E-08	0.0%
AECOM Generator - SVES area	299_3	3.0E-08	0.0%	2.5E-08	0.0%	3.0E-08	0.0%	5.5E-08	0.0%
Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	286A	2.8E-08	0.0%	1.5E-08	0.0%	2.8E-08	0.0%	6.3E-08	0.0%
Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	286F	1.6E-08	0.0%	2.2E-09	0.0%	1.6E-08	0.0%	9.8E-10	0.0%
Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	286G	1.4E-08	0.0%	7.4E-09	0.0%	1.4E-08	0.0%	3.2E-08	0.0%
Ethanol Rack VCU (NG Combustion)	23	9.1E-09	0.0%	6.8E-09	0.0%	9.1E-09	0.0%	2.4E-08	0.0%
Misc unmetered equipm (NG)	287	6.0E-09	0.0%	6.8E-09	0.0%	6.0E-09	0.0%	3.0E-08	0.0%
921 VFR Storage Tank; Groundwater (vents to cc)	5	5.5E-09	0.0%	3.6E-09	0.0%	5.5E-09	0.0%	6.1E-09	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	293	4.5E-09	0.0%	2.9E-09	0.0%	4.5E-09	0.0%	2.1E-08	0.0%
Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	295F	2.5E-09	0.0%	3.5E-10	0.0%	2.5E-09	0.0%	1.5E-10	0.0%
Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	286D	2.5E-09	0.0%	1.4E-09	0.0%	2.5E-09	0.0%	6.4E-09	0.0%
Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	292B	1.8E-09	0.0%	3.6E-10	0.0%	1.8E-09	0.0%	5.6E-10	0.0%
Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	286E	1.7E-09	0.0%	6.1E-10	0.0%	1.7E-09	0.0%	1.9E-09	0.0%
Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	296	1.6E-09	0.0%	1.1E-09	0.0%	1.6E-09	0.0%	2.6E-09	0.0%
2549 VFR Storage Tank - Contact Water	284	1.4E-09	0.0%	1.3E-09	0.0%	1.4E-09	0.0%	3.1E-09	0.0%
2550 VFR Storage Tank - Contact Water	285	1.4E-09	0.0%	1.3E-09	0.0%	1.4E-09	0.0%	3.0E-09	0.0%
Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	295I	1.3E-09	0.0%	3.7E-10	0.0%	1.3E-09	0.0%	1.2E-10	0.0%
Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	295B	9.9E-10	0.0%	7.9E-10	0.0%	9.9E-10	0.0%	1.1E-10	0.0%
Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	292C	8.3E-10	0.0%	2.9E-10	0.0%	8.3E-10	0.0%	3.8E-10	0.0%
Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	292A	7.4E-10	0.0%	1.4E-09	0.0%	7.4E-10	0.0%	3.0E-10	0.0%
Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	294B	5.0E-10	0.0%	1.1E-10	0.0%	5.0E-10	0.0%	1.3E-10	0.0%
Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	295C	4.7E-10	0.0%	7.2E-10	0.0%	4.7E-10	0.0%	7.2E-11	0.0%
Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	286P	4.3E-10	0.0%	3.1E-10	0.0%	4.3E-10	0.0%	7.0E-10	0.0%
Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	294A	3.3E-10	0.0%	5.6E-10	0.0%	3.3E-10	0.0%	1.0E-10	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
30-4 VFR Storage Tank; Toluene (vents to chemical side RTO)	182	2.1E-10	0.0%	1.7E-10	0.0%	2.1E-10	0.0%	1.6E-10	0.0%
Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	295H	2.0E-10	0.0%	9.1E-11	0.0%	2.0E-10	0.0%	3.4E-10	0.0%
6004 VFR Storage Tank; VMP HT (vents to chemical side RTO)	190	1.1E-10	0.0%	9.0E-11	0.0%	1.1E-10	0.0%	8.8E-11	0.0%
Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	295D	1.0E-10	0.0%	5.7E-11	0.0%	1.0E-10	0.0%	2.6E-10	0.0%
Chemical's Side VCU (Uncombusted Truck Vapors)	8A	1.0E-10	0.0%	8.0E-11	0.0%	1.0E-10	0.0%	7.8E-11	0.0%
Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	295E	9.4E-11	0.0%	3.3E-11	0.0%	9.4E-11	0.0%	1.0E-10	0.0%
2551 VFR Storage Tank - Groundwater	170	8.0E-11	0.0%	5.7E-11	0.0%	8.0E-11	0.0%	9.3E-11	0.0%
Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	295A	5.0E-11	0.0%	2.6E-11	0.0%	5.0E-11	0.0%	1.1E-10	0.0%
Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	295G	3.3E-11	0.0%	1.7E-11	0.0%	3.3E-11	0.0%	7.5E-11	0.0%
18-5 VFR Storage Tank; VMP HT (vents to chemical side RTO)	29	1.7E-11	0.0%	1.3E-11	0.0%	1.7E-11	0.0%	1.3E-11	0.0%
12-14 VFR Storage Tank; Slop (vents to chemical side RTO)	173	1.3E-14	0.0%	9.9E-15	0.0%	1.3E-14	0.0%	9.6E-15	0.0%
Fire Pump	14	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
48-2A VFR Storage Tank; Methyl alcohol (vents to chemical side RTO)	25	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-4 VFR Storage Tank; Normal Butyl Acetate (vents to chemical side RTO)	30	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-3 VFR Storage Tank; Hexane (-n) (vents to chemical side RTO)	31	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-3 VFR Storage Tank - GLYCOL ETHER PM	80	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-4 VFR Storage Tank - Lubricity Additive	81	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
12-17 VFR Storage Tank - Glycol Ether PM Acetate	84	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
723 VFR Storage Tank - Jet A	100	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
722 VFR Storage Tank - Jet A	101	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
574 VFR Storage Tank - Jet A	102	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
579 VFR Storage Tank - Jet A	103	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
587 VFR Storage Tank - Jet A	107	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
575 VFR Storage Tank - Jet A	108	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
578 VFR Storage Tank - Jet A	121	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
585 VFR Storage Tank - Jet A	123	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
582 VFR Storage Tank - Jet A	124	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-22 VFR Storage Tank - Butyl Dioxitol	152	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-1 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	178	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-2 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	179	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-6 VFR Storage Tank; TOL WHT (vents to chemical side RTO)	185	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-9 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	210	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-13 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	213	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-16 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	214	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-6 VFR Storage Tank; Methyl isobutyl ketone (vents to chemical side RTO)	221	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-33 VFR Storage Tank; Glycol Ether EB (vents to chemical side RTO)	222	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-10 VFR Storage Tank; Xylenes (mixed isomers) (vents to chemical side RTO)	223	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
576 DEFR Storage Tank - Jet A	272	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
577 IFR Storage Tank - Jet A	273	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
586 IFR Storage Tank - Jet A	274	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Portable diesel ICEs - Fuels tank farm	298_1A to 1D	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Portable diesel ICEs - Chemical load rack and tank farm	298_2A to 2B	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
RM Electric diesel generators	298_4	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
WCES diesel ICEs	298_5	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Painting - Tank farm and ethanol rack	999_1A to 1E	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Painting - Chemical load rack and tank farm	999_2A to 2B	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Total		5.6E-02	100.0%	3.5E-02	100.0%	5.6E-02	100.0%	7.4E-03	100.0%

Table J-4. Acute Risk by Source at PMI, MEIR, MEIW, and Maximum Sensitive Receptors

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
563 IFR Storage Tank - Gasoline	278	1.2E-01	9.4%	1.5E-03	0.2%	1.2E-01	9.4%	6.4E-04	0.6%
515 IFR Storage Tank - Gasoline	271	1.2E-01	9.0%	9.4E-04	0.1%	1.2E-01	9.0%	5.3E-04	0.5%
733 IFR Storage Tank - Gasoline	247	9.8E-02	7.5%	7.8E-04	0.1%	9.8E-02	7.5%	4.6E-04	0.4%
562 IFR Storage Tank - Gasoline	277	6.7E-02	5.2%	1.6E-03	0.2%	6.7E-02	5.2%	6.3E-04	0.5%
514 IFR Storage Tank - Gasoline	270	6.4E-02	4.9%	1.0E-03	0.1%	6.4E-02	4.9%	5.4E-04	0.5%
511 IFR Storage Tank - Gasoline	276	6.4E-02	4.9%	7.8E-04	0.1%	6.4E-02	4.9%	4.9E-04	0.4%
567 IFR Storage Tank - Gasoline	279	6.2E-02	4.8%	2.4E-03	0.3%	6.2E-02	4.8%	7.1E-04	0.6%
729 IFR Storage Tank - Gasoline	119	5.5E-02	4.2%	6.8E-04	0.1%	5.5E-02	4.2%	4.3E-04	0.4%
566 IFR Storage Tank - Gasoline	115	4.7E-02	3.6%	2.7E-03	0.3%	4.7E-02	3.6%	7.1E-04	0.6%
561 IFR Storage Tank - Gasoline	112	4.2E-02	3.2%	1.7E-03	0.2%	4.2E-02	3.2%	6.2E-04	0.5%
730 IFR Storage Tank - Gasoline	118	4.1E-02	3.2%	6.4E-04	0.1%	4.1E-02	3.2%	4.3E-04	0.4%
565 IFR Storage Tank - Gasoline	114	3.7E-02	2.9%	3.4E-03	0.4%	3.7E-02	2.9%	7.5E-04	0.7%
510 DEFR Storage Tank - Gasoline	267	3.6E-02	2.7%	6.2E-04	0.1%	3.6E-02	2.7%	3.8E-04	0.3%
725 IFR Storage Tank - Gasoline	282	3.5E-02	2.7%	5.8E-04	0.1%	3.5E-02	2.7%	3.9E-04	0.3%
506 IFR Storage Tank - Gasoline	275	3.4E-02	2.6%	7.1E-04	0.1%	3.4E-02	2.6%	4.6E-04	0.4%
570 IFR Storage Tank - Gasoline	280	3.3E-02	2.6%	5.1E-03	0.6%	3.3E-02	2.6%	8.4E-04	0.7%
726 IFR Storage Tank - Gasoline	283	3.0E-02	2.3%	5.6E-04	0.1%	3.0E-02	2.3%	3.9E-04	0.3%
507A DEFR Storage Tank - Gasoline	264	2.9E-02	2.2%	5.1E-04	0.1%	2.9E-02	2.2%	3.4E-04	0.3%
560 IFR Storage Tank - Gasoline	111	2.7E-02	2.1%	1.8E-03	0.2%	2.7E-02	2.1%	6.2E-04	0.5%
505 IFR Storage Tank - Gasoline	236	2.6E-02	2.0%	7.1E-04	0.1%	2.6E-02	2.0%	4.5E-04	0.4%
509 DEFR Storage Tank - Gasoline	266	2.6E-02	2.0%	6.3E-04	0.1%	2.6E-02	2.0%	3.7E-04	0.3%
569 IFR Storage Tank - Gasoline	116	2.5E-02	2.0%	5.8E-03	0.7%	2.5E-02	2.0%	8.4E-04	0.7%
564A IFR Storage Tank - Gasoline	113	2.5E-02	1.9%	3.4E-03	0.4%	2.5E-02	1.9%	7.4E-04	0.6%
727 IFR Storage Tank - Gasoline	218	2.2E-02	1.7%	5.2E-04	0.1%	2.2E-02	1.7%	3.8E-04	0.3%
568 IFR Storage Tank - Gasoline	125	1.9E-02	1.5%	6.2E-03	0.7%	1.9E-02	1.5%	8.6E-04	0.8%
573 IFR Storage Tank - Gasoline	217	1.8E-02	1.4%	1.1E-02	1.3%	1.8E-02	1.4%	1.1E-03	1.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
581 VFR Storage Tank - Distillate fuel oil no. 2	132	1.5E-02	1.1%	6.3E-02	7.4%	1.5E-02	1.1%	6.6E-03	5.8%
572 IFR Storage Tank - Gasoline	216	1.3E-02	1.0%	1.1E-02	1.3%	1.3E-02	1.0%	1.0E-03	0.9%
580 VFR Storage Tank - Distillate fuel oil no. 2	122	1.2E-02	0.9%	6.7E-02	7.8%	1.2E-02	0.9%	6.2E-03	5.5%
503 IFR Storage Tank - Transmix	262	1.1E-02	0.8%	3.0E-04	0.0%	1.1E-02	0.8%	2.0E-04	0.2%
589 VFR Storage Tank - Renewable Diesel	106	4.6E-03	0.3%	1.6E-01	18.7%	4.6E-03	0.3%	2.4E-02	21.3%
Portable gasoline ICEs - Fuels tank farm	299_1A to 1D	4.2E-03	0.3%	2.1E-03	0.2%	4.2E-03	0.3%	1.1E-03	1.0%
588 VFR Storage Tank; Renewable diesel	117B	3.9E-03	0.3%	2.0E-01	23.0%	3.9E-03	0.3%	2.1E-02	18.7%
Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	286K	3.1E-03	0.2%	2.7E-04	0.0%	3.1E-03	0.2%	2.0E-04	0.2%
588 VFR Storage Tank; Distillate fuel oil no. 2	117A	3.0E-03	0.2%	1.5E-01	17.7%	3.0E-03	0.2%	1.6E-02	14.3%
720 VFR Storage Tank - Distillate fuel oil no. 2	105	2.8E-03	0.2%	1.3E-01	14.9%	2.8E-03	0.2%	1.6E-02	13.7%
575 VFR Storage Tank - Jet A	108	2.5E-03	0.2%	7.0E-04	0.1%	2.5E-03	0.2%	1.0E-04	0.1%
722 VFR Storage Tank - Jet A	101	2.2E-03	0.2%	5.5E-05	0.0%	2.2E-03	0.2%	4.0E-05	0.0%
574 VFR Storage Tank - Jet A	102	2.1E-03	0.2%	8.8E-04	0.1%	2.1E-03	0.2%	1.0E-04	0.1%
513 IFR Storage Tank - Denatured Ethanol	269	1.8E-03	0.1%	4.6E-05	0.0%	1.8E-03	0.1%	2.3E-05	0.0%
Ethanol Load Rack (truck fugitives)	22B	1.8E-03	0.1%	1.4E-03	0.2%	1.8E-03	0.1%	7.4E-04	0.6%
723 VFR Storage Tank - Jet A	100	1.7E-03	0.1%	5.2E-05	0.0%	1.7E-03	0.1%	3.8E-05	0.0%
579 VFR Storage Tank - Jet A	103	1.5E-03	0.1%	1.1E-03	0.1%	1.5E-03	0.1%	1.4E-04	0.1%
578 VFR Storage Tank - Jet A	121	1.3E-03	0.1%	1.5E-03	0.2%	1.3E-03	0.1%	1.5E-04	0.1%
512 IFR Storage Tank - Denatured Ethanol	268	1.2E-03	0.1%	4.7E-05	0.0%	1.2E-03	0.1%	2.3E-05	0.0%
Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	286J	1.1E-03	0.1%	1.9E-04	0.0%	1.1E-03	0.1%	1.4E-04	0.1%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Fugitives - Tank farm and ethanol rack	288_1A to 1E	1.0E-03	0.1%	5.4E-04	0.1%	1.0E-03	0.1%	2.9E-04	0.2%
508 IFR Storage Tank - Denatured Ethanol	265	1.0E-03	0.1%	3.6E-05	0.0%	1.0E-03	0.1%	2.1E-05	0.0%
Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	286L	1.0E-03	0.1%	1.4E-04	0.0%	1.0E-03	0.1%	1.0E-04	0.1%
Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	286M	8.6E-04	0.1%	8.6E-05	0.0%	8.6E-04	0.1%	9.8E-05	0.1%
582 VFR Storage Tank - Jet A	124	8.3E-04	0.1%	2.5E-03	0.3%	8.3E-04	0.1%	3.0E-04	0.3%
504 IFR Storage Tank - Denatured Ethanol	263	8.1E-04	0.1%	3.0E-05	0.0%	8.1E-04	0.1%	1.9E-05	0.0%
502 IFR Storage Tank - Denatured Ethanol	261	7.5E-04	0.1%	2.7E-05	0.0%	7.5E-04	0.1%	1.8E-05	0.0%
Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	286I	7.5E-04	0.1%	1.3E-04	0.0%	7.5E-04	0.1%	5.7E-05	0.1%
Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	286N	5.6E-04	0.0%	6.5E-05	0.0%	5.6E-04	0.0%	3.8E-05	0.0%
501 IFR Storage Tank - Denatured Ethanol	260	5.4E-04	0.0%	2.7E-05	0.0%	5.4E-04	0.0%	1.8E-05	0.0%
587 VFR Storage Tank - Jet A	107	5.3E-04	0.0%	2.6E-03	0.3%	5.3E-04	0.0%	5.3E-04	0.5%
WCES gasoline ICEs	299_5	4.9E-04	0.0%	3.5E-04	0.0%	4.9E-04	0.0%	1.9E-04	0.2%
585 VFR Storage Tank - Jet A	123	4.0E-04	0.0%	4.3E-03	0.5%	4.0E-04	0.0%	5.6E-04	0.5%
1515 DEFR Storage Tank - Transmix	219	3.6E-04	0.0%	1.1E-04	0.0%	3.6E-04	0.0%	4.3E-05	0.0%
1134 DEFR Storage Tank - Transmix	215	3.4E-04	0.0%	2.3E-04	0.0%	3.4E-04	0.0%	1.2E-04	0.1%
Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	286C	3.4E-04	0.0%	6.8E-05	0.0%	3.4E-04	0.0%	2.9E-05	0.0%
Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	286O	3.2E-04	0.0%	1.9E-04	0.0%	3.2E-04	0.0%	1.1E-04	0.1%
Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	286G	3.2E-04	0.0%	3.1E-04	0.0%	3.2E-04	0.0%	2.0E-04	0.2%
Contractor WW Treatment - MI Water and Tk 1134 (uncombusted vapors)	291	2.9E-04	0.0%	2.0E-04	0.0%	2.9E-04	0.0%	1.0E-04	0.1%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	286H	2.9E-04	0.0%	9.2E-05	0.0%	2.9E-04	0.0%	9.0E-05	0.1%
48-1A VFR Storage Tank - Renewable Diesel	165	2.9E-04	0.0%	4.4E-04	0.1%	2.9E-04	0.0%	3.3E-04	0.3%
Portable gasoline ICEs - Chemical load rack and tank farm	299_2A to 2B	2.6E-04	0.0%	3.9E-04	0.0%	2.6E-04	0.0%	2.9E-04	0.2%
AECOM Generator - SVES area	299_3	2.1E-04	0.0%	2.8E-04	0.0%	2.1E-04	0.0%	1.4E-04	0.1%
18-21 VFR Storage Tank - CYC 150	149	1.6E-04	0.0%	2.4E-04	0.0%	1.6E-04	0.0%	1.8E-04	0.2%
Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	286A	1.6E-04	0.0%	1.6E-04	0.0%	1.6E-04	0.0%	1.0E-04	0.1%
Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	286F	1.1E-04	0.0%	6.7E-06	0.0%	1.1E-04	0.0%	2.1E-06	0.0%
18-30 VFR Storage Tank - CYC 100	134	1.0E-04	0.0%	1.5E-04	0.0%	1.0E-04	0.0%	1.1E-04	0.1%
18-24 VFR Storage Tank - CYC 100	142	1.0E-04	0.0%	1.5E-04	0.0%	1.0E-04	0.0%	1.1E-04	0.1%
Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	286B	1.0E-04	0.0%	3.6E-05	0.0%	1.0E-04	0.0%	1.4E-05	0.0%
48-4 VFR Storage Tank - Biodiesel	86	1.0E-04	0.0%	1.6E-04	0.0%	1.0E-04	0.0%	1.2E-04	0.1%
48-3 VFR Storage Tank - Biodiesel	156	9.7E-05	0.0%	1.5E-04	0.0%	9.7E-05	0.0%	1.1E-04	0.1%
48-6 VFR Storage Tank - Biodiesel	87	9.5E-05	0.0%	1.5E-04	0.0%	9.5E-05	0.0%	1.2E-04	0.1%
30-8 VFR Storage Tank - Distillate fuel oil no. 2	227	3.6E-05	0.0%	5.4E-05	0.0%	3.6E-05	0.0%	4.1E-05	0.0%
583 IFR Storage Tank - Distillate fuel oil no. 2	220	3.2E-05	0.0%	6.6E-05	0.0%	3.2E-05	0.0%	9.9E-06	0.0%
Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	286E	2.4E-05	0.0%	4.0E-06	0.0%	2.4E-05	0.0%	4.2E-06	0.0%
Ethanol Rack VCU (Uncombusted Truck Vapors)	22A	1.9E-05	0.0%	1.6E-05	0.0%	1.9E-05	0.0%	1.1E-05	0.0%
Soil Vapor Extraction Unit Thermal Oxidizer (Uncombusted Vapors)	233	1.9E-05	0.0%	2.0E-05	0.0%	1.9E-05	0.0%	1.5E-05	0.0%
Tk 733 degas Feb 7; Envent Thermal Oxidizer G7052	295F	9.3E-06	0.0%	5.8E-07	0.0%	9.3E-06	0.0%	1.8E-07	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Bioreactor	245	7.3E-06	0.0%	5.9E-06	0.0%	7.3E-06	0.0%	2.8E-06	0.0%
Tk 515 degas Feb 7; Envent Thermal Oxidizer F78989	292B	6.9E-06	0.0%	6.2E-07	0.0%	6.9E-06	0.0%	4.5E-07	0.0%
Tk 514 degas Feb 11; Envent Thermal Oxidizer F78989	292C	5.2E-06	0.0%	7.1E-07	0.0%	5.2E-06	0.0%	5.3E-07	0.0%
Tk 563 fill Jun 23; Envent Thermal Oxidizer F78991	294B	3.8E-06	0.0%	4.5E-07	0.0%	3.8E-06	0.0%	2.6E-07	0.0%
Tk 507 degas Feb 6&16; Envent Thermal Oxidizer F78989	292A	3.7E-06	0.0%	6.3E-07	0.0%	3.7E-06	0.0%	4.8E-07	0.0%
Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	296	3.4E-06	0.0%	5.5E-07	0.0%	3.4E-06	0.0%	3.8E-07	0.0%
Tk 730 degas Feb 4; Envent Thermal Oxidizer G7052	295C	3.1E-06	0.0%	6.3E-07	0.0%	3.1E-06	0.0%	2.6E-07	0.0%
Tk 506 fill Mar 17; Envent Thermal Oxidizer F78991	294A	3.0E-06	0.0%	3.0E-07	0.0%	3.0E-06	0.0%	3.4E-07	0.0%
Tk 566 degas Feb 6; Envent Thermal Oxidizer G7052	295E	2.2E-06	0.0%	3.6E-07	0.0%	2.2E-06	0.0%	3.7E-07	0.0%
2549 VFR Storage Tank - Contact Water	284	2.2E-06	0.0%	3.5E-06	0.0%	2.2E-06	0.0%	2.6E-06	0.0%
Tk 564 degas Feb 10; Envent Thermal Oxidizer G7052	295H	1.8E-06	0.0%	5.7E-07	0.0%	1.8E-06	0.0%	5.6E-07	0.0%
Tk 1515 degas Aug 25; Envent Thermal Oxidizer F78990	293	1.6E-06	0.0%	9.7E-07	0.0%	1.6E-06	0.0%	5.7E-07	0.0%
Tk 727 degas Feb 3; Envent Thermal Oxidizer G7052	295B	1.6E-06	0.0%	5.7E-07	0.0%	1.6E-06	0.0%	2.2E-07	0.0%
Tk 729 degas Feb 13; Envent Thermal Oxidizer G7052	295I	1.6E-06	0.0%	2.8E-07	0.0%	1.6E-06	0.0%	1.2E-07	0.0%
577 IFR Storage Tank - Jet A	273	1.5E-06	0.0%	2.5E-06	0.0%	1.5E-06	0.0%	2.2E-07	0.0%
Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	295D	1.4E-06	0.0%	1.6E-06	0.0%	1.4E-06	0.0%	1.2E-06	0.0%
2550 VFR Storage Tank - Contact Water	285	1.4E-06	0.0%	2.3E-06	0.0%	1.4E-06	0.0%	1.6E-06	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
Ethanol Rack VCU (NG Combustion)	23	1.3E-06	0.0%	1.1E-06	0.0%	1.3E-06	0.0%	7.5E-07	0.0%
Tk 573 degas Feb 3; Envent Thermal Oxidizer G7052	295A	1.1E-06	0.0%	1.1E-06	0.0%	1.1E-06	0.0%	7.3E-07	0.0%
WW Treatment Sep-Nov - GEM ThermOx F89304 (NG combustion)	297	1.1E-06	0.0%	7.7E-07	0.0%	1.1E-06	0.0%	3.9E-07	0.0%
Fugitives - Chemical load rack and tank farm	288_2A to 2B	1.0E-06	0.0%	1.5E-06	0.0%	1.0E-06	0.0%	1.1E-06	0.0%
Tk 512 degas Nov 13; Envent Thermal Oxidizer G16088	286P	9.0E-07	0.0%	1.5E-07	0.0%	9.0E-07	0.0%	1.0E-07	0.0%
Tk 572 degas Feb 5; Envent Thermal Oxidizer G7052	286D	8.6E-07	0.0%	9.3E-07	0.0%	8.6E-07	0.0%	6.9E-07	0.0%
576 DEFR Storage Tank - Jet A	272	8.0E-07	0.0%	1.8E-06	0.0%	8.0E-07	0.0%	1.5E-07	0.0%
Chemical's Side VCU (NG Combustion)	13	7.9E-07	0.0%	8.5E-07	0.0%	7.9E-07	0.0%	7.4E-07	0.0%
Chemicals Rack (truck fugitives)	8B	5.9E-07	0.0%	8.0E-07	0.0%	5.9E-07	0.0%	5.6E-07	0.0%
Tk 565 degas Feb 9; Envent Thermal Oxidizer G7052	295G	5.8E-07	0.0%	5.7E-07	0.0%	5.8E-07	0.0%	3.8E-07	0.0%
Soil Vapor Extraction Unit Thermal Oxidizer (NG Combustion)	24	5.8E-07	0.0%	6.1E-07	0.0%	5.8E-07	0.0%	4.8E-07	0.0%
586 IFR Storage Tank - Jet A	274	5.3E-07	0.0%	3.9E-06	0.0%	5.3E-07	0.0%	6.5E-07	0.0%
Painting - Tank farm and ethanol rack	999_1A to 1E	5.2E-07	0.0%	2.6E-07	0.0%	5.2E-07	0.0%	1.3E-07	0.0%
Misc unmetered equipm (NG)	287	2.7E-07	0.0%	2.8E-07	0.0%	2.7E-07	0.0%	1.7E-07	0.0%
921 VFR Storage Tank; Groundwater (vents to cc)	5	6.8E-08	0.0%	5.1E-08	0.0%	6.8E-08	0.0%	2.5E-08	0.0%
30-4 VFR Storage Tank; Toluene (vents to chemical side RTO)	182	4.1E-09	0.0%	4.4E-09	0.0%	4.1E-09	0.0%	3.8E-09	0.0%
6004 VFR Storage Tank; VMP HT (vents to chemical side RTO)	190	1.8E-09	0.0%	1.9E-09	0.0%	1.8E-09	0.0%	1.7E-09	0.0%
Chemical's Side VCU (Uncombusted Truck Vapors)	8A	1.6E-09	0.0%	1.7E-09	0.0%	1.6E-09	0.0%	1.5E-09	0.0%
18-5 VFR Storage Tank; VMP HT (vents to chemical side RTO)	29	2.6E-10	0.0%	2.8E-10	0.0%	2.6E-10	0.0%	2.4E-10	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
2551 VFR Storage Tank - Groundwater	170	1.4E-10	0.0%	8.1E-11	0.0%	1.4E-10	0.0%	4.2E-11	0.0%
12-14 VFR Storage Tank; Slop (vents to chemical side RTO)	173	5.1E-12	0.0%	5.5E-12	0.0%	5.1E-12	0.0%	4.8E-12	0.0%
Fire Pump	14	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
48-2A VFR Storage Tank; Methyl alcohol (vents to chemical side RTO)	25	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-4 VFR Storage Tank; Normal Butyl Acetate (vents to chemical side RTO)	30	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-3 VFR Storage Tank; Hexane (-n) (vents to chemical side RTO)	31	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-3 VFR Storage Tank - GLYCOL ETHER PM	80	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-4 VFR Storage Tank - Lubricity Additive	81	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-17 VFR Storage Tank - Glycol Ether PM Acetate	84	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
12-22 VFR Storage Tank - Butyl Dioxitol	152	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-1 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	178	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-2 VFR Storage Tank; Isopropyl alcohol (vents to chemical side RTO)	179	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
30-6 VFR Storage Tank; TOL WHT (vents to chemical side RTO)	185	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-9 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	210	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-13 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	213	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-16 VFR Storage Tank; Methyl ethyl ketone (vents to chemical side RTO)	214	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-6 VFR Storage Tank; Methyl isobutyl ketone (vents to chemical side RTO)	221	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
18-33 VFR Storage Tank; Glycol Ether	222	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%

Source Description	Source ID	PMI		MEIR		MEIW		Maximum Sensitive Receptor	
		Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction	Hazard Index	Fraction
EB (vents to chemical side RTO)									
30-10 VFR Storage Tank; Xylenes (mixed isomers) (vents to chemical side RTO)	223	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Portable diesel ICEs - Fuels tank farm	298_1A to 1D	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Portable diesel ICEs - Chemical load rack and tank farm	298_2A to 2B	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
RM Electric diesel generators	298_4	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
WCES diesel ICEs	298_5	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Painting - Chemical load rack and tank farm	999_2A to 2B	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%	0.0E+00	0.0%
Total		1.3E+00	100.0%	8.6E-01	100.0%	1.3E+00	100.0%	1.1E-01	100.0%

APPENDIX K. CANCER RISK BY SUBSTANCE AND PATHWAY

**Table K-1. Cancer Risk by Substance and Pathway at PMI
(Receptor 112, X=385536.5, Y=3745424.6)**

Pollutant	CAS Number	Inhalation	Soil Ingestion	Dermal	Mother's Milk	Home-Grown Vegetables	Total risk	Fraction
Diesel Exhaust Particulate	9901	7.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.3E-05	97.8%
Naphthalene	91-20-3	9.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.0E-07	1.2%
Benzene	71-43-2	5.5E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.5E-07	0.7%
Ethyl Benzene	100-41-4	1.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-07	0.2%
1,3-Butadiene	106-99-0	2.3E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.3E-08	0.0%
1,2-Dichloroethane	107-06-2	4.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-09	0.0%
Formaldehyde	50-00-0	3.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.1E-09	0.0%
PAH	1151	9.3E-11	3.5E-10	8.7E-11	8.3E-10	1.7E-09	3.1E-09	0.0%
Acetaldehyde	75-07-0	3.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-10	0.0%
Tetrachloroethylene	127-18-4	2.5E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.5E-10	0.0%
Methyl t-Butyl ether (MTBE)	1634-04-4	2.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.2E-10	0.0%
Vinyl Chloride	75-01-4	2.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-10	0.0%
Nickel & Compounds	7440-02-0	1.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-10	0.0%
Trichloroethylene	79-01-6	1.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-10	0.0%
Chloroform	67-66-3	1.5E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-11	0.0%
1,1-Dichloroethane	75-34-3	8.6E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	8.6E-12	0.0%
Total		7.5E-05	3.5E-10	8.7E-11	8.3E-10	1.7E-09	7.5E-05	100.0%

**Table K-2. Cancer Risk by Substance and Pathway at MEIR
(Receptor 696, X=384025.0, Y=3744600.0)**

Pollutant	CAS Number	Inhalation	Soil Ingestion	Dermal	Mother's Milk	Home-Grown Vegetables	Total risk	Fraction
Diesel Exhaust Particulate	9901	1.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-05	67.8%
Benzene	71-43-2	5.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	5.5E-06	25.0%
Ethyl Benzene	100-41-4	9.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.4E-07	4.3%
Naphthalene	91-20-3	6.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.2E-07	2.8%
1,3-Butadiene	106-99-0	7.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.5E-09	0.0%
1,2-Dichloroethane	107-06-2	4.7E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.7E-09	0.0%
Formaldehyde	50-00-0	1.0E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.0E-09	0.0%
PAH	1151	9.5E-12	3.5E-11	8.8E-12	8.4E-11	1.7E-10	3.1E-10	0.0%
Tetrachloroethylene	127-18-4	2.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.9E-10	0.0%
Vinyl Chloride	75-01-4	2.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.4E-10	0.0%
Methyl t-Butyl ether (MTBE)	1634-04-4	1.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.4E-10	0.0%
Trichloroethylene	79-01-6	1.3E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-10	0.0%
Acetaldehyde	75-07-0	1.1E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-10	0.0%
Nickel & Compounds	7440-02-0	4.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.1E-11	0.0%
Chloroform	67-66-3	1.7E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-11	0.0%
1,1-Dichloroethane	75-34-3	9.8E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.8E-12	0.0%
Total		2.2E-05	3.5E-11	8.8E-12	8.4E-11	1.7E-10	2.2E-05	100.0%

**Table K-3. Cancer Risk by Substance and Pathway at MEIW
(Receptor 112, X=385536.5, Y=3745424.6)**

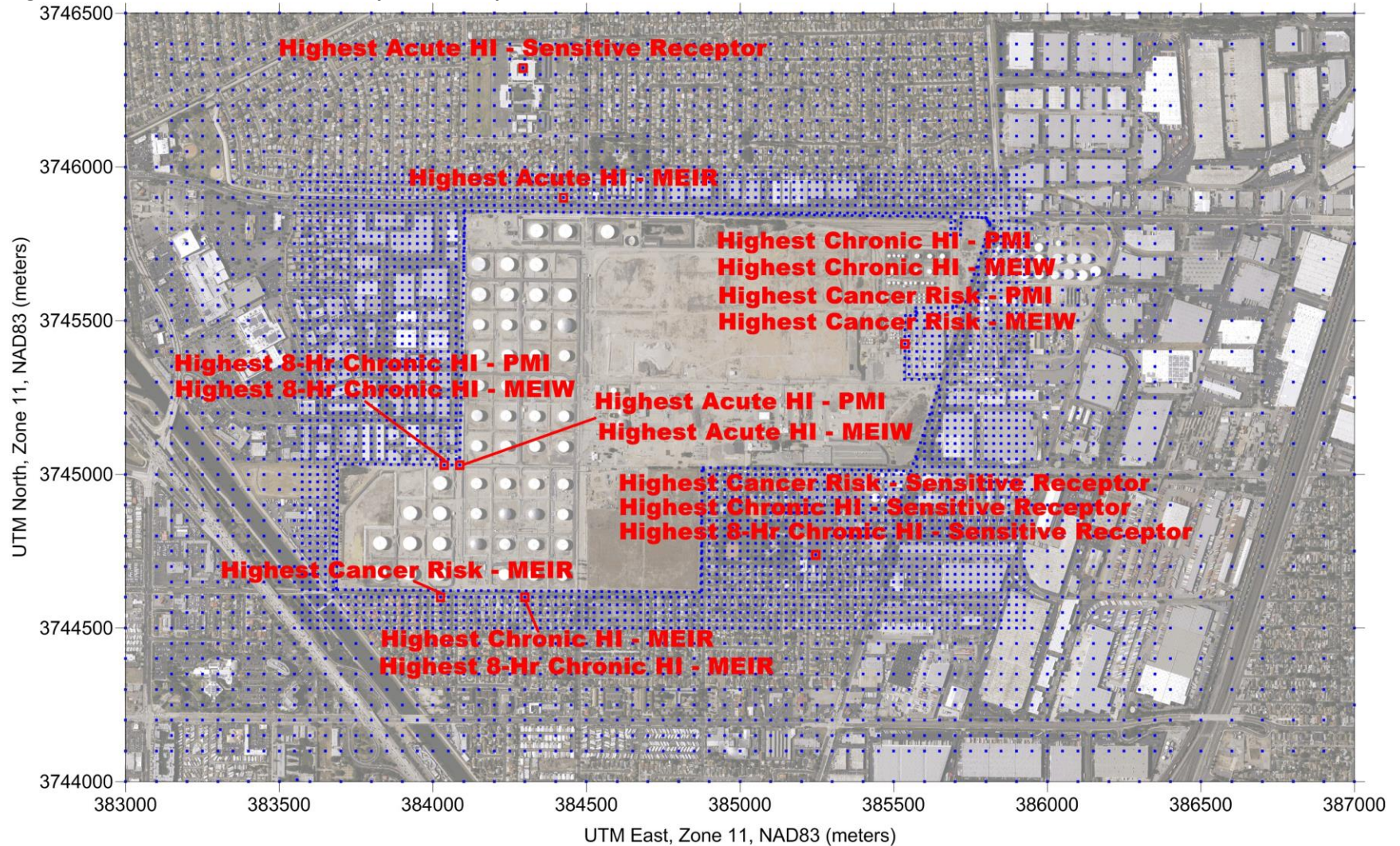
Pollutant	CAS Number	Inhalation	Soil Ingestion	Dermal	Mother's Milk	Home-Grown Vegetables	Total risk	Fraction
Diesel Exhaust Particulate	9901	6.1E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.1E-06	97.8%
Naphthalene	91-20-3	7.5E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.5E-08	1.2%
Benzene	71-43-2	4.6E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.6E-08	0.7%
Ethyl Benzene	100-41-4	1.1E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-08	0.2%
1,3-Butadiene	106-99-0	1.9E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-09	0.0%
1,2-Dichloroethane	107-06-2	3.4E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.4E-10	0.0%
Formaldehyde	50-00-0	2.6E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.6E-10	0.0%
PAH	1151	8.1E-12	3.5E-11	3.0E-11	0.0E+00	0.0E+00	7.3E-11	0.0%
Acetaldehyde	75-07-0	3.0E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-11	0.0%
Tetrachloroethylene	127-18-4	2.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-11	0.0%
Methyl t-Butyl ether (MTBE)	1634-04-4	1.9E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.9E-11	0.0%
Vinyl Chloride	75-01-4	1.7E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.7E-11	0.0%
Nickel & Compounds	7440-02-0	1.1E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.1E-11	0.0%
Trichloroethylene	79-01-6	9.1E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.1E-12	0.0%
Chloroform	67-66-3	1.3E-12	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-12	0.0%
1,1-Dichloroethane	75-34-3	7.1E-13	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.1E-13	0.0%
Total		6.2E-06	3.5E-11	3.0E-11	0.0E+00	0.0E+00	6.2E-06	100.0%

**Table K-4. Cancer Risk by Substance and Pathway the Maximum Sensitive Receptor
(Receptor 7829, X=385246.8, Y=3744738.0)**

Pollutant	CAS Number	Inhalation	Soil Ingestion	Dermal	Mother's Milk	Home-Grown Vegetables	Total risk	Fraction
Diesel Exhaust Particulate	9901	4.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.3E-06	70.7%
Benzene	71-43-2	1.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E-06	24.8%
Ethyl Benzene	100-41-4	1.3E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-07	2.2%
Naphthalene	91-20-3	1.2E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-07	2.0%
1,2-Dichloroethane	107-06-2	1.3E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.3E-08	0.2%
1,3-Butadiene	106-99-0	2.1E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.1E-09	0.0%
PAH	1151	3.0E-11	1.1E-10	2.8E-11	2.7E-10	5.5E-10	9.9E-10	0.0%
Tetrachloroethylene	127-18-4	7.9E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.9E-10	0.0%
Vinyl Chloride	75-01-4	6.7E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	6.7E-10	0.0%
Trichloroethylene	79-01-6	3.5E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.5E-10	0.0%
Formaldehyde	50-00-0	3.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.2E-10	0.0%
Methyl t-Butyl ether (MTBE)	1634-04-4	3.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.0E-10	0.0%
Chloroform	67-66-3	4.8E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	4.8E-11	0.0%
Acetaldehyde	75-07-0	3.6E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	3.6E-11	0.0%
1,1-Dichloroethane	75-34-3	2.7E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.7E-11	0.0%
Nickel & Compounds	7440-02-0	1.2E-11	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-11	0.0%
Total		6.0E-06	1.1E-10	2.8E-11	2.7E-10	5.5E-10	6.0E-06	100.0%

APPENDIX L. LOCATION OF MAXIMUM IMPACTED RECEPTORS

Figure L-1. Location of Maximum Impacted Receptors



APPENDIX M. CONTOUR MAPS

Figure M-1. Contours of Residential Cancer Risk and Zone of Impact, per Million Exposed

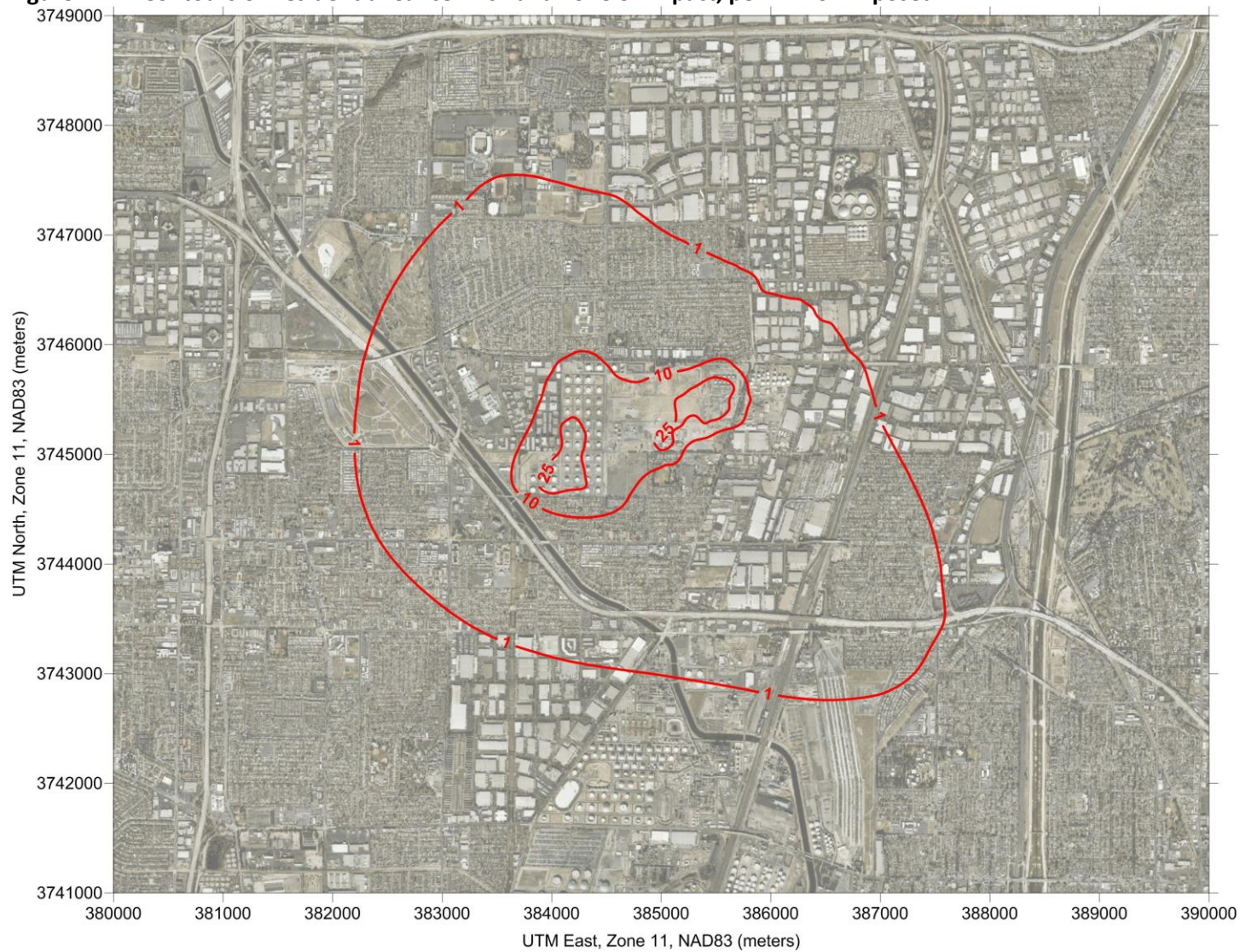
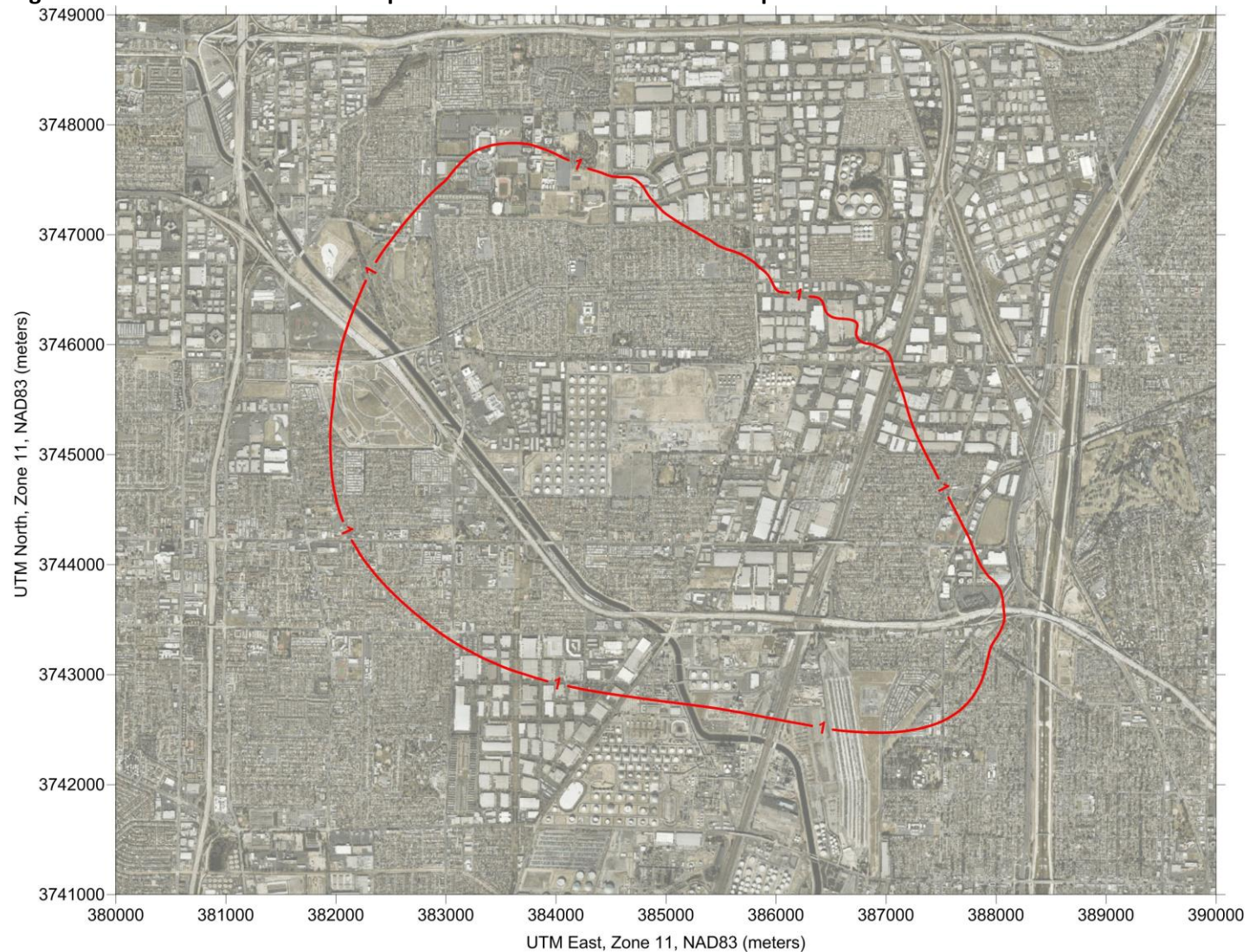


Figure M-2. Contours of Offsite Worker Cancer Risk, per Million Exposed

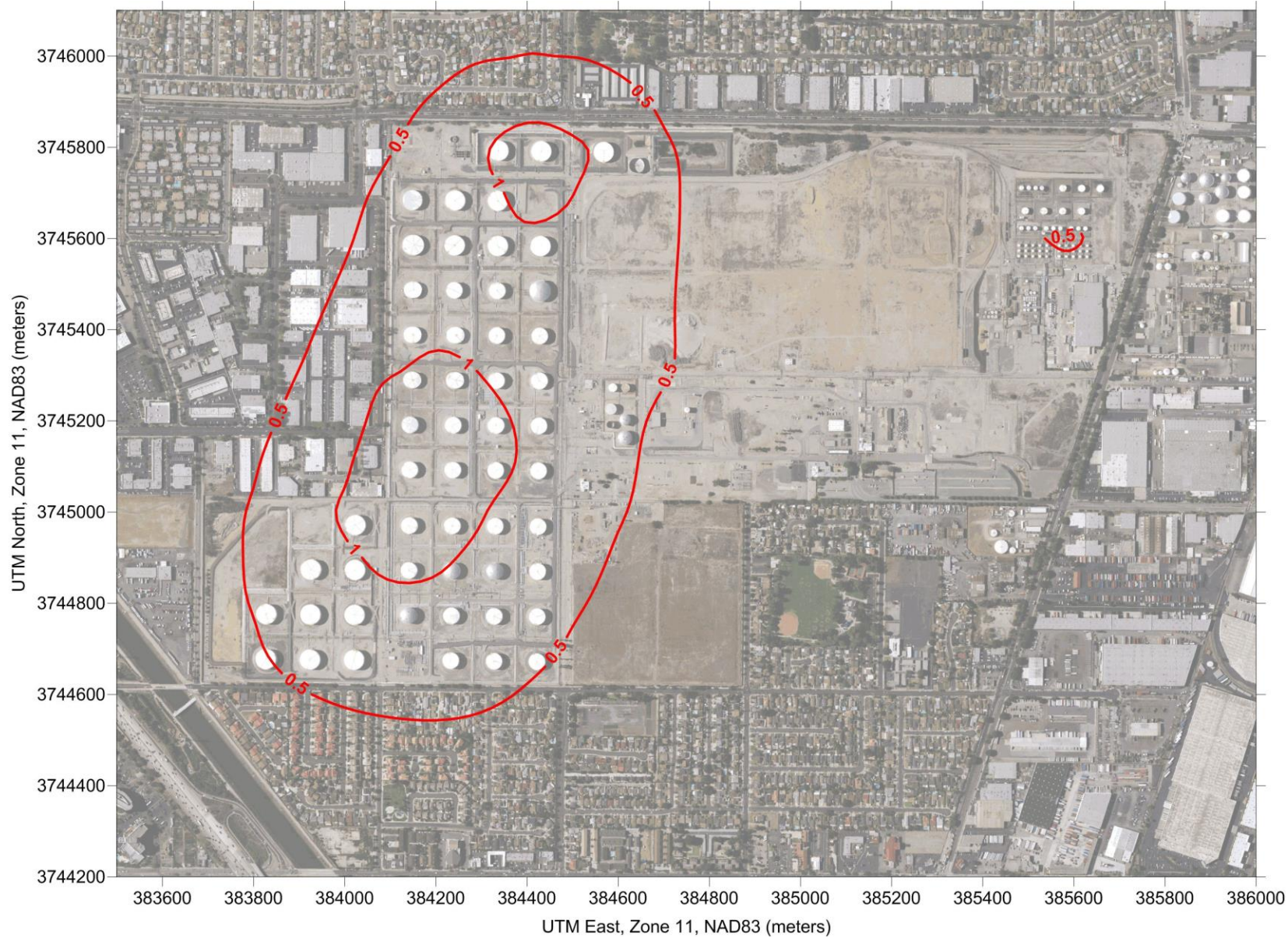


Figure M-3. Cancer Burden One per Million Cancer Risk Contour Map¹⁵



¹⁵ Based on 70-yr exposure.

Figure M-4. Acute Risk Hazard Index Contour Map



APPENDIX N. DOWNWASH STRUCTURES

Table N-1. UTM Coordinates, Heights, and Diameters of Storage Tank Downwash Structures

Tank Name	Base Elevation (m)	Center East (X) (m)	Center North (Y) (m)	Tank Height (m)	Tank Diameter (m)
Tk404	7.18	384,753.0	3,745,223.0	10.67	12.19
Tk921	6.90	384,590.3	3,745,271.6	12.02	18.29
Tk920	7.01	384,617.6	3,745,271.8	12.04	18.29
Tk1514	7.15	384,585.8	3,745,224.7	12.19	23.77
Tk1515	7.16	384,617.0	3,745,200.9	12.19	23.77
Tk723	5.83	383,828.0	3,744,678.0	12.34	43.92
Tk501	6.94	384,422.1	3,744,671.3	12.65	35.76
Tk722	5.68	383,924.6	3,744,676.6	12.80	43.89
Tk721	5.35	384,021.5	3,744,675.9	12.85	43.92
Tk727	6.17	383,828.7	3,744,775.8	12.34	43.89
Tk726	6.21	383,925.4	3,744,775.5	12.22	43.92
Tk725	5.86	384,022.0	3,744,774.3	12.24	43.97
Tk730	6.11	383,926.5	3,744,874.2	12.34	43.84
Tk729	5.89	384,023.5	3,744,873.2	12.34	43.92
Tk733	5.66	384,024.4	3,744,972.2	12.24	43.94
Tk502	6.61	384,329.0	3,744,672.3	12.62	35.76
Tk503	6.00	384,234.2	3,744,674.1	12.62	35.66
Tk504	6.71	384,423.9	3,744,770.5	12.62	35.74
Tk505	6.15	384,329.4	3,744,771.1	12.75	35.74
Tk506	5.90	384,235.4	3,744,772.4	12.65	35.74
Tk507	5.52	384,141.3	3,744,772.8	12.75	35.71
Tk508	6.43	384,425.0	3,744,869.7	12.75	35.74
Tk509	6.19	384,331.1	3,744,870.3	12.73	35.69
Tk510	5.89	384,236.5	3,744,871.6	12.70	35.74
Tk511	5.86	384,142.2	3,744,872.4	12.62	35.71
Tk512	6.50	384,425.5	3,744,968.6	12.73	35.74
Tk513	6.25	384,331.2	3,744,969.7	12.73	35.76
Tk514	5.81	384,237.7	3,744,970.1	12.65	35.76
Tk515	5.87	384,142.9	3,744,971.1	12.65	35.76
Tk560	6.17	384,426.7	3,745,088.8	12.80	35.71
Tk561	5.92	384,332.6	3,745,089.6	12.65	35.74
Tk562	5.53	384,237.8	3,745,092.2	12.70	35.71
Tk563	5.29	384,144.2	3,745,092.5	12.75	35.71
Tk564	6.14	384,428.1	3,745,187.8	12.80	35.66
Tk565	5.84	384,333.4	3,745,188.6	12.98	35.71
Tk566	5.40	384,239.2	3,745,190.1	12.65	35.76
Tk567	4.49	384,145.1	3,745,191.3	12.75	35.71
Tk568	6.15	384,428.7	3,745,287.4	12.67	35.71
Tk569	5.86	384,333.9	3,745,287.0	12.70	35.71
Tk570	5.38	384,239.8	3,745,288.9	12.62	35.66
Tk571	4.76	384,145.6	3,745,289.5	12.75	35.71
Tk572	6.88	384,429.7	3,745,385.4	12.75	35.76

SHELL CARSON TERMINAL 2015 HEALTH RISK ASSESSMENT

Tank Name	Base Elevation (m)	Center East (X) (m)	Center North (Y) (m)	Tank Height (m)	Tank Diameter (m)
Tk573	6.08	384,335.4	3,745,386.1	12.65	35.79
Tk574	5.46	384,241.2	3,745,387.0	12.65	35.71
Tk575	5.01	384,146.3	3,745,388.3	12.75	35.79
Tk576	6.59	384,430.9	3,745,483.9	12.19	45.72
Tk577	6.11	384,335.9	3,745,485.0	12.75	35.79
Tk578	5.60	384,242.2	3,745,485.3	12.75	35.71
Tk579	5.26	384,147.7	3,745,487.0	12.50	35.76
Tk580	6.22	384,432.0	3,745,582.9	12.34	43.89
Tk581	5.77	384,337.8	3,745,582.8	12.24	43.97
Tk582	5.56	384,242.9	3,745,584.5	12.24	43.97
Tk583	5.46	384,148.4	3,745,585.3	12.34	43.94
Tk585	5.67	384,337.9	3,745,682.2	12.34	43.89
Tk586	5.47	384,243.6	3,745,683.2	12.22	43.94
Tk587	5.44	384,149.2	3,745,684.2	12.50	43.97
Tk588	5.64	384,432.9	3,745,791.7	12.34	43.89
Tk589	5.69	384,338.7	3,745,793.2	12.34	43.92
Tk720	6.15	384,569.9	3,745,788.9	12.34	43.92
Tk18_1	8.39	385,630.6	3,745,572.0	7.16	5.49
Tk18_15	8.09	385,525.8	3,745,559.3	7.16	5.49
Tk18_21	8.22	385,568.8	3,745,583.4	7.16	5.49
Tk18_24	8.37	385,584.2	3,745,559.4	7.16	5.49
Tk18_29	8.39	385,630.6	3,745,583.8	7.16	5.49
Tk18_30	8.29	385,568.5	3,745,559.2	7.16	5.49
Tk18_8	8.09	385,495.5	3,745,559.4	7.16	5.49
Tk2549	8.09	385,484.7	3,745,643.8	7.01	3.66
Tk2550	8.09	385,489.8	3,745,644.1	7.01	3.66
Tk30_8	8.39	385,611.9	3,745,621.5	9.14	9.14
Tk48_1A	8.39	385,618.6	3,745,657.7	9.14	14.63
Tk48_3	8.27	385,577.5	3,745,658.4	9.14	14.63
Tk48_4	8.09	385,535.9	3,745,658.7	9.14	14.63
Tk12_1	8.15	385,516.1	3,745,452.2	3.66	3.66
Tk12_15	8.10	385,511.7	3,745,463.3	5.49	3.66
Tk12_17	8.08	385,506.8	3,745,463.4	5.49	3.66
Tk12_22	8.08	385,496.7	3,745,468.7	5.49	3.66
Tk12_3	8.09	385,511.3	3,745,452.3	3.66	3.66
Tk12_4	8.09	385,511.2	3,745,457.4	3.66	3.66
Tk18_31	8.21	385,515.7	3,745,441.2	7.37	5.49
Tk18_37	8.08	385,504.1	3,745,456.6	7.32	5.49
Tk48_6	8.11	385,577.1	3,745,708.9	9.17	14.63
Tk30_12	8.09	385,516.5	3,745,709.3	9.14	9.14
Tk1513	7.14	384,583.9	3,745,190.0	12.19	16.46
Tk2551	6.99	384,561.3	3,745,182.5	1.52	1.83

Table N-2. UTM Coordinates and Heights of Building Downwash Structures

Building Name	Base Elevation (m)	Building Height (m)	Corner East (X) (m)	Corner North (Y) (m)
1	8.39	3.048	385,508.7	3,745,407.7
			385,521.1	3,745,407.6
			385,521.0	3,745,388.7
			385,508.6	3,745,388.9
BRCTR	6.81	3.3528	384,526.8	3,745,288.3
			384,543.8	3,745,288.3
			384,543.8	3,745,271.8
			384,527.3	3,745,271.8

APPENDIX O. DEFINITIONS AND ACRONYMS

Definitions

Action Risk Level – a maximum individual cancer risk (MICR) of twenty-five in one million (25×10^{-6}), cancer burden of one half (0.5), a total acute or chronic HI of three (3.0) for any target organ system at any receptor location, or the National Ambient Air Quality Standard (NAAQS) for lead.

Acute Health Effects – A health effect that occurs after a relatively short period of exposure (e.g., minutes or hours).

Cancer Burden – the estimated increase in the occurrence of cancer cases in a population subject to a maximum individual cancer risk (MICR) of greater than or equal to one in one million (1×10^{-6}) resulting from exposure to toxic air contaminants.

Carcinogenic Risk – A theoretical risk for getting cancer based on a lifetime exposure).

Centroid Locations – The location at which calculated ambient concentration is assumed to represent the entire subarea, typically the geographic centroid of an area.

Chronic Health Effects – An adverse non-cancer health effect that develops and persists (e.g., months or years) over time after long-term exposure to a substance.

8-Hour Chronic Health Effects – An adverse non-cancer health effect that develops and persists (e.g., months or years) over time after repeated 8-hour exposure to a substance over a significant fraction of a lifetime.

Dispersion Factor (X/Q) – A site-specific quantity defined as a ratio of the ground level concentration in air ($\mu\text{g}/\text{m}^3$) to the mass emission rate (g/s).

Exposure Pathway – A route of exposure by which foreign substances enter the human body (e.g., inhalation, ingestion, dermal absorption).

Health Risk Assessment – a technical study identifying toxic air contaminant emissions released from a facility, exposure assessment, dose-response assessment and risk characterization as outlined by the Office of Environmental Health Hazard Assessment (OEHHA) “Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments” and the SCAQMD “Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics ‘Hot Spots’ Information and Assessment Act”.

Individual Excess Cancer Risk – The theoretical probability of an individual person developing cancer as a result of lifetime exposure to carcinogenic substances. The individual excess cancer risk is calculated by summing the potential cancer risks due to both inhalation and noninhalation routes of exposure.

Individual Substance Acute Hazard Index (HI) – the ratio of the estimated maximum one-hour, or other time period as specified by the Executive Officer, concentration of a toxic air contaminant at a receptor location to its acute reference exposure level.

Individual Substance Chronic Hazard Index (HI) – the ratio of the long-term level of exposure to a toxic air contaminant for a potential maximally exposed individual to the chronic reference exposure level for the toxic air contaminant.

Inhalation Unit Risk Factor – The theoretical upper bound probability of extra cancer cases occurring in the exposed population assuming a lifetime exposure to the chemical when the air concentration is expressed in exposure units of per microgram/cubic meter $[(\mu\text{g}/\text{m}^3)^{-1}]$

Maximum Individual Cancer Risk (MICR) – the estimated probability of a potential maximally exposed individual contracting cancer as a result of exposure to toxic air contaminants pursuant to the SCAQMD approved Risk Assessment Procedures. The MICR calculations include multi-pathway consideration, if applicable.

Notification Risk Level – a MICR of ten in one million (10×10^{-6}), a total acute or chronic HI of one (1.0) for any target organ system at any receptor location, or the more stringent of either the NAAQS for lead or ambient lead concentration limit in an applicable SCAQMD rule.

Receptor Location –

(A) For the purpose of calculating acute HI, any location outside the boundaries of the facility at which a person could experience acute exposure; and

(B) For the purpose of calculating chronic HI, MICR, or cancer burden, any location outside the boundaries of the facility at which a person could experience chronic exposure.

Reference Exposure Level (REL) – the concentration level at or below which no adverse non-cancer health effects are anticipated for the specified exposure duration.

Sensitive Receptor – A location such as a hospital or daycare center where the human occupants are considered to be more sensitive to pollutants than “average”.

Total Acute Hazard Index (HI) – the sum of the individual substance acute HIs for all toxic air contaminants identified in the risk assessment guidelines as affecting the same target organ system.

Total Chronic Hazard Index (HI) – the sum of the individual substance chronic HIs for all toxic air contaminants identified in the risk assessment guidelines as affecting the same target organ system.

Toxic Air Contaminant (TAC) – an air pollutant which may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health as listed by OEHHA.

Zone of Impact – area within which the added lifetime cancer risk exceeds one in one million (1×10^{-6}) or a hazard index greater than 0.5.

Acronyms

AB2588 – Assembly Bill 2588

AERMOD – American Meteorological Society/Environmental Protection Agency Regulatory Model

ARB – California Air Resources Board

CAS No. – Chemical Abstract Services Registry Number (CAS)

GLC – ground level concentration

HARP – Hot Spots Analysis and Reporting Program

HRA – health risk assessment

HI – hazard index

MEIR – maximum exposed individual resident

MEIW – maximum exposed individual worker

MICR – maximum individual cancer risk

$\mu\text{g}/\text{m}^3$ – microgram per cubic meter

OEHHA – Office of Environmental Health Hazard Assessment

PMI – point of maximum impact

REL – reference exposure level

SCAQMD – South Coast Air Quality Management District

RRP – Risk Reduction Plan

UTM – Universal Transverse Mercator

ZOI – zone of impact

APPENDIX P. ELECTRONIC FILES