
Emissions Inventory and Health Risk Assessment

The Boeing Company
5301 Bolsa Ave
Huntington Beach, CA 92647

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Definitions and Abbreviations

Abbreviation/ Acronym	Description	Definition
AERMOD		Air dispersion model.
APIN	Air Permit Identification Number	Identification number assigned by Boeing to permitted equipment; may also be assigned to unpermitted equipment or other sources.
CAS	Chemical Abstracts Service	
HARP	Hotspots Analysis and Reporting Program	A single integrated software package designed to promote statewide consistency, efficiency, and cost-effective implementation of health risk assessments and the Hot Spots Program.
HI	Hazard Index	Either acute or chronic hazard index.
HIA	Acute Hazard Index	A measure of the health impacts that occur over a relatively short period of time (e.g., minutes or hours). The term is used to describe brief exposures and effects which appear promptly after exposure to some toxic air contaminants.
HIC	Chronic Hazard Index	A measure of the adverse non-cancer health effects that develop and persist (e.g., months or years) over time after long-term exposure to some toxic air contaminants.
HRA	Health Risk Assessment	
MEIR	Maximally Exposed Individual Resident	
MEIW	Maximally Exposed Individual Worker	
MICR	Maximum Individual Cancer Risk	The estimated probability of a potential maximally exposed individual contracting cancer as a result of exposure to toxic air contaminants over a period of 70 years for residential receptor locations.
mmBtu	Millions of British Thermal Units	Measure of heat input
PAH	Polycyclic Aromatic Hydrocarbons	Toxic air contaminant produced by combustion of fuel. Generally the most significant carcinogen from fuel combustion.
PMI	Point of Maximum Impact	
TAC	Toxic Air Contaminant	
	Target Organs	Organs or systems within the human body that experience adverse acute or chronic health impacts from exposure to toxic air contaminants.
TCE	Trichloroethylene	Solvent used for degreasing
XAPIN	Exempt Air Permit Identification Number	Internal identification number like APIN but the "X" denotes that this equipment/source does not have a permit

Health Risk Assessment Executive Summary

Health Risk Assessment Executive Summary

This health risk assessment (HRA) was prepared in response to a request by the South Coast Air Quality Management District. In June 2006 an HRA of The Boeing Company - Huntington Beach facility (Boeing) was submitted to the SCAQMD and subsequently approved (Reference 6). The SCAQMD HRA request letter dated July 31, 2013 (Reference 7) explains that "With the recent addition of the two boilers purchased from Ameresco Huntington Beach (ID 140499), your facility's AB2588 HRA, submitted June 2006, is no longer representative of existing operations. Thus, you are required to submit an updated HRA..."

The Boeing facility merged with the Ameresco Huntington Beach facility and is now operated as a single facility (ID 016660). This health risk assessment utilizes the 2012 annual emission inventory and includes all air emission sources at Boeing, including the boilers that were part of the old Ameresco Huntington Beach facility.

Cancer risk was calculated to be 2.8 in one million for the nearest residential receptor, and 2.4 in one million for the nearest offsite worker receptor. Chronic and acute health risk indices were well below 1.0 for all receptors.

Facility Identification

The Boeing Company
5301 Bolsa Ave.
Huntington Beach, CA 92647
SCAQMD Facility ID #016660

Facility Operations

The Boeing facility is an aerospace research and development facility. There are a number of laboratories that perform research and development activities. Metal parts are manufactured that may be processed in a chromic acid anodizing tank line and/or coated in a spray booth. Parts are also manufactured from composite materials. Almost all manufacturing at the facility is at the prototype level with only single or small quantities produced. There are twenty-one emergency backup generators; all are diesel-fueled.

Emitted Substances

Operations that result in emissions of toxic air contaminants (TAC) include:

- Spray coating of aerospace coatings;
- Spray foam;
- Chromic acid anodizing tank line;
- Emergency diesel-fueled internal combustion engines (ICE);
- Natural gas combustion in boilers and heaters; and
- Solvent cleaning of metal parts.

There was no use of trichloroethylene (TCE) for degreasing in 2012.

The toxic substances and their annual and hourly emissions are shown in the following table. Annual and hourly emissions of non-Diesel Particulate Matter (DPM) substances associated with the emergency diesel-fueled ICEs have been excluded from the totals but these substances have been included in this and all other tables, by name only

Toxic Air Contaminant Hourly and Annual Emissions

Chem No.	CAS	Chemical Name	Hourly Emissions (lb/hour)	Annual Emissions (lb/year)
1	95636	1,2,4-Trimethylbenzene	9.24E-04	3.67E+00
2	106990	1,3-Butadiene	0.00E+00	0.00E+00
3	75070	Acetaldehyde	2.07E-04	2.23E-01
4	107028	Acrolein	1.76E-04	1.82E-01
5	7440382	Arsenic	0.00E+00	0.00E+00
6	71432	Benzene	3.86E-04	4.46E-01
7	7440439	Cadmium	0.00E+00	0.00E+00
8	76131	Trichlorotrifluoroethane {CFC-113}	1.87E-03	7.46E+00
9	7440508	Copper	0.00E+00	0.00E+00
10	18540299	Chromium, hexavalent (and compounds)	4.61E-06	1.78E-02
11	9901	Diesel exhaust particulates	0.00E+00	1.06E+02
12	100414	Ethyl Benzene	4.60E-04	5.48E-01
13	50000	Formaldehyde	8.27E-04	1.00E+00
14	7647010	Hydrochloric acid	0.00E+00	0.00E+00
15	822060	Hexamethylene-1,6-diisocyanate	5.69E-05	2.10E-01
16	110543	Hexane	3.08E-04	3.55E-01
17	7439921	Lead	0.00E+00	0.00E+00
18	7439965	Manganese	0.00E+00	0.00E+00
19	101688	Methylene diphenyl diisocyanate {MDI} [POM]	2.70E-01	1.09E+03
20	78933	Methyl ethyl ketone {2-Butanone}	1.10E-01	5.00E+02
21	7439976	Mercury	0.00E+00	0.00E+00
22	108101	Methyl isobutyl ketone {Hexone}	2.88E-02	1.18E+02
23	91203	Naphthalene [PAH, POM]	6.37E-05	1.82E-01
24	7664417	Ammonia	1.92E-01	2.41E+02
25	7440020	Nickel	0.00E+00	0.00E+00
26	1151	PAHs, total, w/o individ. components reported [PAH, POM]	6.53E-06	7.54E-03
27	108656	Propylene glycol monomethyl ether acetate	1.65E-02	9.54E+01

Chem No.	CAS	Chemical Name	Hourly Emissions (lb/hour)	Annual Emissions (lb/year)
28	7782492	Selenium	0.00E+00	0.00E+00
29	584849	Toluene-2,4-diisocyanate	4.89E-05	1.83E-01
30	108883	Toluene	1.77E-03	2.12E+00
31	1330207	Xylenes	2.70E-02	1.44E+02

Multipathway Substances and Their Pathways

All TACs enter the body through inhalation. Some TACs also enter the body through other pathways. For example, a substance may be deposited on the ground in particulate form and contribute to risk through ingestion of soil or backyard garden vegetables. The chemicals evaluated in this analysis that have multipathways are shown in the following table.

Multipathway Substances

Chemical	CAS	Pathways
Arsenic	7440382	Inhalation, soil, dermal, home-grown produce
Cadmium	7440439	Inhalation, soil, dermal, home-grown produce
Hexavalent Chromium	18540299	Inhalation, soil, dermal, home-grown produce
Lead	7439921	Inhalation, dermal, soil, home-grown produce
Mercury	7439976	Inhalation, soil, dermal, home-grown produce
Nickel	7440020	Inhalation, soil, dermal, home-grown produce
PAHs, total, w/o individ. Components	1151	Inhalation, dermal, soil, home-grown produce

The following table lists the possible pathways and whether they were evaluated for residential and/or worker receptors.

Pathways Evaluated

Pathway	Evaluated (yes/no)	Comment
Inhalation	Yes for all receptors	Evaluated for all substances at all receptors
Home Grown Produce	Yes for residential receptors No for commercial receptors	Evaluated for residential receptors
Dermal Absorption	Yes for all receptors	Evaluated for all receptors
Soil Ingestion	Yes for all receptors	Evaluated for all receptors
Mother's Milk	Yes for residential receptors No for commercial receptors	Evaluated for residential receptors
Fish	No	No bodies of water fished in the area
Beef/Dairy	No	No beef or dairy farms in the area
Drinking Water	No	No drinking water reservoirs in the area
Pigs, Chickens, Eggs	No	No farms in the area

The most significant pathway is inhalation; over 99% of the cancer risk is due to this pathway. The following table shows the relative weight of each pathway. This is the case for both residential and worker receptors. Note that the 'ORAL' risk represents the sum of the risk from the noninhalation pathways.

Cancer Risk Percentage by Pathway

Pathway	Cancer Risk	% of Total
INHAL	2.8E-06	99.09%
DERM	7.3E-09	0.26%
SOIL	8.2E-09	0.29%
MOTHER	0.0E+00	0.00%
FISH	0.0E+00	0.00%
WATER	0.0E+00	0.00%
VEG	1.0E-08	0.36%
DAIRY	0.0E+00	0.00%
BEEF	0.0E+00	0.00%
CHICK	0.0E+00	0.00%
PIG	0.0E+00	0.00%
EGG	0.0E+00	0.00%
MEAT	0.0E+00	0.00%
ORAL	2.6E-08	0.91%

Overview of Dispersion Modeling and Exposure Assessment

Air dispersion models simulate the atmospheric transport and fate of a pollutant from the point of emission to the location of impact to arrive at ambient air concentration estimates of the pollutant. The transformation (fate) of an airborne pollutant, its movement with the prevailing winds (transport), its crosswind and vertical movement due to atmospheric turbulence (dispersion), and its removal amounts due to dry and wet deposition are influenced by the pollutant's physical and chemical properties and by meteorological and environmental conditions. Factors such as distance from the source to the receptor, meteorology, intervening land use and terrain, pollutant release characteristics, and background pollutant concentrations affect the predicted air concentration rate of an air pollutant. Estimates of the amount of gaseous and particulate material deposited by wet and dry process on outdoor surfaces are also necessary to assess impacts of toxic air pollutants. [From U.S EPA fact sheet: Computer Modeling: Dispersion Models. www.epa.gov/ttn/atw/wks/fs-dispmodel.pdf.]

AERMOD is a steady-state plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain.

Once the concentrations of the pollutants are determined through dispersion modeling, exposure assessment is done to determine the impacts on nearby receptors. The Risk Analysis module in HARP provides the tool for preparing Health Risk Assessments as specified in the Office of Environmental Health Hazard Assessment's document *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA, 2003).

Dose-Response Assessment for Cancer and Noncancer Health Impacts

Dose-response assessment is the process of characterizing the relationship between exposure to an agent and incidence of an adverse health effect in exposed populations. In quantitative carcinogenic risk assessment, the dose-response relationship is expressed in terms of a potency slope that is used to calculate the probability or risk of cancer associated with an estimated exposure. Cancer potency factors are expressed as the 95th percent upper confidence limit of the slope of the dose response curve estimated assuming continuous lifetime exposure to a substance at a dose of one milligram per kilogram of body weight-day and commonly expressed in units of inverse dose (i.e., (mg/kg/day)⁻¹). It

is assumed in cancer risk assessments that risk is directly proportional to dose and that there is no threshold for carcinogenesis. The Office of Environmental Health Hazard Assessment (OEHHA) has compiled cancer potency factors, which are used in risk assessments for the Hot Spots program. Cancer potency factors were derived either by the United States Environmental Protection Agency (U.S. EPA) or by OEHHA. For a detailed description of cancer potency factors, refer to *The Air Toxics Hot Spots Program Risk Assessment Guidelines; Part II; Technical Support Document for Describing Available Cancer Potency Factors* (OEHHA, 1999b and 2002).

For noncarcinogenic effects, dose-response data developed from animal or human studies are used to develop acute and chronic noncancer Reference Exposure Levels (RELs). The acute and chronic RELs are defined as the concentration at which no adverse noncancer adverse health effects are anticipated. The most sensitive health effect is chosen to determine the REL if the chemical affects multiple organ systems. Unlike cancer health effects, noncancer acute and chronic health effects are generally assumed to have thresholds for adverse effects. In other words, acute or chronic injury from a pollutant will not occur until exposure to that pollutant has reached or exceeded a certain concentration (i.e., threshold). The acute and chronic RELs are intended to be below the threshold for health effects for the general population. The actual threshold for health effects in the general population is generally not known with any precision. Uncertainty factors are applied to the Lowest Observed Adverse Effects Level (LOAEL) or No Observed Adverse Effects Level (NOAEL) or Benchmark Concentration values from animal or human studies to help ensure that the chronic and acute REL values are below the threshold for human health for nearly all individuals. Some substances that pose a chronic inhalation hazard may also present a chronic hazard via non-inhalation routes of exposure (e.g., ingestion of contaminated water, foods, or soils, and dermal absorption). The methodology and derivations for acute and chronic RELs are described in the *Air Toxics Hot Spots Program Risk Assessment Guidelines; Part I; The Determination of Acute Reference Exposure Levels for Airborne Toxicants (Part I TSD)* (OEHHA 1999a) and *Air Toxics Hot Spots Program Risk Assessment Guidelines; Part III; Technical Support Document for the Determination of Chronic Reference Exposure Levels (Part III TSD)*(OEHHA 2000a).

Target Organs

The target organs which are affected by acute and chronic noncancer impacts are defined as follows:

CV:	Cardiovascular
CNS:	Central nervous system
BONE:	Bones and teeth
DEVEL:	Developmental
ENDO:	Endocrine system
EYE:	Eye
GILV:	Gastrointestinal and Alimentary system (liver)
IMMUN:	Immune system
KIDN:	Kidney
REPRO:	Reproductive system
RESP:	Respiratory system
SKIN:	Skin
BLOOD:	Blood (hematopoietic)

The following tables show the list of chemicals emitted at this facility and the target organs affected in terms of chronic and acute health impacts.

Target Organ Systems by Substance for Chronic Noncancer Impacts

Chem No.	CAS	Chemical	Chronic Risk Target Organ Systems												
			CV	CNS	BONE	DEVEL	ENDO	EYE	GILV	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD
1	95636	1,2,4TriMeBenze													
2	106990	1,3-Butadiene				X					X				
3	75070	Acetaldehyde										X			
4	107028	Acrolein										X			
5	7440382	Arsenic	X	X		X					X	X	X		
6	71432	Benzene												X	
7	7440439	Cadmium								X		X			
8	76131	CFC-113													
9	7440508	Copper													
10	18540299	Cr(VI)										X		X	
11	9901	DieselExhPM										X			
12	100414	Ethyl Benzene				X	X		X		X	X			
13	50000	Formaldehyde										X			
14	7647010	Hydrochloric acid										X			
15	822060	HexaMeDiisocyan													
16	110543	Hexane		X											
17	7439921	Lead													
18	7439965	Manganese		X											
19	101688	MeDiphenDiisocy										X			
20	78933	MEK													
21	7439976	Mercury		X		X				X	X				
22	108101	MIBK													
23	91203	Naphthalene										X			
24	7664417	NH3										X			
25	7440020	Nickel				X					X	X		X	
26	1151	PAHs-w/o													
27	108656	PGMEA													
28	7782492	Selenium	X	X					X						
29	584849	T-2,4-diisocyan										X			
30	108883	Toluene		X		X					X	X			
31	1330207	Xylenes		X				X				X			

Target Organ Systems by Substance for Acute Noncancer Impacts

Chem No.	CAS	Chemical	Acute Risk Target Organ Systems													
			CV	CNS	BONE	DEVEL	ENDO	EYE	GLY	IMMUN	KIDN	REPRO	RESP	SKIN	BLOOD	
1	95636	1,2,4TriMeBenze														
2	106990	1,3-Butadiene				X						X				
3	75070	Acetaldehyde							X				X			
4	107028	Acrolein							X				X			
5	7440382	Arsenic	X	X		X						X				
6	71432	Benzene				X				X		X				X
7	7440439	Cadmium														
8	76131	CFC-113														
9	7440508	Copper											X			
10	18540299	Cr(VI)														
11	9901	DieselExhPM														
12	100414	Ethyl Benzene														
13	50000	Formaldehyde							X							
14	7647010	Hydrochloric acid							X				X			
15	822060	HexaMeDiisocyan														
16	110543	Hexane														
17	7439921	Lead														
18	7439965	Manganese														
19	101688	MeDiphenDiisocy														
20	78933	MEK							X				X			
21	7439976	Mercury		X		X						X				
22	108101	MIBK														
23	91203	Naphthalene														
24	7664417	NH3							X				X			
25	7440020	Nickel									X					
26	1151	PAHs-w/o														
27	108656	PGMEA														
28	7782492	Selenium														
29	584849	T-2,4-diisocyan														
30	108883	Toluene		X		X			X			X	X			
31	1330207	Xylenes		X					X				X			

Summary of Results

Cancer risk was calculated to be 2.8 in one million for the nearest residential receptor, and 2.4 in one million for the nearest offsite worker receptor. Chronic and acute health risk indices were well below 1.0 for all receptors.

The Health Risk Assessment Summary Form is included in Appendix A.

Location of Maximum Impact

Location of Maximum Impact

Maximum Exposure Point	UTM Coordinates (km)	Grid No.
PMI (Point of Maximum Impact)	404.343 E, 3735.153 N	355
MEIR (Maximally Exposed Individual Resident)	404.343 E, 3735.153 N	355
MEIW (Maximally Exposed Individual Worker)	404.266 E, 3734.765 N	960

Summary of Health Risk Impacts

Receptor	Grid No.	Cancer	Grid No.	Chronic	Grid No.	Acute
Residential	355	2.8×10^{-6}	356	0.06	379	0.00 (simple)
Worker	960	2.4×10^{-6}	957	0.09	976	0.01 (simple)
Fence line					1723	0.01 (simple)

Location of Receptors with Cancer Risk Above Ten in One Million or Health Risk Index over 1.0

There are no receptors with cancer risk above ten in one million.

There are no receptors with chronic health index over 1.0.

There are no receptors with acute health index over 1.0.

The maximum acute health risk at the facility boundary is at Boundary Receptor 1723. The maximum acute health index (HIA) was calculated to be 0.01 using the Acute HI Simple method.

The maximum residential acute health risk occurs at receptor 379. The acute health risk at that location was 0.00 using the Acute HI Simple Method.

The maximum worker acute health risk occurs at receptor 976. The acute health risk at that location was 0.01 using the Acute HI Simple Method.

Total Potential Multipathway Risks

The total potential multipathway cancer risks at the PMI, MEIR, and MEIW are shown in the following table.

Cancer Risks at Maximum Exposure Points

Maximum Exposure Point	Maximum Individual Cancer Risk
PMI (Point of Maximum Impact)	2.8 x 10 ⁻⁶
MEIR (Maximally Exposed Individual Resident)	2.8 x 10 ⁻⁶
MEIW (Maximally Exposed Individual Worker)	2.4 x 10 ⁻⁶

The following table shows the nine most significant substances that contribute to cancer risk sorted by their percentage of the total cancer risk (residential) for receptor 355, the PMI. All other substances did not contribute to cancer risk. Diesel exhaust particulate matter contributes 71.46% of the cancer risk. Hexavalent chromium is next with about 27.80% of the total. Together these two substances contribute 99.26% of the total cancer risk. The pathways included for residential risk were inhalation, home grown produce, dermal absorption, soil ingestion, and mother's milk.

Cancer Risk by Substance for MEIR

Chem. No.	CAS	Substance	MICR	% of Total
11	9901	DieselExhPM	2.0E-06	71.46%
10	18540299	Cr(VI)	7.9E-07	27.80%
26	1151	PAHs-w/o	1.8E-08	0.63%
23	91203	Naphthalene	1.1E-09	0.04%
6	71432	Benzene	9.0E-10	0.03%
29	584849	T-2,4-diisocyan	7.2E-10	0.02%
13	50000	Formaldehyde	4.4E-10	0.02%
12	100414	EthylBenzene	9.7E-11	0.00%
3	75070	Acetaldehyde	4.5E-11	0.00%
Total MICR			2.8E-06	

The following table shows the nine most significant substances that contribute to cancer risk sorted by their percentage of the total cancer risk (worker) for receptor 960. All other substances did not contribute to cancer risk. Diesel exhaust particulate matter contributes approximately 79.81% of the cancer risk, hexavalent chromium contributes approximately 19.97%, and PAH contributes approximately 0.13% of the total cancer risk. These three substances account for 99.92% of the total risk. The pathways included for worker risk were inhalation, dermal, and soil ingestion.

Cancer Risk by Substance for MEIW

Chem. No.	CAS	Substance	MICR	% of Total
11	9901	DieselExhPM	1.9E-06	79.81%
10	18540299	Cr(VI)	4.8E-07	19.97%
26	1151	PAHs-w/o	3.1E-09	0.13%
23	91203	Naphthalene	8.8E-10	0.04%
29	584849	T-2,4-diisocyan	4.3E-10	0.02%
6	71432	Benzene	4.0E-10	0.02%
13	50000	Formaldehyde	2.1E-10	0.01%
12	100414	EthylBenzene	4.6E-11	0.00%
3	75070	Acetaldehyde	2.0E-11	0.00%
Total MICR			2.4E-06	

Map of Facility

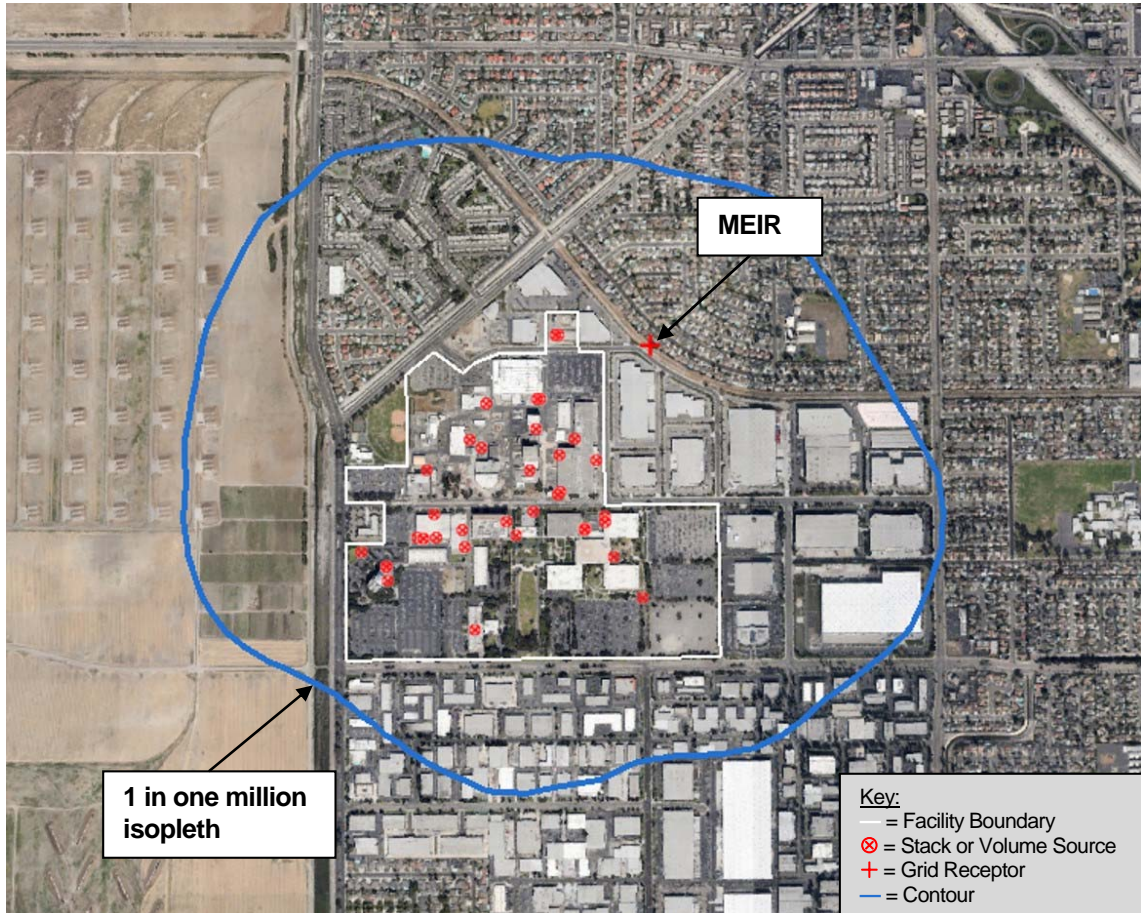
The map of the facility shown below was assembled from an aerial photo. The outline of the facility is shown in white. The locations of the PMI, MEIR, and MIEW are indicated with red crosses.



• Figure 1: Facility Map

70-Year Lifetime Cancer Risk Zone of Impact

The map below shows the 70-year cancer risk contour using the residential risk profile. The blue contour line is the 1 in one million risk isopleth. The cancer risk at receptor location 355 (MEIR) is 2.8×10^{-6} , or 2.8 in one million.



• Figure 2: 70-Year Cancer Risk Zone of Impact

Acute Hazard Impacts

The map below shows the acute health risk index contours. No isopleths are shown since the acute health index is less than 1.0 for all receptors. Calculation of acute health risk is the same for both residential and worker receptors. Maximum acute health risk was calculated at the fence line of the facility. The maximum acute health risk at the facility boundary is at Boundary Receptor 1723. The maximum acute health index (HIA) was calculated to be 0.01 using the Acute HI Simple method.

The maximum residential acute health risk occurs at receptor 379. The acute health risk at that location was 0.00 using the Acute HI Simple Method.

The maximum worker acute health risk occurs at receptor 976. The acute health risk at that location was 0.01 using the Acute HI Simple Method.

The substances that drive acute health risk are acrolein and ammonia. The primary target organ that is impacted is the eye.

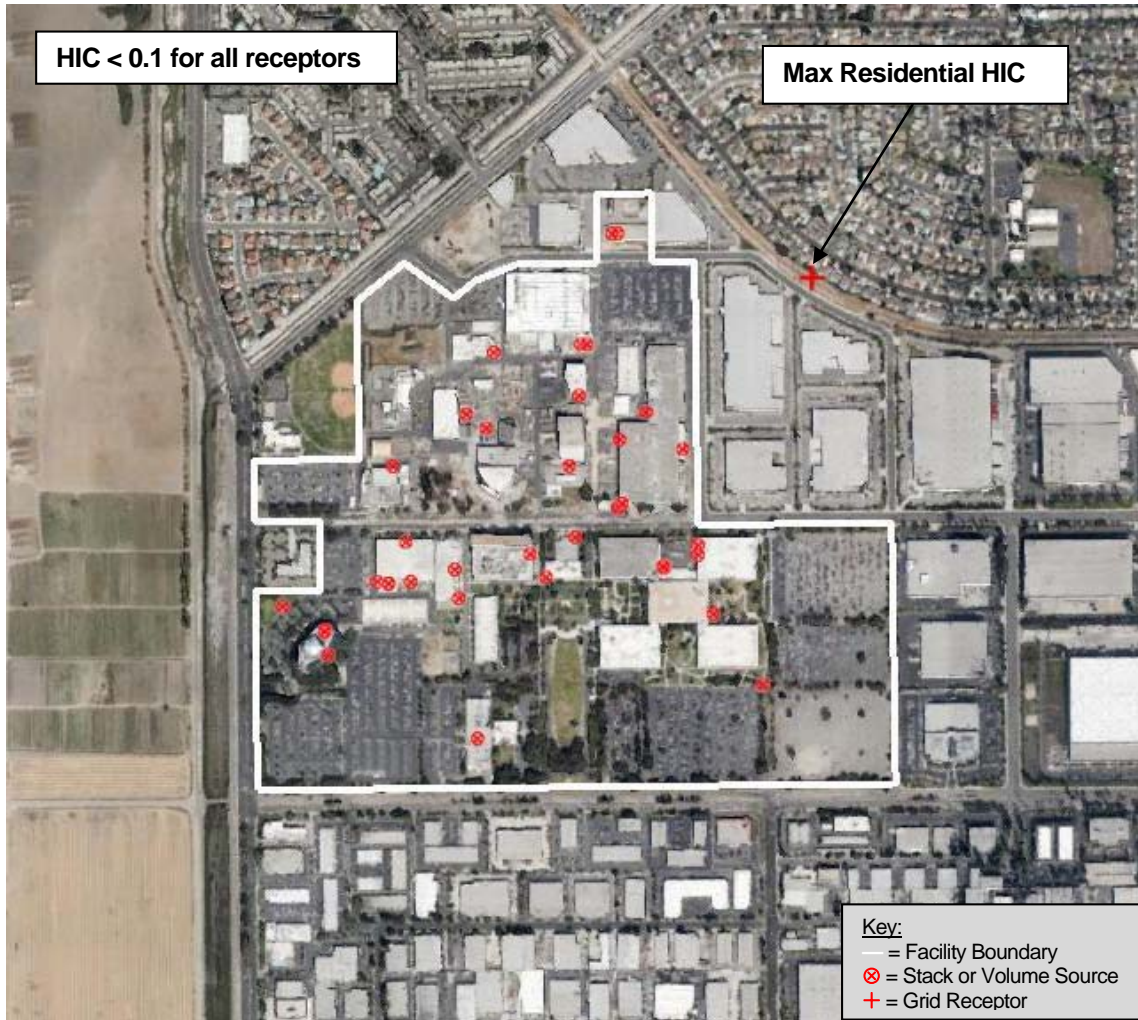


• Figure 3: Acute Health Risk

Chronic Hazard Impacts

Residential

The maximum residential chronic impact occurs at receptor 356. The chronic health index (HIC) at that receptor is 0.06. No isopleths are shown since the chronic health index is less than 0.1 for all receptors.

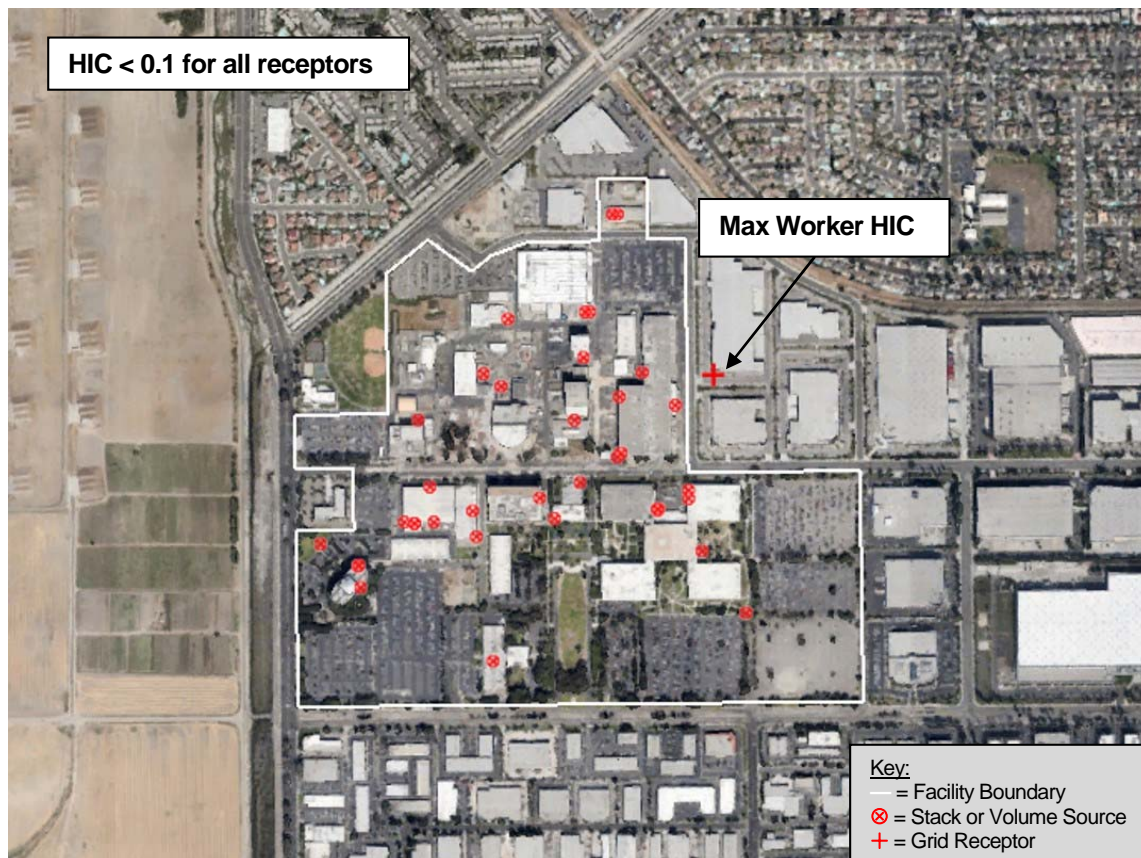


• Figure 4: Residential Chronic Health Risk

The substances that drive chronic noncancer health risk are: Methylene diphenyl diisocyanate, diesel exhaust PM, toluene-2,4-diisocyanate and ammonia. The primary target organ that is impacted is the respiratory system.

Worker

The maximum worker chronic impact occurs at receptor 957. The chronic health index (HIC) at that receptor is 0.09. No isopleths are shown since the chronic health index is less than 0.1 for all receptors.



• Figure 5: Worker Chronic Health Risk

The substances that drive chronic noncancer health risk are: Methylene diphenyl diisocyanate, diesel exhaust PM, toluene-2,4-diisocyanate and ammonia. The primary target organ that is impacted is the respiratory system.

Population Exposure

The cancer burden was estimated to be 2.31×10^{-2} . The population inside the 1×10^{-6} cancer isopleth was estimated to be 8,237 based on census block group data.

Versions of Software and Risk Assessment Guidelines

HARP Version 1.4f was used for this analysis.

The risk assessment guidelines used for this analysis were the Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics “Hot Spots” Information and Assessment Act (AB2588), dated June 2011.

Executive Summary Conclusion

This analysis demonstrates that the cancer, cancer burden, and chronic health risk are below the Action Risk Levels defined in Rule 1402.

Health Risk Assessment Report

Health Risk Assessment Report

This health risk assessment (HRA) was prepared in response to a request by the South Coast Air Quality Management District. In June 2006 an HRA of The Boeing Company - Huntington Beach facility (Boeing) was submitted to the SCAQMD and subsequently approved (Reference 6). The SCAQMD HRA request letter dated July 31, 2013 (Reference 7) explains that "With the recent addition of the two boilers purchased from Ameresco Huntington Beach (ID 140499), your facility's AB2588 HRA, submitted June 2006, is no longer representative of existing operations. Thus, you are required to submit an updated HRA..."

The Boeing facility merged with the Ameresco Huntington Beach facility and is now operated as a single facility (ID 016660). This health risk assessment utilizes the 2012 annual emission inventory and includes all air emission sources at Boeing, including the boilers that were part of the old Ameresco Huntington Beach facility.

Cancer risk was calculated to be 2.8 in one million for the nearest residential receptor, and 2.4 in one million for the nearest offsite worker receptor. Chronic health risk indices were well below 1.0 for all receptors. Acute health risk at the facility fence line was determined to be 0.56.

Hazard Identification

Emitted Substances

The operations that result in emissions of toxic air contaminants include:

- Spray coating of aerospace coatings;
- Spray foam;
- Chromic acid anodizing tank line;
- Emergency diesel-fueled internal combustion engines (ICE);
- Natural gas combustion in boilers and heaters; and
- Solvent cleaning of metal parts.

There was no use of trichloroethylene (TCE) for degreasing in 2012.

The toxic air contaminants emitted, their annual and hourly emissions, and the types of emission sources are shown in the following table. Annual and hourly emissions of non-Diesel Particulate Matter (DPM) substances associated with the emergency diesel-fueled ICEs have been excluded from the totals but these substances are shown throughout, by name.

Toxic Air Contaminant Emissions

CAS	Chemical Name	Source Type	Hourly Emissions (lb/hour)	Annual Emissions (lb/year)
95636	1,2,4-Trimethylbenzene	Aerospace coatings	9.24E-04	3.67E+00
106990	1,3-Butadiene	Diesel internal combustion engines	0.00E+00	0.00E+00
75070	Acetaldehyde	Diesel internal combustion engines, natural gas external combustion	2.07E-04	2.23E-01
107028	Acrolein	Diesel internal combustion engines, natural gas external combustion	1.76E-04	1.82E-01
7440382	Arsenic	Diesel internal combustion engines	0.00E+00	0.00E+00
71432	Benzene	Diesel internal combustion engines, natural gas external combustion	3.86E-04	4.46E-01
7440439	Cadmium	Diesel internal combustion engines	0.00E+00	0.00E+00
76131	Trichlorotrifluoroethane {CFC-113}	Aerospace coatings	1.87E-03	7.46E+00
7440508	Copper	Diesel internal combustion engines	0.00E+00	0.00E+00
1854029 9	Chromium, hexavalent (and compounds)	Aerospace coatings, chromic acid anodizing tank, acid etch tank	4.61E-06	1.78E-02
9901	Diesel exhaust particulates	Diesel internal combustion engines	0.00E+00	1.06E+02
100414	Ethyl Benzene	Diesel internal combustion engines, natural gas external combustion	4.60E-04	5.48E-01
50000	Formaldehyde	Aerospace coatings, Diesel internal combustion engines, natural gas external combustion, composite materials	8.27E-04	1.00E+00
7647010	Hydrochloric acid	Diesel internal combustion engines	0.00E+00	0.00E+00
822060	Hexamethylene-1,6-diisocyanate	Aerospace coatings	5.69E-05	2.10E-01
110543	Hexane	Diesel internal combustion engines, natural gas external combustion	3.08E-04	3.55E-01
7439921	Lead	Diesel internal combustion engines	0.00E+00	0.00E+00
7439965	Manganese	Diesel internal combustion engines	0.00E+00	0.00E+00
101688	Methylene diphenyl diisocyanate {MDI} [POM]	Spray foam operations	2.70E-01	1.09E+03
78933	Methyl ethyl ketone {2-Butanone}	Solvent cleaning	1.10E-01	5.00E+02
7439976	Mercury	Diesel internal combustion engines	0.00E+00	0.00E+00
108101	Methyl isobutyl ketone {Hexone}	Solvent cleaning	2.88E-02	1.18E+02
91203	Naphthalene [PAH, POM]	Diesel internal combustion engines, natural gas external combustion	6.37E-05	1.82E-01
7664417	Ammonia	Diesel internal combustion engines, natural gas external combustion	1.92E-01	2.41E+02

CAS	Chemical Name	Source Type	Hourly Emissions (lb/hour)	Annual Emissions (lb/year)
7440020	Nickel	Diesel internal combustion engines	0.00E+00	0.00E+00
1151	PAHs, total, w/o individ. components reported [PAH, POM]	Diesel internal combustion engines, natural gas external combustion	6.53E-06	7.54E-03
108656	Propylene glycol monomethyl ether acetate	Aerospace coatings	1.65E-02	9.54E+01
7782492	Selenium	Diesel internal combustion engines	0.00E+00	0.00E+00
584849	Toluene-2,4-diisocyanate	Spray foam operations, aerospace coatings	4.89E-05	1.83E-01
108883	Toluene	Natural gas external combustion	1.77E-03	2.12E+00
1330207	Xylenes	Diesel internal combustion engines, natural gas external combustion, aerospace coatings	2.70E-02	1.44E+02

Evaluation for Cancer Risk and Noncancer Risks

This section identifies the substances that were evaluated for cancer risk and/or noncancer acute and chronic health risk impacts. In addition, substances that present a potential cancer risk or chronic noncancer hazard via noninhalation routes of exposure are identified. The following table lists the substances and their risk factors.

Risk Factors

CAS	Chemical Description	Inhalation Cancer Unit Risk Factor ($\mu\text{g}/\text{m}^3$) ⁻¹	Inhalation Cancer Slope Factor ($\text{mg}/\text{kg}\cdot\text{d}$) ⁻¹	Oral Cancer Slope Factor ($\text{mg}/\text{kg}\cdot\text{d}$) ⁻¹	Inhalation Chronic REL ($\mu\text{g}/\text{m}^3$)	Oral Chronic REL ($\mu\text{g}/\text{m}^3$)	Inhalation Acute REL ($\mu\text{g}/\text{m}^3$)	Is Multi path way?
95636	1,2,4-Trimethylbenzene	0	0	0	0	0	0	FALSE
106990	1,3-Butadiene	0.00017	0.6	0	2	0	660	FALSE
75070	Acetaldehyde	0.0000027	0.01	0	140	0	470	FALSE
107028	Acrolein	0	0	0	0.35	0	2.5	FALSE
7440382	Arsenic	0.0033	12	1.5	0.015	0.0000035	0.2	TRUE
71432	Benzene	0.000029	0.1	0	60	0	1300	FALSE
7440439	Cadmium	0.0042	15	0	0.02	0.0005	0	TRUE
76131	Trichlorotrifluoroethane {CFC-113}	0	0	0	0	0	0	FALSE
7440508	Copper	0	0	0	0	0	100	FALSE
18540299	Chromium, hexavalent (and compounds)	0.15	510	0.5	0.2	0.02	0	TRUE
9901	Diesel exhaust particulates	0.0003	1.1	0	5	0	0	FALSE
100414	Ethyl Benzene	0.0000025	0.0087	0	2000	0	0	FALSE
50000	Formaldehyde	0.000006	0.021	0	9	0	55	FALSE
7647010	Hydrochloric acid	0	0	0	9	0	2100	FALSE
822060	Hexamethylene-1,6-diisocyanate	0	0	0	0	0	0	FALSE
110543	Hexane	0	0	0	7000	0	0	FALSE
7439921	Lead	0.000012	0.042	0.0085	0	0	0	TRUE

CAS	Chemical Description	Inhalation Cancer Unit Risk Factor ($\mu\text{g}/\text{m}^3$) ⁻¹	Inhalation Cancer Slope Factor ($\text{mg}/\text{kg}\cdot\text{d}$) ⁻¹	Oral Cancer Slope Factor ($\text{mg}/\text{kg}\cdot\text{d}$) ⁻¹	Inhalation Chronic REL ($\mu\text{g}/\text{m}^3$)	Oral Chronic REL ($\mu\text{g}/\text{m}^3$)	Inhalation Acute REL ($\mu\text{g}/\text{m}^3$)	Is Multi path way?
7439965	Manganese	0	0	0	0.09	0	0	FALSE
101688	Methylene diphenyl diisocyanate {MDI} [POM]	0	0	0	0.7	0	0	FALSE
78933	Methyl ethyl ketone {2-Butanone}	0	0	0	0	0	13000	FALSE
7439976	Mercury	0	0	0	0.03	0.00016	0.6	TRUE
108101	Methyl isobutyl ketone {Hexone}	0	0	0	0	0	0	FALSE
91203	Naphthalene [PAH, POM]	0.000034	0.12	0	9	0	0	FALSE
7664417	Ammonia	0	0	0	200	0	3200	FALSE
7440020	Nickel	0.00026	0.91	0	0.014	0.011	0.2	TRUE
1151	PAHs, total, w/o individ. components reported [PAH, POM]	0.0011	3.9	12	0	0	0	TRUE
108656	Propylene glycol monomethyl ether acetate	0	0	0	0	0	0	FALSE
7782492	Selenium	0	0	0	20	0	0	FALSE
584849	Toluene-2,4-diisocyanate	0.000011	0.039	0	0.07	0	0	FALSE
108883	Toluene	0	0	0	300	0	37000	FALSE
1330207	Xylenes	0	0	0	700	0	22000	FALSE

Types and Amounts of Emissions

This section discusses the types and amounts of continuous or intermittent predictable emissions from the facility that occurred during the reporting year. We will discuss the substance(s) released and a description of the processes that resulted in long-term and continuous releases.

Spray Coating of Aerospace Coatings

This process emits hexavalent chromium, hexamethylene-1,6-diisocyanate, toluene-2,4-diisocyanate, xylene, formaldehyde and 1,2,4-trimethylbenzene. Emissions from spray coating of aerospace coatings only occur when the painter is spraying parts in a spray booth. This can happen at any time during business hours. However, this type of emission is intermittent since there is not a lot of aerospace coating usage at this facility. This operation occurs throughout the year.

Spray Foam

This process creates rigid foam which is created by the combination of two different chemicals. The process of making spray foam emits toluene-2,4-diisocyanate, and methylene diphenyl diisocyanate. The spray foam lab is located in Bldg. 21. There are three pieces of equipment that are used for spray foam operations. All spray foam emissions are modeled as one source. Emissions only occur when the operator is running the spray foam equipment; this can happen any time during business hours. However, this type of emission is intermittent since the quantity of spray foam used is small. This operation occurs throughout the year.

Solvent Cleaning of Metal Parts

Emissions from solvent cleaning of metal parts occurs any time that parts are cleaned. Solvents used for cleaning include MEK and MIBK. Usually these solvents are applied to metal parts prior to their being coated with an aerospace coating.

Chromic Acid Anodizing Tank Line

These tanks emit hexavalent chromium. Emissions from the chromic acid anodizing tank occur when the rectifier is applying voltage to the metal part, or when the tank is being air sparged to mix the solution. The chrome conversion tanks and other tanks that contain chromium only emit hexavalent chromium when the tanks are being air sparged. Tank line APIN 178 is in the laboratory and the usage is low and infrequent. Sparging of the tanks is limited by Rules 1469 and 1426 to those times when parts are being processed in the tanks.

Emergency Diesel-Fueled Internal Combustion Engines (ICE)

These engines are only used in emergency situations so use is intermittent. The engines are run on a weekly or monthly basis for maintenance and testing. This typically amounts to less than 20 hours per year per engine. If there is an emergency, the engines start automatically; emissions due to emergencies are intermittent and unscheduled.

Natural Gas Combustion in Boilers and Heaters

External combustion of natural gas emits acetaldehyde, acrolein, benzene, formaldehyde, PAH, naphthalene, and toluene. The boilers and heaters operate during the colder months of the year. During the warm months, the smaller units do not operate and the operation of the larger units is reduced. There is some small usage of natural gas in the kitchen throughout the year.

Degreasing Using Trichloroethylene (TCE)

There is one degreaser that uses TCE. Emissions of TCE only occur while the equipment is operating. This equipment was not operated at all in 2012.

Exposure Assessment

Facility Description

The Boeing Company – Huntington Beach
5301 Bolsa Ave., M/C H45N-E104
Huntington Beach, CA 92647
SCAQMD Facility ID #016660

Local Topography

The local topography of this area is flat. This facility is about three miles northeast of the Pacific Ocean at an elevation of about 20 feet above sea level. The surrounding area is generally at the same elevation. As you move towards the east the elevation rises very slightly.

Facility Plot Plan

A facility plot plan is included in Appendix B.

Site/Route Dependent Exposure Pathways

The facility is located in an area that has both commercial and residential receptors nearby. To the west across Bolsa Chica Avenue is the Naval Weapons Station - Seal Beach. There are no drinking water reservoirs, fishable waters, beef/dairy pastures, or farms in the area.

Since there are residents in the area that could raise homegrown produce, the homegrown produce pathway was included. In accordance with SCAQMD guidance, 5.2% is the fraction of homegrown fruits and vegetables consumed. Dermal, mother's milk and soil ingestion pathways were also included for the residential receptors.

For the worker receptors, dermal absorption, and soil ingestion were included.

Emissions Inventory

Facility emissions of toxic air contaminants (TAC) reportable under AB2588 were determined for the one year period from January 1, 2012 through December 31, 2012. Many of the TACs were reported under the SCAQMD's Annual Emissions Reporting (AER) program. There were also some additional TACs that were not reported on the 2012 AER, but are on the list of AB2588 TACs.

Appendix D contains information on facility sources and emissions in table format as specified in Appendix K of the OEHHA Guidelines (2003) (Ref. 3). Sources are identified within the facility by "APIN" numbers (Air Permit Identification Numbers). However, not all APIN numbers refer to permitted equipment; some equipment is exempt from permitting and has an APIN number, or XAPIN number, to facilitate identification.

Spraying of Aerospace Coatings

Aerospace coatings and solvents contain toxic materials: hexavalent chromium, hexamethylene-1,6-diisocyanate, toluene-2,4-diisocyanate, formaldehyde, xylene, 1,2,4-trimethylbenzene, methyl ethyl ketone, and methyl isobutyl ketone. Emissions were estimated by taking the total quantity of coatings and solvents used at the facility during the year and calculating the weight of each TAC as determined

from the MSDS's. Most of the TACs are volatile and are assumed to be emitted through evaporation. Hexavalent chromium is not volatile.

The most significant TAC is hexavalent chromium. The annual amount of chrome-containing paint was determined from spray booth usage logs. The amount of chrome in the paint was determined from the MSDS's. All chrome in the paint is assumed to be hexavalent chromium. Transfer efficiency from the spray gun to the parts of 65% was assumed. The control efficiency of the spray booth filters was assumed to be 99.63%. The combined control efficiency is calculated to be:

$$\text{Control Efficiency} = 1 - (1 - 0.65)(1 - 0.9963) = 0.9987 \text{ (99.87\%)}$$

Each of the chromated coatings, and the chrome weight in terms of lb/gal, are listed in the following table. The Hex Chrome Emissions were calculated by the following equation:

$$\text{Cr-VI Emissions(lb/yr)} = \text{Volume Used (gal/yr)} \times \text{Chrome Wt. (lb/gal)} (1-0.9987)$$

Coating	Total (gal/yr)	Chrome Wt. (lb/gal)	Hex Chrome Emissions (lb/yr)
DMS 1786	0.17	0.23	0.0001
DPM 2232	0.35	0.23	0.0001
44-GN-054	2.76	0.23	0.0008
HBPM-24-008-03	0.02	0.23	0.0000
DMS 1850	0.15	0.17	0.0000
DMS 2104	11.91	0.71	0.0109
DMS 2144	0.21	0.70	0.0002
10P20-26	0.04	0.70	0.0000
DPM 8059	0.05	0.72	0.0000
513X419	0.03	0.72	0.0000
515X346	0.12	0.35	0.0001
DPM 13224	9.25	0.41	0.0049
BMS 10-20	0.22	0.20	0.0001
10P20-12	0.20	0.56	0.0001
02-Y-040	0.96	0.46	0.0006
BR 127	0.09	0.09	0.0000
10P8-10	0.12	0.11	0.0000
BMS 10-11 TY1, Yellow	0.08	0.23	0.0000
BMS 10-11 TY1, Green	0.24	0.25	0.0001
10P20-44	0.10	0.37	0.0000
BMS 10-79	0.39	0.14	0.0001
PR-1432-GV	0.01	0.28	0.0000
Total	27.48		0.0182

Chromated coatings were only applied in spray booths APIN 17 and 60. The following table lists quantities of coatings and solvents used in these two spray booths.

Spray Booth	Coatings & Solvents (lbs/year)	Coatings & Solvents %	Hex Chrome Emissions (lb/year)
APIN 17	110.4	29%	0.0077
APIN 60	265.7	71%	0.0106
Total	376.0		0.0182

Emissions of volatile compounds were determined from annual usage and the percentage of TAC in each material.

In addition to APIN 17 and APIN 60, there was one additional spray booth that emitted TACs during 2012, APIN 63. For the materials that were used in APIN 17 or APIN 60, either the % of coatings & solvents above was used to distribute the TAC emissions or, if a material was known to be used in APIN 17 or APIN 60 only, the emissions were assigned to one booth or the other.

Source No.	Description of Emission Source	Emissions	CAS	Annual Quantity (lbs)
17/60	Aerospace coatings/solvents	Formaldehyde	50000	2.47E-02
17/60	Aerospace coatings/solvents	1,2,4-Trimethylbenzene	95636	2.15E+00
17/60	Aerospace coatings/solvents	Hexamethylene-1,6-diisocyanate	822060	1.73E-01
17/60	Aerospace coatings/solvents	Toluene-2,4-diisocyanate	584849	1.93E-01
17/60	Aerospace coatings/solvents	Methyl ethyl ketone {2-Butanone}	78933	1.72E+02
17/60	Aerospace coatings/solvents	Methyl isobutyl ketone {Hexone}	108101	1.01E+02
17/60	Aerospace coatings/solvents	Xylenes	1330207	1.31E+02
63	Aerospace coatings/solvents	Xylenes	1330207	1.29E+00

Spray Foam

Spray foam materials contain toluene-2,4-diisocyanate, and methylene diphenyl diisocyanate. Emissions of these materials were estimated based on the weight of these compounds used at the facility during the year. It was assumed that all of the TACs in the raw materials were emitted, although some of the material is reacted in the process and bound in the foam.

Chromic Acid Anodizing Tank Line

The chromic acid anodizing tank emits hexavalent chromium from plating operations. Fumetrol 140 mist suppressant is used to control chromium emissions. Hexavalent chromium is calculated by using the emission factor in Reference 4, page 22, Table 2-C, of 0.000022 lb/1000 amp-hour. 6,381 amp-hours were used for the year. Thus, hexavalent chromium emissions were calculated as:

$$\text{Cr-VI (lb/year)} = (6381 \text{ amp-hr})/1000 \times (0.000022 \text{ lb})/1000 \text{ amp-hr} = 0.00014 \text{ lb/yr}$$

Diesel Internal Combustion Engines

Emissions for twenty-one diesel-fueled internal combustion engines were estimated using the DPM emission factor from Reference 4, Table B-2. The other substances are included throughout this document by name but are not included in any emissions or risk quantifications.

TAC Emission Factors for Diesel Engines

TAC Code	Pollutant	CAS	Emission Factor (lb/1000 gal)
2	Benzene	71432	0.1863
4	1,3-Butadiene	106990	0.2174
5	Cadmium	7440439	0.0015
12	Formaldehyde	50000	1.7261
13	Hexavalent chromium	18540299	0.0001
14	Arsenic	7440382	0.0016
15	Lead	7439921	0.0083
17	Nickel	7440020	0.0039
19	Naphthalene	91203	0.0197
19	PAHs (excluding Naphthalene)	1151	0.0362
29	Acetaldehyde	75070	0.7833
30	Acrolein	107028	0.0339
32	Ammonia*	7664417	2.9000
36	Copper	7440508	0.0041
40	Ethyl Benzene	100414	0.0109
44	Hexane	110543	0.0269
46	Hydrogen Chloride	7647010	0.1863
49	Manganese	7439965	0.0031
50	Mercury	7439976	0.0020
64	Selenium	7782492	0.0022
68	Toluene	108883	0.1054
70	Xylenes	1330207	0.0424
72	Diesel exhaust particulates	9901	33.5000

Reference 4, Table B-2, page 14

TAC emissions are calculated as follows:

$$\text{Diesel PM (lb)} = \text{Quantity of Diesel Consumed (gal)} / 1000 \times 33.5 \text{ (lb/1000 gal)}$$

Natural Gas External Combustion

There are two permitted high temperature hot water generators (APIN 233 and 234) in building 51 that are greater than 10 mmBtu/hr. There are two unpermitted (<2 mmBtu/hr) boilers (XAPIN 212) on the roof of building 17, and two boilers (XAPIN 223) on the roof of building 28. There is other miscellaneous external combustion equipment, mostly in the cafeteria (XAPIN 213), Building 16. Emissions from external combustion of natural gas were estimated using the emission factors in Reference 4.

TAC Emission Factors for Natural Gas External Combustion

TAC Code	Pollutant	CAS No.	Emission Factor (lb/mmcf)	
			<10 MMBTU/HR	10-100 MMBTU/HR
2	Benzene	71432	0.008	0.0058
12	Formaldehyde	50000	0.017	0.0123
19	Total PAHs (excluding Naphthalene)	1151	0.0001	0.0001
19	Naphthalene	91203	0.0003	0.0003
29	Acetaldehyde	75070	0.0043	0.0031
30	Acrolein	107028	0.0027	0.0027
32	Ammonia	7664417	3.2	3.2
40	Ethylbenzene	100414	0.0095	0.0069
44	n-Hexane	110543	0.0063	0.0046
68	Toluene	108883	0.0366	0.0265
70	Xylene	1330207	0.0272	0.0197

Reference 4, Table B-1, Page 13, External Combustion Equipment (Boiler, Oven, Dryer, Furnace, Heater, Afterburner)

TAC emissions are typically calculated as follows:

$$\text{Benzene (lb)} = \text{Quantity of natural gas consumed (mmcf)} \times 0.008 \text{ (lb/mmcf)}$$

Solvent Cleaning of Aerospace Parts

TAC emissions from solvents used to clean aerospace parts were determined based on the quantity of solvents used for the year. The total quantities of these solvents used for the year were determined from purchase records. The weights of the TACs were determined from the percentages as listed in the MSDS. These TAC emissions were distributed between buildings 21 (APIN 215) and building 45 (APIN 216) since those are the two buildings that are the most significant users of solvents. In addition to the solvents, there were small quantities of other miscellaneous organics that were assigned to B21 and B45. The table below shows the quantities of these TACs.

Source No.	Description of Emission Source	Emissions	CAS	Quantity (lbs)
B21/B45	Coatings/Solvents	Formaldehyde	50000	4.63E-03
B21/B45	Coatings/Solvents	Naphthalene	91203	1.76E-01
B21/B45	Coatings/Solvents	1,2,4-Trimethylbenzene	95636	1.54E+00
B21/B45	Coatings/Solvents	Hexamethylene-1,6-diisocyanate	822060	5.42E-02
B21/B45	Coatings/Solvents	Methylene diphenyl diisocyanate {MDI} [POM]	101688	0.00E+00
B21/B45	Coatings/Solvents	Toluene-2,4-diisocyanate	584849	3.31E-03
B21/B45	Coatings/Solvents	Methyl ethyl ketone {2-Butanone}	78933	3.28E+02
B21/B45	Coatings/Solvents	Methyl isobutyl ketone {Hexone}	108101	1.67E+01
B21/B45	Coatings/Solvents	Xylenes	1330207	9.57E+00

Asbestos from Demolition

Although asbestos emissions were reported in the 2012 AER, it is not included in this HRA because it was emitted from demolition activities and does not represent an ongoing emission source.

Air Dispersion Modeling

Modeling Overview

The air dispersion modeling used for the Boeing HRA was performed using the American Meteorological Society/Environmental Protection Agency (AMS/EPA) Regulatory Model (AERMOD, Version 12345). AERMOD calculates the atmospheric transport and fate of pollutants from source of emissions. The model essentially calculates the ambient air concentration of selected pollutants at specific downwind ground-level points, such as residential or off-site workplace receptors. The transformation (fate) of an airborne pollutant, its movement with the prevailing winds (transport), its crosswind and vertical movement due to atmospheric turbulence (dispersion), and its removal amounts due to dry and wet deposition are influenced by the pollutant's physical and chemical properties and by meteorological and environmental conditions. Factors such as distance from the source to the receptor, meteorological conditions, intervening land use and terrain, pollutant release characteristics, and background pollutant concentrations are all considered by the model when calculating downwind ground-level concentrations of an air pollutant.

Modeling Release Scenarios

Two release scenarios were analyzed to compliment the HRA. The two scenarios included:

1. Maximum 1-hour emissions; and
2. Annual average emissions.

Modeling Options

The air dispersion modeling analysis utilized standard AERMOD default options recommended by SCAQMD and EPA. In addition, the area surrounding the facility was evaluated to determine if urban or rural dispersion coefficients should be used in the analysis. Since urban areas typically have considerably more surface roughness as well as structures and surfaces that absorb heat, atmospheric dispersion can be somewhat different compared to rural areas. However, the SCAQMD generally requires the use of the more conservative "Urban" option, therefore the urban option was used for this project.

Meteorological Data

The air dispersion modeling analysis utilized AERMOD-ready pre-processed meteorological data files. The representative 5-year meteorological data set consisted of upper air data and surface air data provided by the SCAQMD. All 5 years of meteorological data was included in the AERMOD runs.

The meteorological station used in this analysis is Costa Mesa. This station is the nearest representative meteorological station to the facility. The MET data file is from 2010 for acute risk and 2009 for residential and worker cancer and chronic risk.

Building Downwash

When an emission source is located near a structure, such as a building, the structure can have an effect on the dispersion pattern of stack exhaust. This is called the "building downwash effect", which can impact the pollutant concentrations calculated by the model. Therefore, dimensions (length, width, and height) for nearby buildings were included in the air dispersion model so that potential impacts from building downwash were evaluated.

Terrain Elevation Data

The area surrounding the power plant was evaluated to determine if elevated or complex terrain features exist. Since elevated and complex terrain did exist in the area, digital elevation data was imported into AERMOD and the model was run in the “elevated” terrain mode. Digital elevation data was obtained from United States Geological Survey data sources.

Grid Spacing

An overall grid was set with spacing of 100 meters. For the property boundary, the grid was also set up with 20 meter spacing. A line of receptors was set along the nearest line of residences which are to the north of the facility. The grid spacing for this set of residential receptors was about 70 meters. See Appendix E for details on the receptors.

Annual Average Concentrations

The PMI, MEIR, and MEIW receptors are shown in the following table.

Maximum Exposure Point	UTM Coordinates (km)	Grid No.
PMI (Point of Maximum Impact)	404.343 E, 3735.153 N	355
MEIR (Maximum Exposed Individual Resident)	404.343 E, 3735.153 N	355
MEIW (Maximum Exposed Individual Worker)	404.266 E, 3734.765 N	960

The average annual ground level concentrations of all substances are shown in the following table.

Average Annual Ground Level Concentrations for PMI, MEIR, MEIW

Chem No.	CAS	Chemical Description	Ground Level Concentration ($\mu\text{g}/\text{m}^3$)	
			PMI, MEIR Receptor 355	MEIW Receptor 960
1	95636	1,2,4-Trimethylbenzene	5.73E-04	1.05E-03
2	106990	1,3-Butadiene	0.00E+00	0.00E+00
3	75070	Acetaldehyde	1.56E-05	1.68E-05
4	107028	Acrolein	1.28E-05	1.14E-05
5	7440382	Arsenic	0.00E+00	0.00E+00
6	71432	Benzene	3.11E-05	3.34E-05
7	7440439	Cadmium	0.00E+00	0.00E+00
8	76131	Trichlorotrifluoroethane {CFC-113}	1.33E-03	2.78E-03
9	7440508	Copper	0.00E+00	0.00E+00
10	18540299	Chromium, hexavalent (and compounds)	5.27E-06	7.72E-06
11	9901	Diesel exhaust particulates	6.33E-03	1.44E-02
12	100414	Ethyl Benzene	3.84E-05	4.39E-05
13	50000	Formaldehyde	7.19E-05	8.23E-05
14	7647010	Hydrochloric acid	0.00E+00	0.00E+00
15	822060	Hexamethylene-1,6-diisocyanate	6.66E-05	1.02E-04
16	110543	Hexane	2.49E-05	2.76E-05
17	7439921	Lead	0.00E+00	0.00E+00

Chem No.	CAS	Chemical Description	Ground Level Concentration ($\mu\text{g}/\text{m}^3$)	
			PMI, MEIR Receptor 355	MEIW Receptor 960
18	7439965	Manganese	0.00E+00	0.00E+00
19	101688	Methylene diphenyl diisocyanate {MDI} [POM]	4.06E-02	3.81E-02
20	78933	Methyl ethyl ketone {2-Butanone}	9.16E-02	1.73E-01
21	7439976	Mercury	0.00E+00	0.00E+00
22	108101	Methyl isobutyl ketone {Hexone}	2.02E-02	3.30E-02
23	91203	Naphthalene [PAH, POM]	3.01E-05	6.12E-05
24	7664417	Ammonia	1.68E-02	1.57E-02
25	7440020	Nickel	0.00E+00	0.00E+00
26	1151	PAHs, total, w/o individ. components reported [PAH, POM]	5.25E-07	4.89E-07
27	108656	Propylene glycol monomethyl ether acetate	3.38E-02	4.92E-02
28	7782492	Selenium	0.00E+00	0.00E+00
29	584849	Toluene-2,4-diisocyanate	6.34E-05	9.20E-05
30	108883	Toluene	1.49E-04	1.69E-04
31	1330207	Xylenes	2.02E-02	3.33E-02

The maximum one-hour ground level concentrations of all substances are shown in the following table.

Maximum 1-Hour Ground Level Concentrations for PMI, MEIR, MEIW

Chem No.	CAS	Chemical Description	Ground Level Concentration ($\mu\text{g}/\text{m}^3$)	
			PMI, MEIR Receptor 355	MEIW Receptor 960
1	95636	1,2,4-Trimethylbenzene	2.39E-02	4.99E-02
2	106990	1,3-Butadiene	0.00E+00	0.00E+00
3	75070	Acetaldehyde	3.31E-03	1.43E-03
4	107028	Acrolein	2.84E-03	1.14E-03
5	7440382	Arsenic	0.00E+00	0.00E+00
6	71432	Benzene	6.18E-03	2.67E-03
7	7440439	Cadmium	0.00E+00	0.00E+00
8	76131	Trichlorotrifluoroethane {CFC-113}	3.63E-02	6.11E-02
9	7440508	Copper	0.00E+00	0.00E+00
10	18540299	Chromium, hexavalent (and compounds)	3.50E-04	1.27E-03
11	9901	Diesel exhaust particulates	0.00E+00	0.00E+00
12	100414	Ethyl Benzene	7.36E-03	3.17E-03
13	50000	Formaldehyde	1.33E-02	5.91E-03
14	7647010	Hydrochloric acid	0.00E+00	0.00E+00
15	822060	Hexamethylene-1,6-diisocyanate	4.22E-03	1.54E-02
16	110543	Hexane	4.92E-03	2.12E-03
17	7439921	Lead	0.00E+00	0.00E+00
18	7439965	Manganese	0.00E+00	0.00E+00
19	101688	Methylene diphenyl diisocyanate {MDI} [POM]	3.87E+00	1.76E+00
20	78933	Methyl ethyl ketone {2-Butanone}	3.17E+00	7.71E+00
21	7439976	Mercury	0.00E+00	0.00E+00

Chem No.	CAS	Chemical Description	Ground Level Concentration ($\mu\text{g}/\text{m}^3$)	
			PMI, MEIR Receptor 355	MEIW Receptor 960
22	108101	Methyl isobutyl ketone {Hexone}	1.05E+00	2.82E+00
23	91203	Naphthalene [PAH, POM]	1.17E-03	1.57E-03
24	7664417	Ammonia	3.09E+00	1.26E+00
25	7440020	Nickel	0.00E+00	0.00E+00
26	1151	PAHs, total, w/o individ. components reported [PAH, POM]	1.05E-04	4.21E-05
27	108656	Propylene glycol monomethyl ether acetate	1.29E+00	4.74E+00
28	7782492	Selenium	0.00E+00	0.00E+00
29	584849	Toluene-2,4-diisocyanate	4.28E-03	1.60E-02
30	108883	Toluene	2.83E-02	1.22E-02
31	1330207	Xylenes	8.54E-01	2.04E+00

Risk Characterization

HARP version 1.4f was used to generate the health risk analysis results presented in this section. Cancer risk was calculated to be 2.8 in one million for the nearest residential receptor, and 2.4 in one million for the nearest offsite worker receptor. Chronic health risk indices were well below 1.0 for all receptors. Acute health risk was determined at the fence line of the facility to be 0.01.

Receptors

The facility is located in an area that has both commercial and residential receptors nearby. To the west across Bolsa Chica Avenue is the Naval Weapons Station - Seal Beach. To the immediate north and east are commercial/industrial areas. To the northwest and northeast are residential areas. Farther to the east and southwest are schools. The receptors that were quantified include residential, worker, school, and sensitive (nursing home) receptors. See Appendix B for the map of the area and Appendix E for a list of receptors.

Receptors were added to the model to ensure that the health risk impacts on the closest residences were evaluated. There are offsite businesses to the east and north of the facility. Receptors were added to the model to calculate the health risk impacts on the closest offsite workers. Receptors location for local schools and two nursing homes are also included. See Appendix E for details on the receptors.

Site/Route Dependent Exposure Pathways

There are no drinking water reservoirs, fishable waters, beef/dairy pastures, or farms in the area.

Since there are residents in the area that could raise homegrown produce, the homegrown produce pathway was included. In accordance with SCAQMD guidance, 5.2% is the fraction of homegrown fruits and vegetables consumed. Dermal, mother's milk and soil ingestion pathways were also included for the residential receptors.

For the worker receptors, dermal absorption, soil ingestion pathways were included.

Cancer Risk

The location of the Point of Maximum Impact (PMI), Maximum Exposed Individual Resident (MEIR), and Maximum Exposed Individual Worker (MEIW) are shown in the following table:

Location of Maximum Impact

Maximum Exposure Point	UTM Coordinates (km)	Grid No.
PMI (Point of Maximum Impact)	404.343 E, 3735.153 N	355
MEIR (Maximum Exposed Individual Resident)	404.343 E, 3735.153 N	355
MEIW (Maximum Exposed Individual Worker)	404.266 E, 3734.765 N	960

70-year, 30-year, and 9-year cancer risk for the MEIR and MEIW are shown in the following table. The 70-year risk uses the Derived (Adjusted) Method, and the 30 and 9-year risks use the Derived (OEHHA) Method:

Cancer Risk: 70, 30, and 9 Year Risks

Receptor	Grid No.	Cancer Risk		
		70 year Adult Resident	30 year Adult Resident	9 year Adult Resident
MEIR	355	2.8 x 10 ⁻⁶	1.57 x 10 ⁻⁶	4.72 x 10 ⁻⁷
MEIW	960	2.4 x 10 ⁻⁶	n/a	n/a

Contribution by Substance

The breakdown of the cancer risk contribution by substance is shown in the following table. Diesel exhaust particulate matter is the substance with the most significant impact of approximately 71.46%.

Cancer Risk Contribution by Substance for MEIR

Chem. No.	CAS	Substance	MICR	% of Total
11	9901	DieselExhPM	2.0E-06	71.46%
10	18540299	Cr(VI)	7.9E-07	27.80%
26	1151	PAHs-w/o	1.8E-08	0.63%
23	91203	Naphthalene	1.1E-09	0.04%
6	71432	Benzene	9.0E-10	0.03%
29	584849	T-2,4-diisocyan	7.2E-10	0.02%
13	50000	Formaldehyde	4.4E-10	0.02%
12	100414	EthylBenzene	9.7E-11	0.00%
3	75070	Acetaldehyde	4.5E-11	0.00%
1	95636	1,2,4TriMeBenze	0.0E+00	0.00%
2	106990	1,3-Butadiene	0.0E+00	0.00%
4	107028	Acrolein	0.0E+00	0.00%
5	7440382	Arsenic	0.0E+00	0.00%
7	7440439	Cadmium	0.0E+00	0.00%
8	76131	CFC-113	0.0E+00	0.00%

Chem. No.	CAS	Substance	MICR	% of Total
9	7440508	Copper	0.0E+00	0.00%
14	7647010	HCl	0.0E+00	0.00%
15	822060	HexaMeDiisocyan	0.0E+00	0.00%
16	110543	Hexane	0.0E+00	0.00%
17	7439921	Lead	0.0E+00	0.00%
18	7439965	Manganese	0.0E+00	0.00%
19	101688	MeDiphenDiisocy	0.0E+00	0.00%
20	78933	MEK	0.0E+00	0.00%
21	7439976	Mercury	0.0E+00	0.00%
22	108101	MIBK	0.0E+00	0.00%
24	7664417	NH3	0.0E+00	0.00%
25	7440020	Nickel	0.0E+00	0.00%
27	108656	PGMEA	0.0E+00	0.00%
28	7782492	Selenium	0.0E+00	0.00%
30	108883	Toluene	0.0E+00	0.00%
31	1330207	Xylenes	0.0E+00	0.00%
Total			2.8E-06	100.00%

Contribution by Source

The breakdown of the residential cancer risk contribution by source is shown in the following table. The most significant source is spray booth APIN 60 accounting for approximately 22% of the total risk. The next most significant sources are five diesel engines that account for about 37% of the total cancer risk.

Residential Cancer Risk Contribution by Source

Source No.	APIN	Description	MICR	% of Total
25	60	Spray Booth APIN 60	6.6E-07	23.36%
5	118	ICE APIN 118	3.3E-07	11.79%
14	211	ICE APIN 211	1.9E-07	6.80%
9	123	ICE APIN 123	1.8E-07	6.44%
2	114	ICE APIN 114	1.6E-07	5.80%
12	193	ICE APIN 193	1.3E-07	4.50%
24	17	Spray Booth APIN 17	1.3E-07	4.42%
19	229	ICE APIN 229	1.0E-07	3.68%
20	230	ICE APIN 230	1.0E-07	3.68%
8	122	ICE APIN 122	1.0E-07	3.53%
10	124	ICE APIN 124	8.6E-08	3.05%
21	232	ICE APIN 232	8.4E-08	2.97%
1	76	ICE APIN 76	8.4E-08	2.96%
13	204	ICE APIN 204	6.6E-08	2.35%
3	115	ICE APIN 115	6.2E-08	2.19%
16	219	ICE APIN 219	6.0E-08	2.11%
6	119	ICE APIN 119	5.9E-08	2.10%
15	218	ICE APIN 218	5.5E-08	1.95%
7	120	ICE APIN 120	5.0E-08	1.77%

Source No.	APIN	Description	MICR	% of Total
11	151	ICE APIN 151	4.1E-08	1.44%
18	228	ICE APIN 228	3.0E-08	1.05%
17	220	ICE APIN 220	1.8E-08	0.64%
4	117	ICE APIN 117	1.8E-08	0.63%
22	233	HTHWG APIN 233	8.4E-09	0.30%
23	234	HTHWG APIN 234	6.7E-09	0.24%
37	213	Misc. Natural Gas, XAPIN 213	3.4E-09	0.12%
31	178	Tank Line APIN 178	2.1E-09	0.07%
36	216	Bldg. 45	8.0E-10	0.03%
32	212	Boilers B/17, XAPIN 212	5.2E-10	0.02%
35	215	Bldg. 21	2.0E-10	0.01%
33	223	Boilers B/28, XAPIN 223	1.1E-10	0.00%
26	63	Spray Booth APIN 63	0.0E+00	0.00%
27	208	Spray Booth APIN 208	0.0E+00	0.00%
28	209	Spray Booth APIN 209	0.0E+00	0.00%
29	210	Spray Booth APIN 210	0.0E+00	0.00%
30	186	Spray Foam APIN 186	0.0E+00	0.00%
34	169	Degreaser APIN 169	0.0E+00	0.00%
Total			2.8E-06	100.00%

The breakdown of the worker cancer risk contribution by source is shown in the following table.

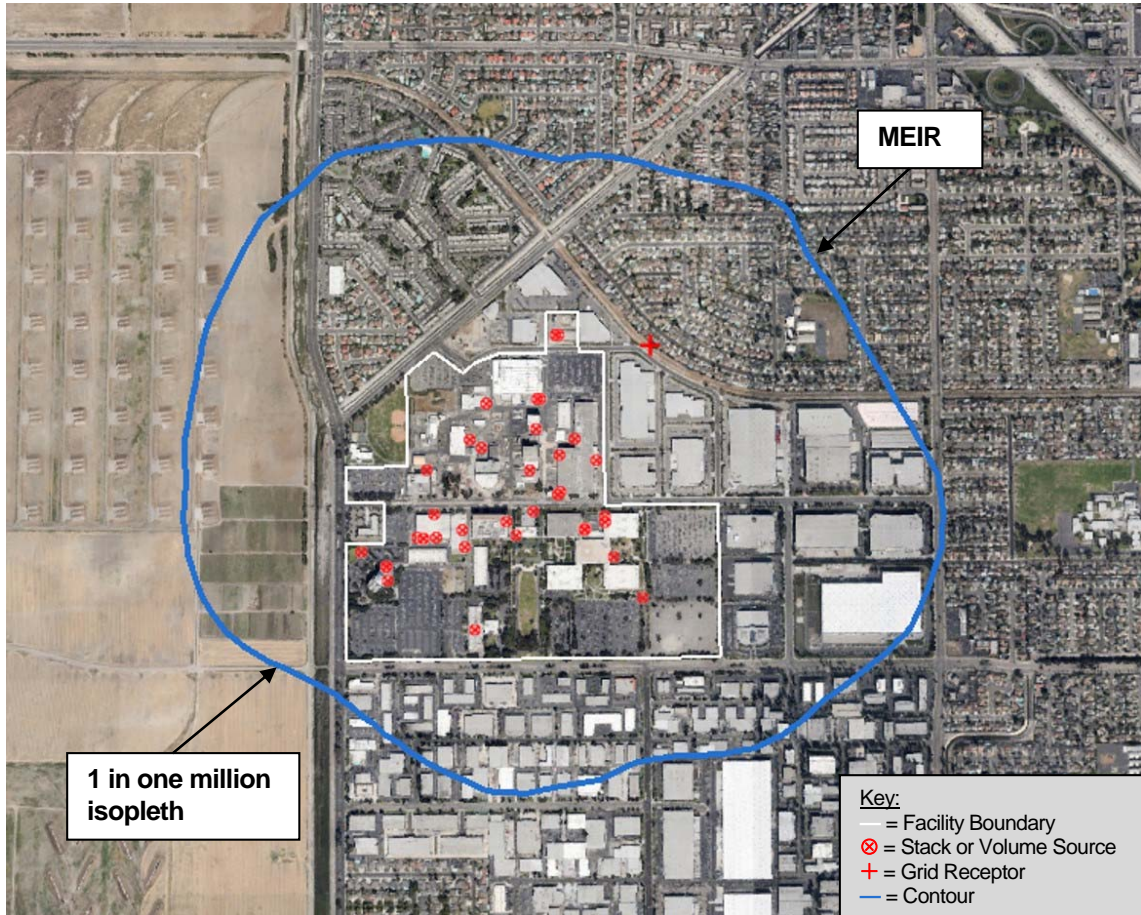
Worker Cancer Risk Contribution by Source

Source No.	APIN	Description	MICR	% of Total
25	60	Spray Booth APIN 60	3.9E-07	16.28%
14	211	ICE APIN 211	2.8E-07	11.64%
8	122	ICE APIN 122	2.6E-07	11.01%
10	124	ICE APIN 124	2.3E-07	9.80%
12	193	ICE APIN 193	1.7E-07	7.16%
2	114	ICE APIN 114	1.3E-07	5.53%
19	229	ICE APIN 229	1.0E-07	4.23%
6	119	ICE APIN 119	8.8E-08	3.69%
24	17	Spray Booth APIN 17	8.7E-08	3.65%
5	118	ICE APIN 118	8.3E-08	3.46%
13	204	ICE APIN 204	8.0E-08	3.35%
20	230	ICE APIN 230	6.7E-08	2.79%
7	120	ICE APIN 120	6.2E-08	2.59%
18	228	ICE APIN 228	5.2E-08	2.17%
3	115	ICE APIN 115	4.8E-08	2.01%
9	123	ICE APIN 123	4.7E-08	1.95%
17	220	ICE APIN 220	4.3E-08	1.80%
1	76	ICE APIN 76	3.9E-08	1.65%
16	219	ICE APIN 219	3.6E-08	1.51%
11	151	ICE APIN 151	3.0E-08	1.25%

Source No.	APIN	Description	MICR	% of Total
4	117	ICE APIN 117	2.7E-08	1.12%
15	218	ICE APIN 218	1.3E-08	0.56%
21	232	ICE APIN 232	1.3E-08	0.54%
37	213	Misc. Natural Gas, XAPIN 213	3.1E-09	0.13%
31	178	Tank Line APIN 178	2.1E-09	0.09%
36	216	Bldg. 45	7.0E-10	0.03%
22	233	HTHWG APIN 233	2.7E-10	0.01%
23	234	HTHWG APIN 234	1.9E-10	0.01%
35	215	Bldg. 21	1.8E-10	0.01%
32	212	Boilers B/17, XAPIN 212	1.3E-10	0.01%
33	223	Boilers B/28, XAPIN 223	7.9E-11	0.00%
26	63	Spray Booth APIN 63	0.0E+00	0.00%
27	208	Spray Booth APIN 208	0.0E+00	0.00%
28	209	Spray Booth APIN 209	0.0E+00	0.00%
29	210	Spray Booth APIN 210	0.0E+00	0.00%
30	186	Spray Foam APIN 186	0.0E+00	0.00%
34	169	Degreaser APIN 169	0.0E+00	0.00%
Total			2.4E-06	100.00%

Residential Risk Contours

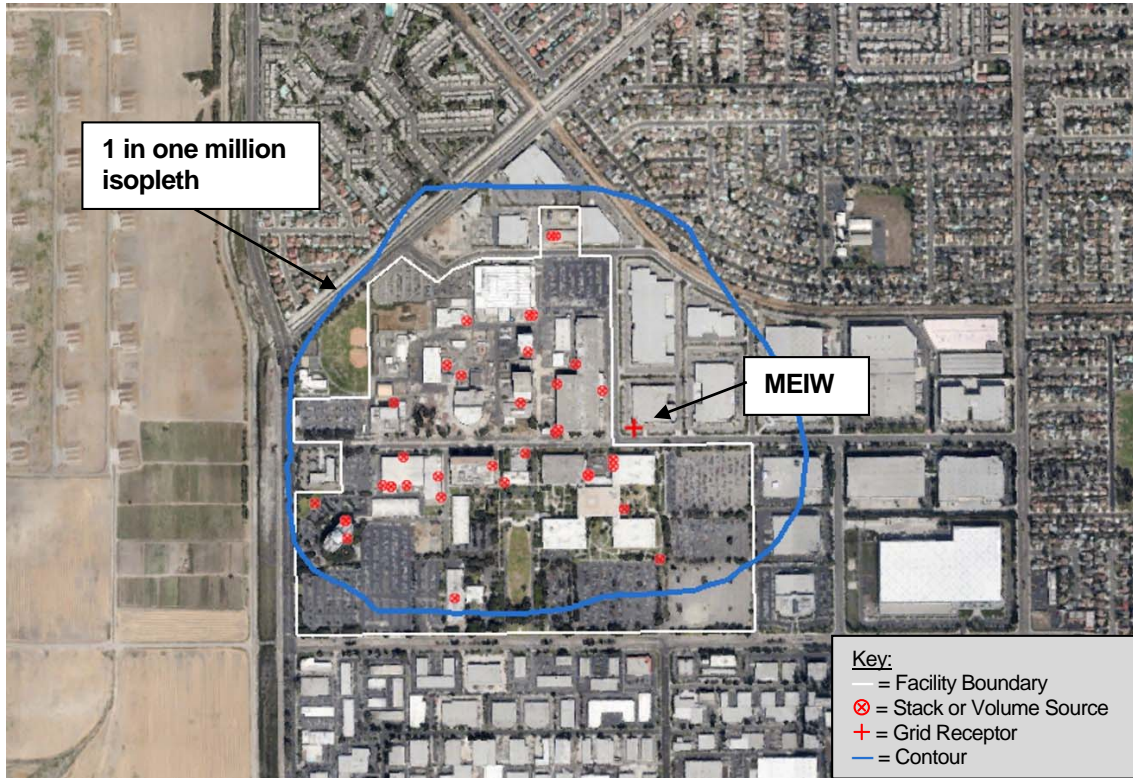
The map below shows the cancer risk contour using the residential risk profile. The blue contour is the 1 in one million isopleth. MEIR is the Maximally Exposed Individual Resident. The cancer risk at that location is 2.8×10^{-6} , or 2.8 in one million. The receptor is number 355.



• Figure 6: Residential Cancer Risk Isopleth

Worker Risk Contour

The map below shows the cancer risk contours using the worker risk profile. The blue contour is the 1 in one million isopleth. MEIW is the Maximally Exposed Individual Worker. The cancer risk at that location is 2.4×10^{-6} , or 2.4 in one million. The receptor is 960.



• Figure 7: Worker Cancer Risk Isopleth

Acute Health Risk

The calculation of acute health risk is the same for both residential and worker receptors. Maximum acute health risk was calculated at the fence line of the facility, and at the MEIR and MEIW.

The maximum acute health risk at the facility boundary is at Boundary Receptor 1723. The acute health index (HIA) at that receptor was calculated to be 0.01 using the Acute HI Simple method.

The maximum residential acute health risk occurs at receptor 379. The acute health risk at that location was 0.00 using the Acute HI Simple Method.

The maximum worker acute health risk occurs at receptor 976. The acute health risk at that location was 0.01 using the Acute HI Simple Method.

Acute Health Risk Maximum Impact Receptors

Receptor	UTM Coordinates (km)	Grid No.	HIA Simple
MEIR	404.25 E, 3735.247 N	379	0.00
MEIW	404.15 E, 3735.184 N	976	0.01
Max Acute Risk at Fenceline	404.152 E, 3735.173 N	1723	0.01

Target Organs

The target organs affected by acute health impacts, and the corresponding acute health risk as calculated at receptor 1723 are shown in the following table. The EYE is the most impacted target organ.

Acute Health Risk by Target Organ

Target Organ	Description	Acute Risk
CV	Cardiovascular	0.00E+00
CNS	Central nervous system	4.91E-05
BONE	Bones and teeth	0.00E+00
DEVEL	Developmental	9.33E-04
ENDO	Endocrine system	0.00E+00
EYE	Eye	9.96E-03
GILV	Gastrointestinal and Alimentary system (liver)	0.00E+00
IMMUN	Immune system	9.30E-04
KIDN	Kidney	0.00E+00
REPRO	Reproductive system	9.33E-04
RESP	Respiratory system	8.99E-03
SKIN	Skin	0.00E+00
BLOOD	Blood (hematopoietic)	9.30E-04

Contribution by Substance

The following table shows the breakdown of the acute health risk by substance. Acrolein has the most significant impact with 47% of the risk, followed by ammonia. These two substances account for over 86% of the acute health risk.

Acute Health Risk Contribution by Substance

Chem No.	CAS	Description	Acute Risk	% of Total
4	107028	Acrolein	4.7E-03	46.88%
24	7664417	NH3	4.0E-03	39.66%
13	50000	Formaldehyde	9.7E-04	9.77%
20	78933	MEK	2.9E-04	2.91%
31	1330207	Xylenes	4.6E-05	0.46%
3	75070	Acetaldehyde	2.9E-05	0.29%
30	108883	Toluene	3.1E-06	0.03%
1	95636	1,2,4TriMeBenze	0.0E+00	0.00%
2	106990	1,3-Butadiene	0.0E+00	0.00%
5	7440382	Arsenic	0.0E+00	0.00%
6	71432	Benzene	0.0E+00	0.00%
7	7440439	Cadmium	0.0E+00	0.00%
8	76131	CFC-113	0.0E+00	0.00%
9	7440508	Copper	0.0E+00	0.00%
10	18540299	Cr(VI)	0.0E+00	0.00%
11	9901	DieselExhPM	0.0E+00	0.00%
12	100414	EthylBenzene	0.0E+00	0.00%
14	7647010	HCl	0.0E+00	0.00%
15	822060	HexaMeDiisocyan	0.0E+00	0.00%
16	110543	Hexane	0.0E+00	0.00%
17	7439921	Lead	0.0E+00	0.00%
18	7439965	Manganese	0.0E+00	0.00%
19	101688	MeDiphenDiisocy	0.0E+00	0.00%
21	7439976	Mercury	0.0E+00	0.00%
22	108101	MIBK	0.0E+00	0.00%
23	91203	Naphthalene	0.0E+00	0.00%
25	7440020	Nickel	0.0E+00	0.00%
26	1151	PAHs-w/o	0.0E+00	0.00%
27	108656	PGMEA	0.0E+00	0.00%
28	7782492	Selenium	0.0E+00	0.00%
29	584849	T-2,4-diisocyan	0.0E+00	0.00%
Total			9.96E-03	100%

Contribution by Source

The following table shows the breakdown of the acute health risk by source. The most significant sources are the two large boilers. These two sources account for over 95% of the acute health risk.

Acute Health Risk Contribution by Source

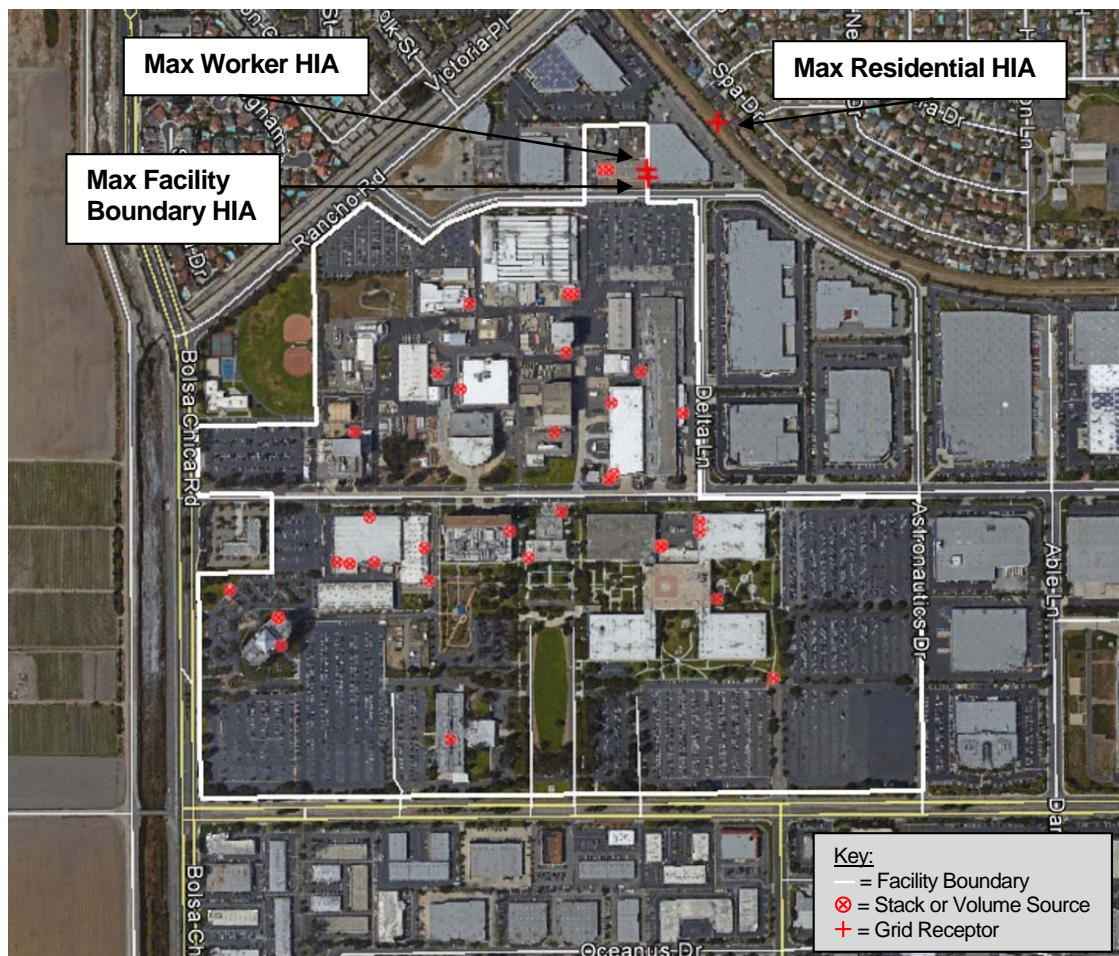
Source ID	APIN	Description	Acute Risk	% of Total
22	233	HTHWG APIN 233	4.85E-03	48.67%
23	234	HTHWG APIN 234	4.67E-03	46.87%
25	60	Spray Booth APIN 60	1.16E-04	1.16%
36	216	Bldg. 45	1.09E-04	1.09%
37	213	Misc. Natural Gas, XAPIN 213	8.76E-05	0.88%
24	17	Spray Booth APIN 17	7.84E-05	0.79%
35	215	Bldg. 21	3.10E-05	0.31%
32	212	Boilers B/17, XAPIN 212	1.99E-05	0.20%
33	223	Boilers B/28, XAPIN 223	1.93E-06	0.02%
1	76	ICE APIN 76	0.00E+00	0.00%
2	114	ICE APIN 114	0.00E+00	0.00%
3	115	ICE APIN 115	0.00E+00	0.00%
4	117	ICE APIN 117	0.00E+00	0.00%
5	118	ICE APIN 118	0.00E+00	0.00%
6	119	ICE APIN 119	0.00E+00	0.00%
7	120	ICE APIN 120	0.00E+00	0.00%
8	122	ICE APIN 122	0.00E+00	0.00%
9	123	ICE APIN 123	0.00E+00	0.00%
10	124	ICE APIN 124	0.00E+00	0.00%
11	151	ICE APIN 151	0.00E+00	0.00%
12	193	ICE APIN 193	0.00E+00	0.00%
13	204	ICE APIN 204	0.00E+00	0.00%
14	211	ICE APIN 211	0.00E+00	0.00%
15	218	ICE APIN 218	0.00E+00	0.00%
16	219	ICE APIN 219	0.00E+00	0.00%
17	220	ICE APIN 220	0.00E+00	0.00%
18	228	ICE APIN 228	0.00E+00	0.00%
19	229	ICE APIN 229	0.00E+00	0.00%
20	230	ICE APIN 230	0.00E+00	0.00%
21	232	ICE APIN 232	0.00E+00	0.00%
26	63	Spray Booth APIN 63	3.30E-07	0.00%
27	208	Spray Booth APIN 208	0.00E+00	0.00%
28	209	Spray Booth APIN 209	0.00E+00	0.00%
29	210	Spray Booth APIN 210	0.00E+00	0.00%
30	186	Spray Foam APIN 186	0.00E+00	0.00%
31	178	Tank Line APIN 178	0.00E+00	0.00%
34	169	Degreaser APIN 169	0.00E+00	0.00%
Total			9.96E-03	100%

Residential and Worker Risk Contours

The map below shows the acute health risk index contours. No isopleths are shown since the acute health index is less than 1.0 for all receptors. The calculation of acute health risk is the same for both residential and worker receptors. Maximum acute health risk was calculated at the fence line of the facility at Boundary Receptor 1723. The maximum acute health index (HIA) was calculated to be 0.01 using the Acute HI Simple method.

The maximum residential acute health risk occurs at receptor 379. The acute health risk at that location was 0.00 using the Acute HI Simple Method.

The maximum worker acute health risk occurs at receptor 976. The acute health risk at that location was 0.01 using the Acute HI Simple Method.



• Figure 8: Acute Health Risk Isopleths

Chronic Health Risk

Chronic health risk was calculated for both residential and worker receptors. Maximum chronic health risk was calculated at the MEIR and MEIW. The maximum residential chronic impact occurs at receptor 356. The chronic health index (HIC) at that receptor is 0.06. The maximum worker chronic impact occurs at receptor 957. The chronic health index (HIC) at that receptor is 0.09.

Chronic Health Risk Maximum Impact Receptors

Receptor	UTM Coordinates (km)	Grid No.	HIC
MEIR	404.401 E, 3735.112 N	356	0.06
MEIW	404.265 E, 3734.900 N	957	0.09

Target Organs

The target organs affected by chronic health impacts, and the corresponding chronic health risk as calculated at receptor 356 are shown in the following table. The RESPIRATORY SYSTEM is the most impacted target organ.

Chronic Health Risk by Target Organ

Target Organ	Description	Chronic Risk
CV	Cardiovascular	0.00E+00
CNS	Central nervous system	2.65E-05
BONE	Bones and teeth	0.00E+00
DEVEL	Developmental	3.82E-07
ENDO	Endocrine system	1.43E-08
EYE	Eye	2.61E-05
GILV	Gastrointestinal and Alimentary system (liver)	1.43E-08
IMMUN	Immune system	0.00E+00
KIDN	Kidney	1.43E-08
REPRO	Reproductive system	3.82E-07
RESP	Respiratory system	6.30E-02
SKIN	Skin	0.00E+00
BLOOD	Blood (hematopoietic)	8.57E-06

Contribution by Substance

The following table shows the breakdown of the chronic health risk by substance. Methylene Diphenyl Diisocyanate is the substance that has the most significant chronic risk impact with 96.76% of the total chronic risk.

Chronic Health Risk Contribution by Substance

Chem No.	CAS	Description	Chronic Risk	% of Total
19	101688	MeDiphenDiisocy	6.1E-02	96.76%
11	9901	DieselExhPM	1.2E-03	1.95%
29	584849	T-2,4-diisocyan	6.7E-04	1.06%
24	7664417	NH3	6.1E-05	0.10%
4	107028	Acrolein	2.6E-05	0.04%
31	1330207	Xylenes	2.6E-05	0.04%
10	18540299	Cr(VI)	2.0E-05	0.03%
13	50000	Formaldehyde	6.0E-06	0.01%
23	91203	Naphthalene	3.3E-06	0.01%
30	108883	Toluene	3.7E-07	0.00%
3	75070	Acetaldehyde	8.2E-08	0.00%
1	95636	1,2,4TriMeBenze	0.0E+00	0.00%
2	106990	1,3-Butadiene	0.0E+00	0.00%
5	7440382	Arsenic	0.0E+00	0.00%
6	71432	Benzene	0.0E+00	0.00%
7	7440439	Cadmium	0.0E+00	0.00%
8	76131	CFC-113	0.0E+00	0.00%
9	7440508	Copper	0.0E+00	0.00%
12	100414	EthylBenzene	0.0E+00	0.00%
14	7647010	HCl	0.0E+00	0.00%
15	822060	HexaMeDiisocyan	0.0E+00	0.00%
16	110543	Hexane	0.0E+00	0.00%
17	7439921	Lead	0.0E+00	0.00%
18	7439965	Manganese	0.0E+00	0.00%
20	78933	MEK	0.0E+00	0.00%
21	7439976	Mercury	0.0E+00	0.00%
22	108101	MIBK	0.0E+00	0.00%
25	7440020	Nickel	0.0E+00	0.00%
26	1151	PAHs-w/o	0.0E+00	0.00%
27	108656	PGMEA	0.0E+00	0.00%
28	7782492	Selenium	0.0E+00	0.00%

Total

6.0E-02

Contribution by Source

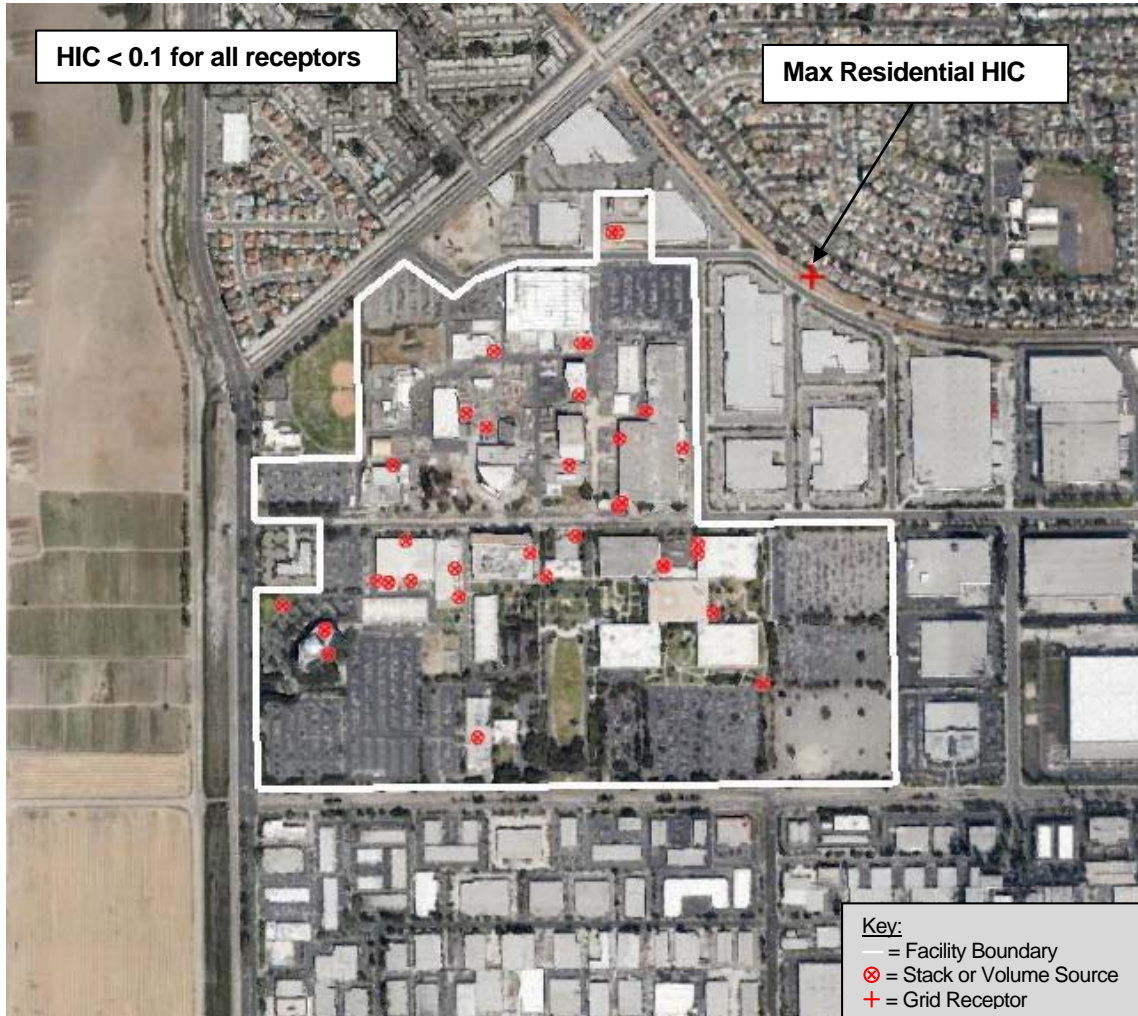
The following table shows the breakdown of the chronic health risk by source. The most significant source is the spray foam booth which accounts for about 96.76% of the total chronic health risk.

Chronic Health Risk Contribution by Source

Source ID	APIN	Description	Chronic Risk	% of Total
30	186	Spray Foam APIN 186	6.1E-02	96.76%
25	60	Spray Booth APIN 60	6.1E-04	0.96%
5	118	ICE APIN 118	1.4E-04	0.23%
14	211	ICE APIN 211	1.4E-04	0.22%
9	123	ICE APIN 123	1.1E-04	0.17%
24	17	Spray Booth APIN 17	9.8E-05	0.16%
2	114	ICE APIN 114	9.7E-05	0.15%
12	193	ICE APIN 193	8.1E-05	0.13%
8	122	ICE APIN 122	7.4E-05	0.12%
19	229	ICE APIN 229	6.8E-05	0.11%
10	124	ICE APIN 124	6.4E-05	0.10%
20	230	ICE APIN 230	6.3E-05	0.10%
21	232	ICE APIN 232	5.4E-05	0.09%
1	76	ICE APIN 76	5.3E-05	0.08%
13	204	ICE APIN 204	4.4E-05	0.07%
6	119	ICE APIN 119	3.9E-05	0.06%
3	115	ICE APIN 115	3.7E-05	0.06%
22	233	HTHWG APIN 233	3.7E-05	0.06%
16	219	ICE APIN 219	3.4E-05	0.05%
15	218	ICE APIN 218	3.3E-05	0.05%
23	234	HTHWG APIN 234	2.8E-05	0.04%
7	120	ICE APIN 120	2.8E-05	0.04%
11	151	ICE APIN 151	2.7E-05	0.04%
37	213	Misc. Natural Gas, XAPIN 213	2.4E-05	0.06%
18	228	ICE APIN 228	2.0E-05	0.03%
17	220	ICE APIN 220	1.3E-05	0.02%
4	117	ICE APIN 117	1.1E-05	0.02%
36	216	Bldg. 45	1.1E-05	0.02%
32	212	Boilers B/17, XAPIN 212	3.1E-06	0.00%
35	215	Bldg. 21	2.7E-06	0.00%
33	223	Boilers B/28, XAPIN 223	7.7E-07	0.00%
26	63	Spray Booth APIN 63	1.3E-07	0.00%
31	178	Tank Line APIN 178	6.4E-08	0.00%
27	208	Spray Booth APIN 208	0.0E+00	0.00%
28	209	Spray Booth APIN 209	0.0E+00	0.00%
29	210	Spray Booth APIN 210	0.0E+00	0.00%
34	169	Degreaser APIN 169	0.0E+00	0.00%
Total			6.0E-02	

Residential Risk Contour

The maximum residential chronic impact occurs at receptor 356. The chronic health index (HIC) at that receptor is 0.06. No isopleths are shown since the chronic health index is less than 0.1 for all receptors.



• Figure 9: Residential Chronic Health Risk Isopleths

Worker Risk Contour

The maximum worker chronic impact occurs at receptor 957. The chronic health index (HIC) at that receptor is 0.09. No isopleths are shown since the chronic health index is less than 0.1 for all receptors.



• Figure 10: Worker Chronic Health Risk

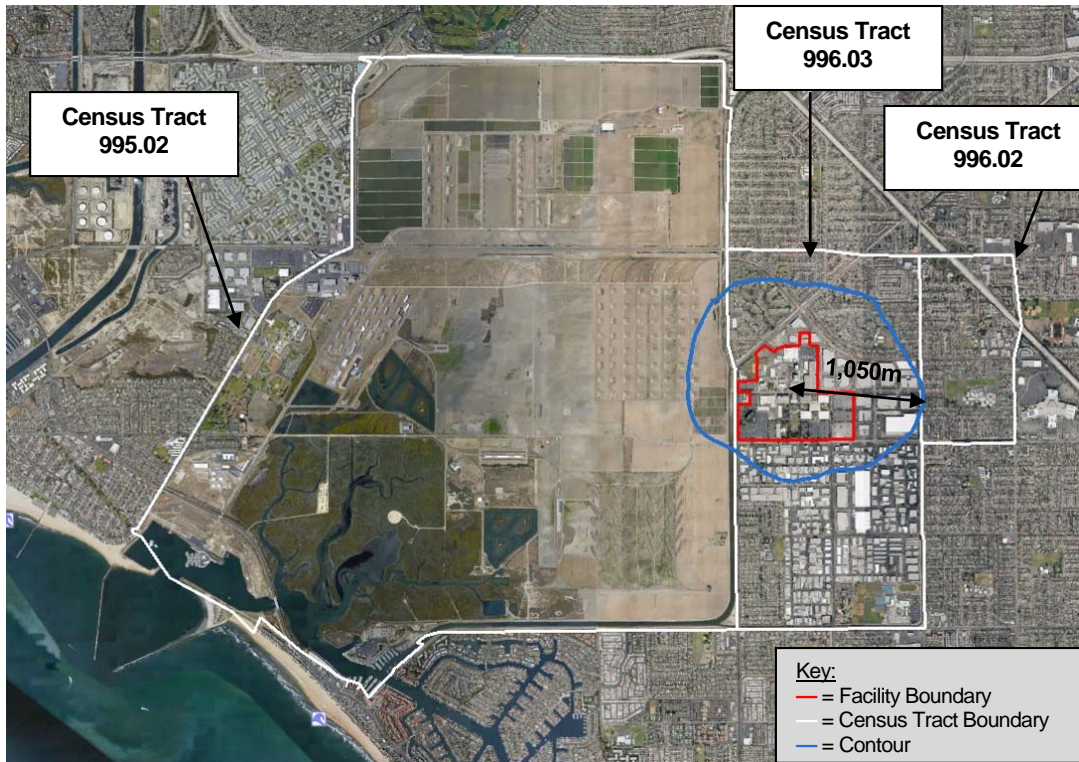
Population Exposure

Cancer Exposure

The following table shows the population exposure. Census block groups were used to estimate the population. The total excess cancer burden is 2.31×10^{-2} .

Cancer Population Exposure		
Census Tract	Census Block Group	Population
995.02	1	598
996.02	2	1513
996.03	1	2749
996.03	2	874
996.03	3	1246
996.03	4	1257
Total		8237

The map below shows the census tracts within the exposure area. The maximum distance to the edge of the 1 and one million isopleth was approximately 1,050 meters, corresponding to an exposure area of approximately 3.5 square kilometers. Portions of three census tracts composed of six block groups were located within the exposure area. There were no populations exposed to cancer risk greater than 10 in one million.



• Figure 11: Census Tract Map

Acute Hazard Exposure

There are no populations exposed to acute hazard greater than 1.0.

Chronic Hazard Exposure

There are no populations exposed to chronic hazard index greater than 0.5.

Strengths and Weaknesses of the Risk Analysis

With so many sources, there are many parameters that go into the risk analysis. In some cases, stack heights, stack diameters, exhaust temperatures, and exhaust flow rates were estimated. Exhaust flow rate and temperature in particular are parameters that had to be estimated in some cases. For the internal combustion engines, manufacturer's data was used for exhaust flow parameters.

In the case of spray booths APIN 60, the exhaust stacks consist of two horizontal ducts that exit from the west side of the building. In accordance with EPA guidance, the exit velocity was set to a nominally low value, 0.001 m/s.

The strengths of the analysis are that with so many sources, variations in the parameters of one source will not affect the overall results significantly. Therefore, there is a high level of confidence that these results are representative.

Control Alternatives and Remedial Measures

All health risk indices are below the public notification levels and Action Risk Levels. No additional remedial measures are required.

References

- 1) Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics “Hot Spots” Information and Assessment Act (AB2588), South Coast Air Quality Management District, dated July 2005.
- 2) Risk Assessment Procedures for Rules 1401 and 212, Version 7.0, South Coast Air Quality Management District, dated July 1, 2005.
- 3) Air Toxics Hot Spots Program Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, Office of Environmental Health Hazard Assessment, dated August 2003.
- 4) Supplemental Instructions, 2004-2005 Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory: Annual Emissions Reporting Program, South Coast Air Quality Management District, dated June 2005.
- 5) AERMOD Implementation Guide, Environmental Protection Agency, dated March 19, 2009.
- 6) AB2588 Health Risk Assessment for The Boeing Company SCAQMD ID No.: 016660, South Coast Air Quality Management District, dated May 30, 2007
- 7) Rule 1469.1 Compliance Plan for The Boeing Company – Huntington Beach, South Coast Air Quality Management District, dated July 31, 2013

Appendices

Appendix A: Health Risk Assessment Summary Form

Appendix B: Facility Plot Plan

Appendix C: Building Dimensions

Appendix D: Sources and Emissions

Appendix E: Receptors

Appendix A: Health Risk Assessment Summary Form



HEALTH RISK ASSESSMENT SUMMARY FORM

(Required in Executive Summary of HRA)

Facility Name : The Boeing Company

Facility Address: 5301 Bolsa Ave.
Huntington Beach, CA 92647

Type of Business: Aerospace

SCAQMD ID No.: 016660

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 70 years)*

1. Inventory Reporting Year : 2012
2. Maximum Cancer Risk to Receptors :
 - a. Offsite 2.8 in a million Location: 404.343 E, 3735.153 N (km)
 - b. Residence 2.8 in a million Location: 404.343 E, 3735.153 N (km)
 - c. Worker 2.4 in a million Location: 404.266 E, 3734.765 N (km)
3. Substances Accounting for 90% of Cancer Risk: Diesel exhaust PM, hexavalent chromium
 Processes Accounting for 90% of Cancer Risk: Diesel engine operation, aerospace coatings
4. Estimated Population Exposed to Specific Risk Levels
 - a. 1 to <10 in a million 8,237
 - b. 10 to <100 in a million 0
 - c. 100 to <1000 in a million 0
 - d. >=1000 in a million 0
 - e. Total >= 1 in a million 8,237
5. Cancer Burden: 2.31E-02
 Cancer Burden = (cancer risk) x (no. of people exposed to specific cancer risk)
6. Maximum Distance to Edge of 1×10^{-6} Cancer Risk Isoleth (meters) 1,050

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: 0.06 Location: 404.401 E, 3735.112 N (km) toxicological endpoint: Respiratory system
 - b. Worker HI : 0.09 Location: 404.265 E, 3734.900 N (km) toxicological endpoint: Respiratory system
2. Substances Accounting for 90% of Chronic Hazard Index: Methylene Diphenyl Diisocyanate
3. Maximum Acute Hazard Index:

PMI: 0.01 Location: 404.152 E, 3735.173 N (km) toxicological endpoint: Eye
4. Substances Accounting for 90% of Acute Hazard Index: Acrolein, Ammonia, Formaldehyde

*Provide Tables listing contribution of each substance to Maximum Cancer Risk, Acute HI, and Chronic HI.

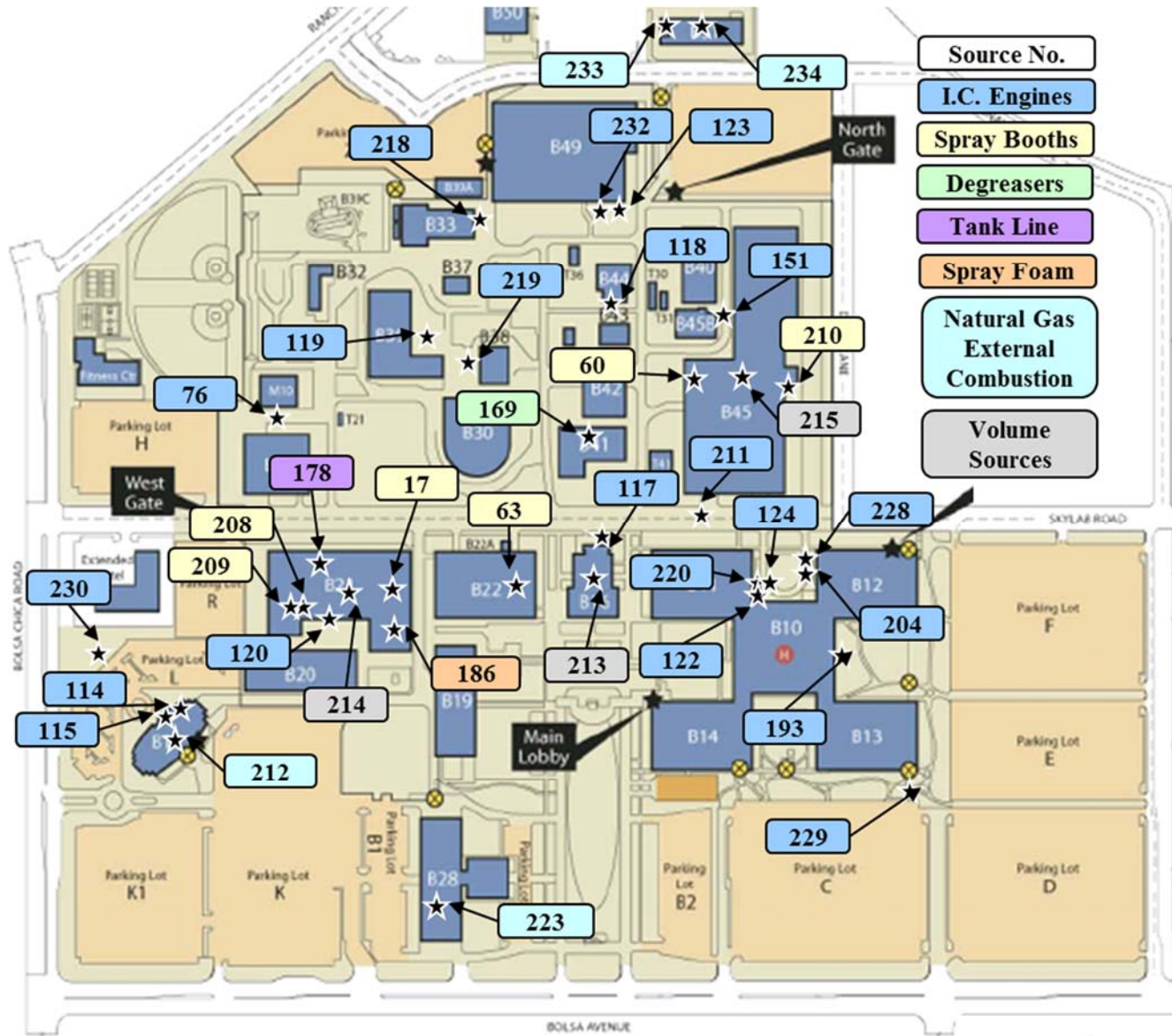
Appendix B: Facility Plot Plan



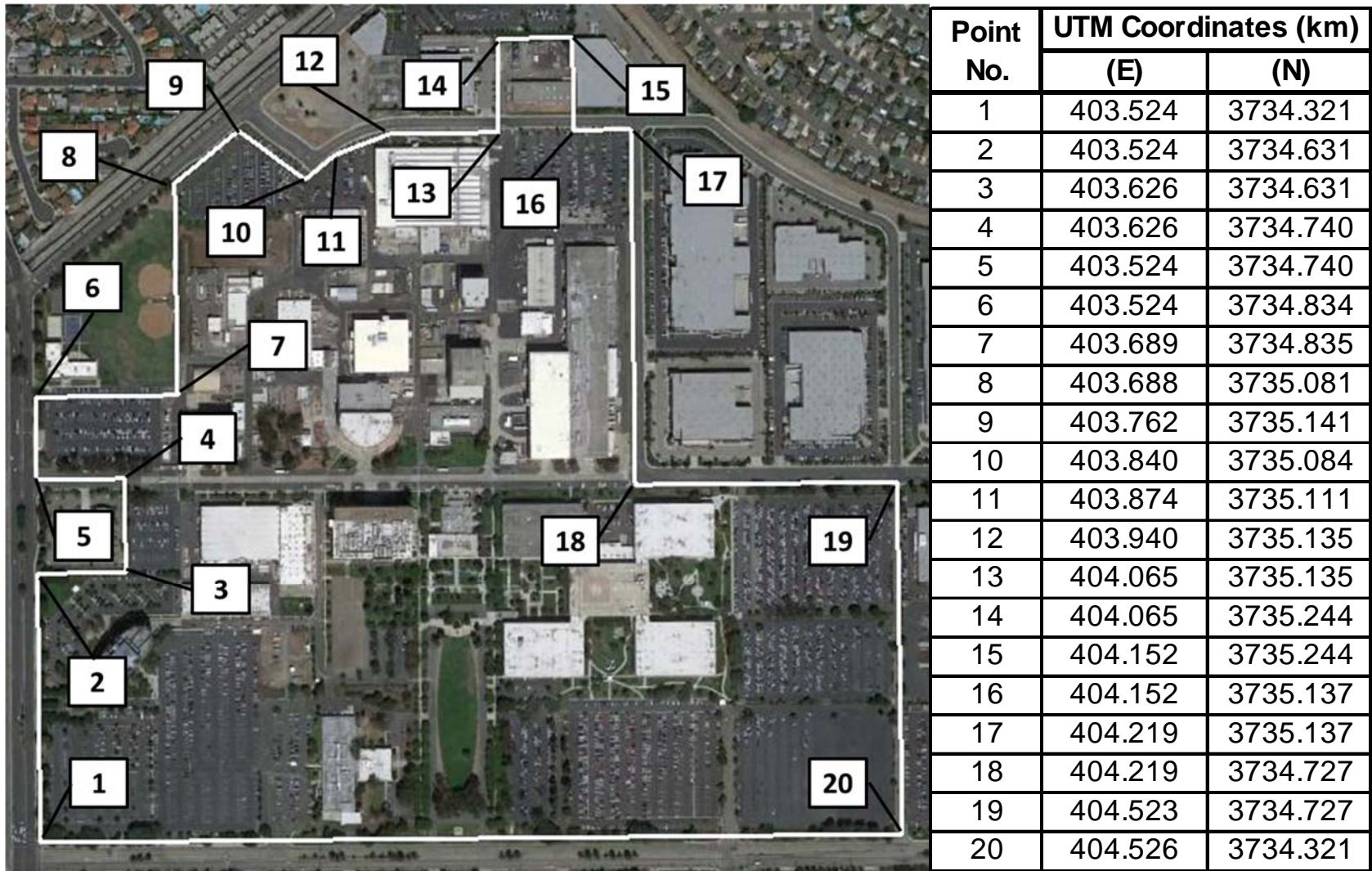
Area Land Uses



Source Locations



Facility Boundary Points



Appendix C: Building Dimensions

Building Coordinates

Bldg. No.	Tier	No. of Corners	Height	UTM Coordinates (km)	
				(E)	(N)
10	1	4	44.83 ft	404.144	3734.579
			13.66 m	404.240	3734.579
				404.240	3734.641
				404.144	3734.641
11	1	4	44.83 ft	404.067	3734.646
			13.66 m	404.162	3734.646
				404.162	3734.708
				404.067	3734.708
	2	4	44.83 ft	404.144	3734.641
			13.66 m	404.162	3734.641
				404.162	3734.646
				404.144	3734.646
12	1	4	44.83 ft	404.221	3734.645
			13.66 m	404.317	3734.645
				404.317	3734.709
				404.221	3734.709
	2	4	44.83 ft	404.221	3734.641
			13.66 m	404.240	3734.641
				404.240	3734.645
				404.221	3734.645
13	1	4	44.83 ft	404.221	3734.511
			13.66 m	404.317	3734.511
				404.317	3734.573
				404.221	3734.573
	2	4	44.83 ft	404.221	3734.573
			13.66 m	404.240	3734.573
				404.240	3734.579
				404.221	3734.579
14	1	4	44.83 ft	404.068	3734.509
			13.66 m	404.164	3734.509
				404.164	3734.572
				404.068	3734.572
	2	4	44.83 ft	404.144	3734.572
			13.66 m	404.164	3734.572
				404.164	3734.579
				404.144	3734.579
15	1	4	10.00 ft	404.316	3734.477
			3.05 m	404.323	3734.477
				404.323	3734.483
				404.316	3734.483

Bldg. No.	Tier	No. of Corners	Height	UTM Coordinates (km)	
				(E)	(N)
16	1	4	26.08 ft	403.982	3734.648
			7.95 m	404.038	3734.648
				404.038	3734.705
				403.982	3734.705
17	1	34	119.83 ft	403.593	3734.512
			36.52 m	403.594	3734.514
				403.592	3734.517
				403.594	3734.520
				403.592	3734.524
				403.597	3734.534
				403.603	3734.541
				403.609	3734.548
				403.614	3734.553
				403.623	3734.561
				403.630	3734.566
				403.638	3734.570
				403.641	3734.567
				403.643	3734.570
				403.646	3734.568
				403.648	3734.570
				403.659	3734.560
				403.656	3734.558
				403.659	3734.556
				403.657	3734.553
				403.659	3734.551
				403.658	3734.548
				403.654	3734.542
				403.649	3734.533
				403.643	3734.526
				403.637	3734.519
				403.631	3734.514
				403.623	3734.509
	403.616	3734.504			
	403.613	3734.502			
	403.609	3734.504			
	403.607	3734.502			
	403.605	3734.504			
	403.603	3734.503			
20	1	4	20.00 ft	403.694	3734.580
			6.10 m	403.796	3734.580
				403.796	3734.615
				403.694	3734.615

Bldg. No.	Tier	No. of Corners	Height	UTM Coordinates (km)		
				(E)	(N)	
21	1	8	20.33 ft	403.715	3734.706	
			6.20 m	403.846	3734.706	
				403.846	3734.615	
				403.807	3734.615	
				403.807	3734.644	
				403.745	3734.644	
				403.745	3734.629	
				403.715	3734.629	
		2	6	42.00 ft	403.715	3734.706
	12.80 m			403.807	3734.706	
				403.807	3734.644	
				403.745	3734.644	
22	1	4	50.00 ft	403.869	3734.646	
			15.24 m	403.965	3734.646	
				403.965	3734.706	
				403.869	3734.706	
		2	4	122.00 ft	403.869	3734.691
	37.18 m			403.965	3734.691	
				403.965	3734.706	
				403.869	3734.706	
26	1	4	10.00 ft	403.566	3734.603	
			3.05 m	403.573	3734.603	
				403.573	3734.609	
				403.566	3734.609	
28	1	4	24.50 ft	403.857	3734.348	
			7.47 m	403.896	3734.348	
				403.896	3734.465	
				403.857	3734.465	
		2	4	24.50 ft	403.896	3734.392
	7.47 m			403.939	3734.392	
				403.939	3734.429	
				403.896	3734.429	
30	1	19	64.00 ft	403.877	3734.843	
			19.51 m	403.877	3734.810	
				403.877	3734.800	
				403.877	3734.793	
				403.879	3734.787	
				403.885	3734.781	
				403.890	3734.777	
				403.895	3734.775	
					403.900	3734.773

Bldg. No.	Tier	No. of Corners	Height	UTM Coordinates (km)		
				(E)	(N)	
				403.906	3734.771	
				403.914	3734.772	
				403.921	3734.775	
				403.927	3734.778	
				403.932	3734.783	
				403.935	3734.788	
				403.937	3734.794	
				403.937	3734.803	
				403.937	3734.810	
				403.937	3734.843	
	2	15		92.00 ft	403.877	3734.800
				28.04 m	403.877	3734.793
					403.879	3734.787
					403.885	3734.781
					403.890	3734.777
					403.895	3734.775
					403.900	3734.773
					403.906	3734.771
					403.914	3734.772
					403.921	3734.775
31	1	4	20.00 ft	403.754	3734.792	
			6.10 m	403.766	3734.792	
				403.766	3734.822	
				403.754	3734.822	
	2	4		36.00 ft	403.691	3734.758
				10.97 m	403.754	3734.758
					403.754	3734.808
					403.691	3734.808
	3	4		92.00 ft	403.716	3734.787
				28.04 m	403.754	3734.787
				403.754	3734.808	
				403.716	3734.808	
32	1	10	22.00 ft	403.747	3734.965	
			6.71 m	403.747	3734.917	
				403.755	3734.917	
				403.755	3734.911	
				403.768	3734.911	
				403.768	3734.945	

Bldg. No.	Tier	No. of Corners	Height	UTM Coordinates (km)		
				(E)	(N)	
				403.773	3734.945	
				403.773	3734.953	
				403.788	3734.953	
				403.788	3734.965	
				403.775	3734.953	
				13.72 m	403.784	3734.953
				403.784	3734.965	
				403.775	3734.965	
32a	1	6	25.00 ft	403.724	3734.919	
			7.62 m	403.724	3734.903	
				403.731	3734.903	
				403.731	3734.892	
				403.739	3734.892	
				403.739	3734.919	
33	1	8	22.50 ft	403.835	3735.022	
			6.86 m	403.835	3734.981	
				403.867	3734.981	
				403.867	3734.989	
				403.902	3734.989	
				403.902	3735.014	
				403.858	3735.014	
				403.858	3735.022	
37	1	4	20.00 ft	403.874	3734.938	
			6.10 m	403.898	3734.938	
				403.898	3734.954	
				403.874	3734.954	
38	1	4	51.00 ft	403.892	3734.856	
			15.54 m	403.938	3734.856	
				403.938	3734.906	
				403.892	3734.906	
39	1	6	23.50 ft	403.806	3734.939	
			7.16 m	403.806	3734.863	
				403.876	3734.863	
				403.876	3734.882	
				403.845	3734.882	
				403.845	3734.939	
	2	4	37.67 ft	403.859	3734.863	
			11.48 m	403.869	3734.863	
				403.869	3734.882	
				403.859	3734.882	

Bldg. No.	Tier	No. of Corners	Height	UTM Coordinates (km)	
				(E)	(N)
40	1	4	34.50 ft	404.097	3734.932
			10.52 m	404.129	3734.932
				404.129	3735.001
				404.097	3735.001
41	1	6	20.00 ft	403.983	3734.819
			6.10 m	403.983	3734.774
				404.007	3734.774
				404.007	3734.789
				404.045	3734.789
				404.045	3734.819
42	1	4	50.00 ft	404.006	3734.826
			15.24 m	404.048	3734.826
				404.048	3734.883
				404.006	3734.883
	2	4	118.00 ft	404.006	3734.841
			35.96 m	404.048	3734.841
				404.048	3734.883
				404.006	3734.883
43	1	4	32.00 ft	404.020	3734.892
			9.75 m	404.045	3734.892
				404.045	3734.912
				404.020	3734.912
44	1	8	119.50 ft	404.017	3734.964
			36.42 m	404.017	3734.941
				404.020	3734.941
				404.020	3734.932
				404.047	3734.932
				404.047	3734.941
				404.051	3734.941
				404.051	3734.964
45	1	8	47.00 ft	404.146	3735.000
			14.32 m	404.146	3734.879
				404.101	3734.879
				404.101	3734.762
				404.192	3734.762
				404.192	3734.962
				404.201	3734.962
				404.201	3735.000
	2	4	72.00 ft	404.101	3734.762
			21.94 m	404.146	3734.762
				404.146	3734.879
				404.101	3734.879

Bldg. No.	Tier	No. of Corners	Height	UTM Coordinates (km)			
				(E)	(N)		
45b	1	6	21.50 ft	404.092	3734.925		
			6.55 m	404.092	3734.898		
				404.127	3734.898		
				404.127	3734.924		
				404.118	3734.924		
				404.118	3734.925		
49	1	4	22.50 ft	403.974	3734.992		
			6.86 m	403.995	3734.992		
				403.995	3735.023		
				403.974	3735.023		
			2	4	22.50 ft	403.943	3735.011
					6.86 m	403.974	3735.011
		403.974			3735.023		
	3	6	41.00 ft	403.920	3735.113		
			12.50 m	403.920	3735.023		
				403.943	3735.023		
				403.943	3735.011		
				403.974	3735.011		
			403.974	3734.992			
51	1	4	26.00 ft	404.080	3735.166		
			7.92 m	404.150	3735.166		
				404.150	3735.188		
				404.080	3735.188		
				404.080	3735.188		

Appendix D: Sources and Emissions

This section contains the information, in table format, specified in Appendix K of the OEHHA Guidelines (2003).

- Emission Rate by Substance and Source (RAG-001)
 - Emission Rate by Substance -- Totals (RAG-002)
 - Source Parameters – Stacks (RAG-003)
 - Source Operating Hours (RAG-004)
 - Internal Combustion Engine Fuel Usage 2012
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**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
1	ICE_APIN_76	76	1,2,4TriMeBenze	95636				
1	ICE_APIN_76	76	1,3-Butadiene	106990				
1	ICE_APIN_76	76	Acetaldehyde	75070				
1	ICE_APIN_76	76	Acrolein	107028				
1	ICE_APIN_76	76	Arsenic	7440382				
1	ICE_APIN_76	76	Benzene	71432				
1	ICE_APIN_76	76	Cadmium	7440439				
1	ICE_APIN_76	76	CFC-113	76131				
1	ICE_APIN_76	76	Copper	7440508				
1	ICE_APIN_76	76	Cr(VI)	18540299				
1	ICE_APIN_76	76	DieselExhPM	9901			1.14E+01	1.64E-04
1	ICE_APIN_76	76	Ethyl Benzene	100414				
1	ICE_APIN_76	76	Formaldehyde	50000				
1	ICE_APIN_76	76	HCl	7647010				
1	ICE_APIN_76	76	HexaMeDiisocyan	822060				
1	ICE_APIN_76	76	Hexane	110543				
1	ICE_APIN_76	76	Lead	7439921				
1	ICE_APIN_76	76	Manganese	7439965				
1	ICE_APIN_76	76	MeDiphenDiisocy	101688				
1	ICE_APIN_76	76	MEK	78933				
1	ICE_APIN_76	76	Mercury	7439976				
1	ICE_APIN_76	76	MIBK	108101				
1	ICE_APIN_76	76	Naphthalene	91203				
1	ICE_APIN_76	76	NH3	7664417				
1	ICE_APIN_76	76	Nickel	7440020				
1	ICE_APIN_76	76	PAHs-w/o	1151				
1	ICE_APIN_76	76	PGMEA	108656				
1	ICE_APIN_76	76	Selenium	7782492				
1	ICE_APIN_76	76	T-2,4-diisocyan	584849				
1	ICE_APIN_76	76	Toluene	108883				
1	ICE_APIN_76	76	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
2	ICE_APIIN_114	114	1,2,4TriMeBenze	95636				
2	ICE_APIIN_114	114	1,3-Butadiene	106990				
2	ICE_APIIN_114	114	Acetaldehyde	75070				
2	ICE_APIIN_114	114	Acrolein	107028				
2	ICE_APIIN_114	114	Arsenic	7440382				
2	ICE_APIIN_114	114	Benzene	71432				
2	ICE_APIIN_114	114	Cadmium	7440439				
2	ICE_APIIN_114	114	CFC-113	76131				
2	ICE_APIIN_114	114	Copper	7440508				
2	ICE_APIIN_114	114	Cr(VI)	18540299				
2	ICE_APIIN_114	114	DieselExhPM	9901			8.00E+00	1.15E-04
2	ICE_APIIN_114	114	Ethyl Benzene	100414				
2	ICE_APIIN_114	114	Formaldehyde	50000				
2	ICE_APIIN_114	114	HCl	7647010				
2	ICE_APIIN_114	114	HexaMeDiisocyan	822060				
2	ICE_APIIN_114	114	Hexane	110543				
2	ICE_APIIN_114	114	Lead	7439921				
2	ICE_APIIN_114	114	Manganese	7439965				
2	ICE_APIIN_114	114	MeDiphenDiisocy	101688				
2	ICE_APIIN_114	114	MEK	78933				
2	ICE_APIIN_114	114	Mercury	7439976				
2	ICE_APIIN_114	114	MIBK	108101				
2	ICE_APIIN_114	114	Naphthalene	91203				
2	ICE_APIIN_114	114	NH3	7664417				
2	ICE_APIIN_114	114	Nickel	7440020				
2	ICE_APIIN_114	114	PAHs-w/o	1151				
2	ICE_APIIN_114	114	PGMEA	108656				
2	ICE_APIIN_114	114	Selenium	7782492				
2	ICE_APIIN_114	114	T-2,4-diisocyan	584849				
2	ICE_APIIN_114	114	Toluene	108883				
2	ICE_APIIN_114	114	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
3	ICE_APIIN_115	115	1,2,4TriMeBenze	95636				
3	ICE_APIIN_115	115	1,3-Butadiene	106990				
3	ICE_APIIN_115	115	Acetaldehyde	75070				
3	ICE_APIIN_115	115	Acrolein	107028				
3	ICE_APIIN_115	115	Arsenic	7440382				
3	ICE_APIIN_115	115	Benzene	71432				
3	ICE_APIIN_115	115	Cadmium	7440439				
3	ICE_APIIN_115	115	CFC-113	76131				
3	ICE_APIIN_115	115	Copper	7440508				
3	ICE_APIIN_115	115	Cr(VI)	18540299				
3	ICE_APIIN_115	115	DieselExhPM	9901			5.48E+00	7.89E-05
3	ICE_APIIN_115	115	Ethyl Benzene	100414				
3	ICE_APIIN_115	115	Formaldehyde	50000				
3	ICE_APIIN_115	115	HCl	7647010				
3	ICE_APIIN_115	115	HexaMeDiisocyan	822060				
3	ICE_APIIN_115	115	Hexane	110543				
3	ICE_APIIN_115	115	Lead	7439921				
3	ICE_APIIN_115	115	Manganese	7439965				
3	ICE_APIIN_115	115	MeDiphenDiisocy	101688				
3	ICE_APIIN_115	115	MEK	78933				
3	ICE_APIIN_115	115	Mercury	7439976				
3	ICE_APIIN_115	115	MIBK	108101				
3	ICE_APIIN_115	115	Naphthalene	91203				
3	ICE_APIIN_115	115	NH3	7664417				
3	ICE_APIIN_115	115	Nickel	7440020				
3	ICE_APIIN_115	115	PAHs-w/o	1151				
3	ICE_APIIN_115	115	PGMEA	108656				
3	ICE_APIIN_115	115	Selenium	7782492				
3	ICE_APIIN_115	115	T-2,4-diisocyan	584849				
3	ICE_APIIN_115	115	Toluene	108883				
3	ICE_APIIN_115	115	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
4	ICE_APIIN_117	117	1,2,4TriMeBenze	95636				
4	ICE_APIIN_117	117	1,3-Butadiene	106990				
4	ICE_APIIN_117	117	Acetaldehyde	75070				
4	ICE_APIIN_117	117	Acrolein	107028				
4	ICE_APIIN_117	117	Arsenic	7440382				
4	ICE_APIIN_117	117	Benzene	71432				
4	ICE_APIIN_117	117	Cadmium	7440439				
4	ICE_APIIN_117	117	CFC-113	76131				
4	ICE_APIIN_117	117	Copper	7440508				
4	ICE_APIIN_117	117	Cr(VI)	18540299				
4	ICE_APIIN_117	117	DieselExhPM	9901			6.70E-01	9.65E-06
4	ICE_APIIN_117	117	Ethyl Benzene	100414				
4	ICE_APIIN_117	117	Formaldehyde	50000				
4	ICE_APIIN_117	117	HCl	7647010				
4	ICE_APIIN_117	117	HexaMeDiisocyan	822060				
4	ICE_APIIN_117	117	Hexane	110543				
4	ICE_APIIN_117	117	Lead	7439921				
4	ICE_APIIN_117	117	Manganese	7439965				
4	ICE_APIIN_117	117	MeDiphenDiisocy	101688				
4	ICE_APIIN_117	117	MEK	78933				
4	ICE_APIIN_117	117	Mercury	7439976				
4	ICE_APIIN_117	117	MIBK	108101				
4	ICE_APIIN_117	117	Naphthalene	91203				
4	ICE_APIIN_117	117	NH3	7664417				
4	ICE_APIIN_117	117	Nickel	7440020				
4	ICE_APIIN_117	117	PAHs-w/o	1151				
4	ICE_APIIN_117	117	PGMEA	108656				
4	ICE_APIIN_117	117	Selenium	7782492				
4	ICE_APIIN_117	117	T-2,4-diisocyan	584849				
4	ICE_APIIN_117	117	Toluene	108883				
4	ICE_APIIN_117	117	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
5	ICE_APIIN_118	118	1,2,4TriMeBenze	95636				
5	ICE_APIIN_118	118	1,3-Butadiene	106990				
5	ICE_APIIN_118	118	Acetaldehyde	75070				
5	ICE_APIIN_118	118	Acrolein	107028				
5	ICE_APIIN_118	118	Arsenic	7440382				
5	ICE_APIIN_118	118	Benzene	71432				
5	ICE_APIIN_118	118	Cadmium	7440439				
5	ICE_APIIN_118	118	CFC-113	76131				
5	ICE_APIIN_118	118	Copper	7440508				
5	ICE_APIIN_118	118	Cr(VI)	18540299				
5	ICE_APIIN_118	118	DieselExhPM	9901			3.17E+00	4.56E-05
5	ICE_APIIN_118	118	Ethyl Benzene	100414				
5	ICE_APIIN_118	118	Formaldehyde	50000				
5	ICE_APIIN_118	118	HCl	7647010				
5	ICE_APIIN_118	118	HexaMeDiisocyan	822060				
5	ICE_APIIN_118	118	Hexane	110543				
5	ICE_APIIN_118	118	Lead	7439921				
5	ICE_APIIN_118	118	Manganese	7439965				
5	ICE_APIIN_118	118	MeDiphenDiisocy	101688				
5	ICE_APIIN_118	118	MEK	78933				
5	ICE_APIIN_118	118	Mercury	7439976				
5	ICE_APIIN_118	118	MIBK	108101				
5	ICE_APIIN_118	118	Naphthalene	91203				
5	ICE_APIIN_118	118	NH3	7664417				
5	ICE_APIIN_118	118	Nickel	7440020				
5	ICE_APIIN_118	118	PAHs-w/o	1151				
5	ICE_APIIN_118	118	PGMEA	108656				
5	ICE_APIIN_118	118	Selenium	7782492				
5	ICE_APIIN_118	118	T-2,4-diisocyan	584849				
5	ICE_APIIN_118	118	Toluene	108883				
5	ICE_APIIN_118	118	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
6	ICE_APIIN_119	119	1,2,4TriMeBenze	95636				
6	ICE_APIIN_119	119	1,3-Butadiene	106990				
6	ICE_APIIN_119	119	Acetaldehyde	75070				
6	ICE_APIIN_119	119	Acrolein	107028				
6	ICE_APIIN_119	119	Arsenic	7440382				
6	ICE_APIIN_119	119	Benzene	71432				
6	ICE_APIIN_119	119	Cadmium	7440439				
6	ICE_APIIN_119	119	CFC-113	76131				
6	ICE_APIIN_119	119	Copper	7440508				
6	ICE_APIIN_119	119	Cr(VI)	18540299				
6	ICE_APIIN_119	119	DieselExhPM	9901			6.08E+00	8.75E-05
6	ICE_APIIN_119	119	Ethyl Benzene	100414				
6	ICE_APIIN_119	119	Formaldehyde	50000				
6	ICE_APIIN_119	119	HCl	7647010				
6	ICE_APIIN_119	119	HexaMeDiisocyan	822060				
6	ICE_APIIN_119	119	Hexane	110543				
6	ICE_APIIN_119	119	Lead	7439921				
6	ICE_APIIN_119	119	Manganese	7439965				
6	ICE_APIIN_119	119	MeDiphenDiisocy	101688				
6	ICE_APIIN_119	119	MEK	78933				
6	ICE_APIIN_119	119	Mercury	7439976				
6	ICE_APIIN_119	119	MIBK	108101				
6	ICE_APIIN_119	119	Naphthalene	91203				
6	ICE_APIIN_119	119	NH3	7664417				
6	ICE_APIIN_119	119	Nickel	7440020				
6	ICE_APIIN_119	119	PAHs-w/o	1151				
6	ICE_APIIN_119	119	PGMEA	108656				
6	ICE_APIIN_119	119	Selenium	7782492				
6	ICE_APIIN_119	119	T-2,4-diisocyan	584849				
6	ICE_APIIN_119	119	Toluene	108883				
6	ICE_APIIN_119	119	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
7	ICE_APIIN_120	120	1,2,4TriMeBenze	95636				
7	ICE_APIIN_120	120	1,3-Butadiene	106990				
7	ICE_APIIN_120	120	Acetaldehyde	75070				
7	ICE_APIIN_120	120	Acrolein	107028				
7	ICE_APIIN_120	120	Arsenic	7440382				
7	ICE_APIIN_120	120	Benzene	71432				
7	ICE_APIIN_120	120	Cadmium	7440439				
7	ICE_APIIN_120	120	CFC-113	76131				
7	ICE_APIIN_120	120	Copper	7440508				
7	ICE_APIIN_120	120	Cr(VI)	18540299				
7	ICE_APIIN_120	120	DieselExhPM	9901			2.57E+00	3.70E-05
7	ICE_APIIN_120	120	Ethyl Benzene	100414				
7	ICE_APIIN_120	120	Formaldehyde	50000				
7	ICE_APIIN_120	120	HCl	7647010				
7	ICE_APIIN_120	120	HexaMeDiisocyan	822060				
7	ICE_APIIN_120	120	Hexane	110543				
7	ICE_APIIN_120	120	Lead	7439921				
7	ICE_APIIN_120	120	Manganese	7439965				
7	ICE_APIIN_120	120	MeDiphenDiisocy	101688				
7	ICE_APIIN_120	120	MEK	78933				
7	ICE_APIIN_120	120	Mercury	7439976				
7	ICE_APIIN_120	120	MIBK	108101				
7	ICE_APIIN_120	120	Naphthalene	91203				
7	ICE_APIIN_120	120	NH3	7664417				
7	ICE_APIIN_120	120	Nickel	7440020				
7	ICE_APIIN_120	120	PAHs-w/o	1151				
7	ICE_APIIN_120	120	PGMEA	108656				
7	ICE_APIIN_120	120	Selenium	7782492				
7	ICE_APIIN_120	120	T-2,4-diisocyan	584849				
7	ICE_APIIN_120	120	Toluene	108883				
7	ICE_APIIN_120	120	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
8	ICE_APIIN_122	122	1,2,4TriMeBenze	95636				
8	ICE_APIIN_122	122	1,3-Butadiene	106990				
8	ICE_APIIN_122	122	Acetaldehyde	75070				
8	ICE_APIIN_122	122	Acrolein	107028				
8	ICE_APIIN_122	122	Arsenic	7440382				
8	ICE_APIIN_122	122	Benzene	71432				
8	ICE_APIIN_122	122	Cadmium	7440439				
8	ICE_APIIN_122	122	CFC-113	76131				
8	ICE_APIIN_122	122	Copper	7440508				
8	ICE_APIIN_122	122	Cr(VI)	18540299				
8	ICE_APIIN_122	122	DieselExhPM	9901			2.64E+00	3.80E-05
8	ICE_APIIN_122	122	Ethyl Benzene	100414				
8	ICE_APIIN_122	122	Formaldehyde	50000				
8	ICE_APIIN_122	122	HCl	7647010				
8	ICE_APIIN_122	122	HexaMeDiisocyan	822060				
8	ICE_APIIN_122	122	Hexane	110543				
8	ICE_APIIN_122	122	Lead	7439921				
8	ICE_APIIN_122	122	Manganese	7439965				
8	ICE_APIIN_122	122	MeDiphenDiisocy	101688				
8	ICE_APIIN_122	122	MEK	78933				
8	ICE_APIIN_122	122	Mercury	7439976				
8	ICE_APIIN_122	122	MIBK	108101				
8	ICE_APIIN_122	122	Naphthalene	91203				
8	ICE_APIIN_122	122	NH3	7664417				
8	ICE_APIIN_122	122	Nickel	7440020				
8	ICE_APIIN_122	122	PAHs-w/o	1151				
8	ICE_APIIN_122	122	PGMEA	108656				
8	ICE_APIIN_122	122	Selenium	7782492				
8	ICE_APIIN_122	122	T-2,4-diisocyan	584849				
8	ICE_APIIN_122	122	Toluene	108883				
8	ICE_APIIN_122	122	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
9	ICE_APIIN_123	123	1,2,4TriMeBenze	95636				
9	ICE_APIIN_123	123	1,3-Butadiene	106990				
9	ICE_APIIN_123	123	Acetaldehyde	75070				
9	ICE_APIIN_123	123	Acrolein	107028				
9	ICE_APIIN_123	123	Arsenic	7440382				
9	ICE_APIIN_123	123	Benzene	71432				
9	ICE_APIIN_123	123	Cadmium	7440439				
9	ICE_APIIN_123	123	CFC-113	76131				
9	ICE_APIIN_123	123	Copper	7440508				
9	ICE_APIIN_123	123	Cr(VI)	18540299				
9	ICE_APIIN_123	123	DieselExhPM	9901			2.64E+00	3.80E-05
9	ICE_APIIN_123	123	Ethyl Benzene	100414				
9	ICE_APIIN_123	123	Formaldehyde	50000				
9	ICE_APIIN_123	123	HCl	7647010				
9	ICE_APIIN_123	123	HexaMeDiisocyan	822060				
9	ICE_APIIN_123	123	Hexane	110543				
9	ICE_APIIN_123	123	Lead	7439921				
9	ICE_APIIN_123	123	Manganese	7439965				
9	ICE_APIIN_123	123	MeDiphenDiisocy	101688				
9	ICE_APIIN_123	123	MEK	78933				
9	ICE_APIIN_123	123	Mercury	7439976				
9	ICE_APIIN_123	123	MIBK	108101				
9	ICE_APIIN_123	123	Naphthalene	91203				
9	ICE_APIIN_123	123	NH3	7664417				
9	ICE_APIIN_123	123	Nickel	7440020				
9	ICE_APIIN_123	123	PAHs-w/o	1151				
9	ICE_APIIN_123	123	PGMEA	108656				
9	ICE_APIIN_123	123	Selenium	7782492				
9	ICE_APIIN_123	123	T-2,4-diisocyan	584849				
9	ICE_APIIN_123	123	Toluene	108883				
9	ICE_APIIN_123	123	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
10	ICE_APIIN_124	124	1,2,4TriMeBenze	95636				
10	ICE_APIIN_124	124	1,3-Butadiene	106990				
10	ICE_APIIN_124	124	Acetaldehyde	75070				
10	ICE_APIIN_124	124	Acrolein	107028				
10	ICE_APIIN_124	124	Arsenic	7440382				
10	ICE_APIIN_124	124	Benzene	71432				
10	ICE_APIIN_124	124	Cadmium	7440439				
10	ICE_APIIN_124	124	CFC-113	76131				
10	ICE_APIIN_124	124	Copper	7440508				
10	ICE_APIIN_124	124	Cr(VI)	18540299				
10	ICE_APIIN_124	124	DieselExhPM	9901			2.08E+00	2.99E-05
10	ICE_APIIN_124	124	Ethyl Benzene	100414				
10	ICE_APIIN_124	124	Formaldehyde	50000				
10	ICE_APIIN_124	124	HCl	7647010				
10	ICE_APIIN_124	124	HexaMeDiisocyan	822060				
10	ICE_APIIN_124	124	Hexane	110543				
10	ICE_APIIN_124	124	Lead	7439921				
10	ICE_APIIN_124	124	Manganese	7439965				
10	ICE_APIIN_124	124	MeDiphenDiisocy	101688				
10	ICE_APIIN_124	124	MEK	78933				
10	ICE_APIIN_124	124	Mercury	7439976				
10	ICE_APIIN_124	124	MIBK	108101				
10	ICE_APIIN_124	124	Naphthalene	91203				
10	ICE_APIIN_124	124	NH3	7664417				
10	ICE_APIIN_124	124	Nickel	7440020				
10	ICE_APIIN_124	124	PAHs-w/o	1151				
10	ICE_APIIN_124	124	PGMEA	108656				
10	ICE_APIIN_124	124	Selenium	7782492				
10	ICE_APIIN_124	124	T-2,4-diisocyan	584849				
10	ICE_APIIN_124	124	Toluene	108883				
10	ICE_APIIN_124	124	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
11	ICE_APIIN_151	151	1,2,4TriMeBenze	95636				
11	ICE_APIIN_151	151	1,3-Butadiene	106990				
11	ICE_APIIN_151	151	Acetaldehyde	75070				
11	ICE_APIIN_151	151	Acrolein	107028				
11	ICE_APIIN_151	151	Arsenic	7440382				
11	ICE_APIIN_151	151	Benzene	71432				
11	ICE_APIIN_151	151	Cadmium	7440439				
11	ICE_APIIN_151	151	CFC-113	76131				
11	ICE_APIIN_151	151	Copper	7440508				
11	ICE_APIIN_151	151	Cr(VI)	18540299				
11	ICE_APIIN_151	151	DieselExhPM	9901			3.88E+00	5.59E-05
11	ICE_APIIN_151	151	Ethyl Benzene	100414				
11	ICE_APIIN_151	151	Formaldehyde	50000				
11	ICE_APIIN_151	151	HCl	7647010				
11	ICE_APIIN_151	151	HexaMeDiisocyan	822060				
11	ICE_APIIN_151	151	Hexane	110543				
11	ICE_APIIN_151	151	Lead	7439921				
11	ICE_APIIN_151	151	Manganese	7439965				
11	ICE_APIIN_151	151	MeDiphenDiisocy	101688				
11	ICE_APIIN_151	151	MEK	78933				
11	ICE_APIIN_151	151	Mercury	7439976				
11	ICE_APIIN_151	151	MIBK	108101				
11	ICE_APIIN_151	151	Naphthalene	91203				
11	ICE_APIIN_151	151	NH3	7664417				
11	ICE_APIIN_151	151	Nickel	7440020				
11	ICE_APIIN_151	151	PAHs-w/o	1151				
11	ICE_APIIN_151	151	PGMEA	108656				
11	ICE_APIIN_151	151	Selenium	7782492				
11	ICE_APIIN_151	151	T-2,4-diisocyan	584849				
11	ICE_APIIN_151	151	Toluene	108883				
11	ICE_APIIN_151	151	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
12	ICE_APIIN_193	193	1,2,4TriMeBenze	95636				
12	ICE_APIIN_193	193	1,3-Butadiene	106990				
12	ICE_APIIN_193	193	Acetaldehyde	75070				
12	ICE_APIIN_193	193	Acrolein	107028				
12	ICE_APIIN_193	193	Arsenic	7440382				
12	ICE_APIIN_193	193	Benzene	71432				
12	ICE_APIIN_193	193	Cadmium	7440439				
12	ICE_APIIN_193	193	CFC-113	76131				
12	ICE_APIIN_193	193	Copper	7440508				
12	ICE_APIIN_193	193	Cr(VI)	18540299				
12	ICE_APIIN_193	193	DieselExhPM	9901			2.14E+01	3.08E-04
12	ICE_APIIN_193	193	Ethyl Benzene	100414				
12	ICE_APIIN_193	193	Formaldehyde	50000				
12	ICE_APIIN_193	193	HCl	7647010				
12	ICE_APIIN_193	193	HexaMeDiisocyan	822060				
12	ICE_APIIN_193	193	Hexane	110543				
12	ICE_APIIN_193	193	Lead	7439921				
12	ICE_APIIN_193	193	Manganese	7439965				
12	ICE_APIIN_193	193	MeDiphenDiisocy	101688				
12	ICE_APIIN_193	193	MEK	78933				
12	ICE_APIIN_193	193	Mercury	7439976				
12	ICE_APIIN_193	193	MIBK	108101				
12	ICE_APIIN_193	193	Naphthalene	91203				
12	ICE_APIIN_193	193	NH3	7664417				
12	ICE_APIIN_193	193	Nickel	7440020				
12	ICE_APIIN_193	193	PAHs-w/o	1151				
12	ICE_APIIN_193	193	PGMEA	108656				
12	ICE_APIIN_193	193	Selenium	7782492				
12	ICE_APIIN_193	193	T-2,4-diisocyan	584849				
12	ICE_APIIN_193	193	Toluene	108883				
12	ICE_APIIN_193	193	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
13	ICE_APIIN_204	204	1,2,4TriMeBenze	95636				
13	ICE_APIIN_204	204	1,3-Butadiene	106990				
13	ICE_APIIN_204	204	Acetaldehyde	75070				
13	ICE_APIIN_204	204	Acrolein	107028				
13	ICE_APIIN_204	204	Arsenic	7440382				
13	ICE_APIIN_204	204	Benzene	71432				
13	ICE_APIIN_204	204	Cadmium	7440439				
13	ICE_APIIN_204	204	CFC-113	76131				
13	ICE_APIIN_204	204	Copper	7440508				
13	ICE_APIIN_204	204	Cr(VI)	18540299				
13	ICE_APIIN_204	204	DieselExhPM	9901			3.15E+00	4.53E-05
13	ICE_APIIN_204	204	Ethyl Benzene	100414				
13	ICE_APIIN_204	204	Formaldehyde	50000				
13	ICE_APIIN_204	204	HCl	7647010				
13	ICE_APIIN_204	204	HexaMeDiisocyan	822060				
13	ICE_APIIN_204	204	Hexane	110543				
13	ICE_APIIN_204	204	Lead	7439921				
13	ICE_APIIN_204	204	Manganese	7439965				
13	ICE_APIIN_204	204	MeDiphenDiisocy	101688				
13	ICE_APIIN_204	204	MEK	78933				
13	ICE_APIIN_204	204	Mercury	7439976				
13	ICE_APIIN_204	204	MIBK	108101				
13	ICE_APIIN_204	204	Naphthalene	91203				
13	ICE_APIIN_204	204	NH3	7664417				
13	ICE_APIIN_204	204	Nickel	7440020				
13	ICE_APIIN_204	204	PAHs-w/o	1151				
13	ICE_APIIN_204	204	PGMEA	108656				
13	ICE_APIIN_204	204	Selenium	7782492				
13	ICE_APIIN_204	204	T-2,4-diisocyan	584849				
13	ICE_APIIN_204	204	Toluene	108883				
13	ICE_APIIN_204	204	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
14	ICE_APIIN_211	211	1,2,4TriMeBenze	95636				
14	ICE_APIIN_211	211	1,3-Butadiene	106990				
14	ICE_APIIN_211	211	Acetaldehyde	75070				
14	ICE_APIIN_211	211	Acrolein	107028				
14	ICE_APIIN_211	211	Arsenic	7440382				
14	ICE_APIIN_211	211	Benzene	71432				
14	ICE_APIIN_211	211	Cadmium	7440439				
14	ICE_APIIN_211	211	CFC-113	76131				
14	ICE_APIIN_211	211	Copper	7440508				
14	ICE_APIIN_211	211	Cr(VI)	18540299				
14	ICE_APIIN_211	211	DieselExhPM	9901			2.51E+00	3.61E-05
14	ICE_APIIN_211	211	Ethyl Benzene	100414				
14	ICE_APIIN_211	211	Formaldehyde	50000				
14	ICE_APIIN_211	211	HCl	7647010				
14	ICE_APIIN_211	211	HexaMeDiisocyan	822060				
14	ICE_APIIN_211	211	Hexane	110543				
14	ICE_APIIN_211	211	Lead	7439921				
14	ICE_APIIN_211	211	Manganese	7439965				
14	ICE_APIIN_211	211	MeDiphenDiisocy	101688				
14	ICE_APIIN_211	211	MEK	78933				
14	ICE_APIIN_211	211	Mercury	7439976				
14	ICE_APIIN_211	211	MIBK	108101				
14	ICE_APIIN_211	211	Naphthalene	91203				
14	ICE_APIIN_211	211	NH3	7664417				
14	ICE_APIIN_211	211	Nickel	7440020				
14	ICE_APIIN_211	211	PAHs-w/o	1151				
14	ICE_APIIN_211	211	PGMEA	108656				
14	ICE_APIIN_211	211	Selenium	7782492				
14	ICE_APIIN_211	211	T-2,4-diisocyan	584849				
14	ICE_APIIN_211	211	Toluene	108883				
14	ICE_APIIN_211	211	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
15	ICE_APIIN_218	218	1,2,4TriMeBenze	95636				
15	ICE_APIIN_218	218	1,3-Butadiene	106990				
15	ICE_APIIN_218	218	Acetaldehyde	75070				
15	ICE_APIIN_218	218	Acrolein	107028				
15	ICE_APIIN_218	218	Arsenic	7440382				
15	ICE_APIIN_218	218	Benzene	71432				
15	ICE_APIIN_218	218	Cadmium	7440439				
15	ICE_APIIN_218	218	CFC-113	76131				
15	ICE_APIIN_218	218	Copper	7440508				
15	ICE_APIIN_218	218	Cr(VI)	18540299				
15	ICE_APIIN_218	218	DieselExhPM	9901			1.21E+00	1.74E-05
15	ICE_APIIN_218	218	Ethyl Benzene	100414				
15	ICE_APIIN_218	218	Formaldehyde	50000				
15	ICE_APIIN_218	218	HCl	7647010				
15	ICE_APIIN_218	218	HexaMeDiisocyan	822060				
15	ICE_APIIN_218	218	Hexane	110543				
15	ICE_APIIN_218	218	Lead	7439921				
15	ICE_APIIN_218	218	Manganese	7439965				
15	ICE_APIIN_218	218	MeDiphenDiisocy	101688				
15	ICE_APIIN_218	218	MEK	78933				
15	ICE_APIIN_218	218	Mercury	7439976				
15	ICE_APIIN_218	218	MIBK	108101				
15	ICE_APIIN_218	218	Naphthalene	91203				
15	ICE_APIIN_218	218	NH3	7664417				
15	ICE_APIIN_218	218	Nickel	7440020				
15	ICE_APIIN_218	218	PAHs-w/o	1151				
15	ICE_APIIN_218	218	PGMEA	108656				
15	ICE_APIIN_218	218	Selenium	7782492				
15	ICE_APIIN_218	218	T-2,4-diisocyan	584849				
15	ICE_APIIN_218	218	Toluene	108883				
15	ICE_APIIN_218	218	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
16	ICE_APIIN_219	219	1,2,4TriMeBenze	95636				
16	ICE_APIIN_219	219	1,3-Butadiene	106990				
16	ICE_APIIN_219	219	Acetaldehyde	75070				
16	ICE_APIIN_219	219	Acrolein	107028				
16	ICE_APIIN_219	219	Arsenic	7440382				
16	ICE_APIIN_219	219	Benzene	71432				
16	ICE_APIIN_219	219	Cadmium	7440439				
16	ICE_APIIN_219	219	CFC-113	76131				
16	ICE_APIIN_219	219	Copper	7440508				
16	ICE_APIIN_219	219	Cr(VI)	18540299				
16	ICE_APIIN_219	219	DieselExhPM	9901			1.51E+00	2.17E-05
16	ICE_APIIN_219	219	Ethyl Benzene	100414				
16	ICE_APIIN_219	219	Formaldehyde	50000				
16	ICE_APIIN_219	219	HCl	7647010				
16	ICE_APIIN_219	219	HexaMeDiisocyan	822060				
16	ICE_APIIN_219	219	Hexane	110543				
16	ICE_APIIN_219	219	Lead	7439921				
16	ICE_APIIN_219	219	Manganese	7439965				
16	ICE_APIIN_219	219	MeDiphenDiisocy	101688				
16	ICE_APIIN_219	219	MEK	78933				
16	ICE_APIIN_219	219	Mercury	7439976				
16	ICE_APIIN_219	219	MIBK	108101				
16	ICE_APIIN_219	219	Naphthalene	91203				
16	ICE_APIIN_219	219	NH3	7664417				
16	ICE_APIIN_219	219	Nickel	7440020				
16	ICE_APIIN_219	219	PAHs-w/o	1151				
16	ICE_APIIN_219	219	PGMEA	108656				
16	ICE_APIIN_219	219	Selenium	7782492				
16	ICE_APIIN_219	219	T-2,4-diisocyan	584849				
16	ICE_APIIN_219	219	Toluene	108883				
16	ICE_APIIN_219	219	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
17	ICE_APIIN_220	220	1,2,4TriMeBenze	95636				
17	ICE_APIIN_220	220	1,3-Butadiene	106990				
17	ICE_APIIN_220	220	Acetaldehyde	75070				
17	ICE_APIIN_220	220	Acrolein	107028				
17	ICE_APIIN_220	220	Arsenic	7440382				
17	ICE_APIIN_220	220	Benzene	71432				
17	ICE_APIIN_220	220	Cadmium	7440439				
17	ICE_APIIN_220	220	CFC-113	76131				
17	ICE_APIIN_220	220	Copper	7440508				
17	ICE_APIIN_220	220	Cr(VI)	18540299				
17	ICE_APIIN_220	220	DieselExhPM	9901			8.10E-01	1.17E-05
17	ICE_APIIN_220	220	Ethyl Benzene	100414				
17	ICE_APIIN_220	220	Formaldehyde	50000				
17	ICE_APIIN_220	220	HCl	7647010				
17	ICE_APIIN_220	220	HexaMeDiisocyan	822060				
17	ICE_APIIN_220	220	Hexane	110543				
17	ICE_APIIN_220	220	Lead	7439921				
17	ICE_APIIN_220	220	Manganese	7439965				
17	ICE_APIIN_220	220	MeDiphenDiisocy	101688				
17	ICE_APIIN_220	220	MEK	78933				
17	ICE_APIIN_220	220	Mercury	7439976				
17	ICE_APIIN_220	220	MIBK	108101				
17	ICE_APIIN_220	220	Naphthalene	91203				
17	ICE_APIIN_220	220	NH3	7664417				
17	ICE_APIIN_220	220	Nickel	7440020				
17	ICE_APIIN_220	220	PAHs-w/o	1151				
17	ICE_APIIN_220	220	PGMEA	108656				
17	ICE_APIIN_220	220	Selenium	7782492				
17	ICE_APIIN_220	220	T-2,4-diisocyan	584849				
17	ICE_APIIN_220	220	Toluene	108883				
17	ICE_APIIN_220	220	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
18	ICE_APIIN_228	228	1,2,4TriMeBenze	95636				
18	ICE_APIIN_228	228	1,3-Butadiene	106990				
18	ICE_APIIN_228	228	Acetaldehyde	75070				
18	ICE_APIIN_228	228	Acrolein	107028				
18	ICE_APIIN_228	228	Arsenic	7440382				
18	ICE_APIIN_228	228	Benzene	71432				
18	ICE_APIIN_228	228	Cadmium	7440439				
18	ICE_APIIN_228	228	CFC-113	76131				
18	ICE_APIIN_228	228	Copper	7440508				
18	ICE_APIIN_228	228	Cr(VI)	18540299				
18	ICE_APIIN_228	228	DieselExhPM	9901			1.61E+00	2.32E-05
18	ICE_APIIN_228	228	Ethyl Benzene	100414				
18	ICE_APIIN_228	228	Formaldehyde	50000				
18	ICE_APIIN_228	228	HCl	7647010				
18	ICE_APIIN_228	228	HexaMeDiisocyan	822060				
18	ICE_APIIN_228	228	Hexane	110543				
18	ICE_APIIN_228	228	Lead	7439921				
18	ICE_APIIN_228	228	Manganese	7439965				
18	ICE_APIIN_228	228	MeDiphenDiisocy	101688				
18	ICE_APIIN_228	228	MEK	78933				
18	ICE_APIIN_228	228	Mercury	7439976				
18	ICE_APIIN_228	228	MIBK	108101				
18	ICE_APIIN_228	228	Naphthalene	91203				
18	ICE_APIIN_228	228	NH3	7664417				
18	ICE_APIIN_228	228	Nickel	7440020				
18	ICE_APIIN_228	228	PAHs-w/o	1151				
18	ICE_APIIN_228	228	PGMEA	108656				
18	ICE_APIIN_228	228	Selenium	7782492				
18	ICE_APIIN_228	228	T-2,4-diisocyan	584849				
18	ICE_APIIN_228	228	Toluene	108883				
18	ICE_APIIN_228	228	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
19	ICE_APIIN_229	229	1,2,4TriMeBenze	95636				
19	ICE_APIIN_229	229	1,3-Butadiene	106990				
19	ICE_APIIN_229	229	Acetaldehyde	75070				
19	ICE_APIIN_229	229	Acrolein	107028				
19	ICE_APIIN_229	229	Arsenic	7440382				
19	ICE_APIIN_229	229	Benzene	71432				
19	ICE_APIIN_229	229	Cadmium	7440439				
19	ICE_APIIN_229	229	CFC-113	76131				
19	ICE_APIIN_229	229	Copper	7440508				
19	ICE_APIIN_229	229	Cr(VI)	18540299				
19	ICE_APIIN_229	229	DieselExhPM	9901			9.16E+00	1.32E-04
19	ICE_APIIN_229	229	Ethyl Benzene	100414				
19	ICE_APIIN_229	229	Formaldehyde	50000				
19	ICE_APIIN_229	229	HCl	7647010				
19	ICE_APIIN_229	229	HexaMeDiisocyan	822060				
19	ICE_APIIN_229	229	Hexane	110543				
19	ICE_APIIN_229	229	Lead	7439921				
19	ICE_APIIN_229	229	Manganese	7439965				
19	ICE_APIIN_229	229	MeDiphenDiisocy	101688				
19	ICE_APIIN_229	229	MEK	78933				
19	ICE_APIIN_229	229	Mercury	7439976				
19	ICE_APIIN_229	229	MIBK	108101				
19	ICE_APIIN_229	229	Naphthalene	91203				
19	ICE_APIIN_229	229	NH3	7664417				
19	ICE_APIIN_229	229	Nickel	7440020				
19	ICE_APIIN_229	229	PAHs-w/o	1151				
19	ICE_APIIN_229	229	PGMEA	108656				
19	ICE_APIIN_229	229	Selenium	7782492				
19	ICE_APIIN_229	229	T-2,4-diisocyan	584849				
19	ICE_APIIN_229	229	Toluene	108883				
19	ICE_APIIN_229	229	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
20	ICE_APIIN_230	230	1,2,4TriMeBenze	95636				
20	ICE_APIIN_230	230	1,3-Butadiene	106990				
20	ICE_APIIN_230	230	Acetaldehyde	75070				
20	ICE_APIIN_230	230	Acrolein	107028				
20	ICE_APIIN_230	230	Arsenic	7440382				
20	ICE_APIIN_230	230	Benzene	71432				
20	ICE_APIIN_230	230	Cadmium	7440439				
20	ICE_APIIN_230	230	CFC-113	76131				
20	ICE_APIIN_230	230	Copper	7440508				
20	ICE_APIIN_230	230	Cr(VI)	18540299				
20	ICE_APIIN_230	230	DieselExhPM	9901			1.15E+01	1.66E-04
20	ICE_APIIN_230	230	Ethyl Benzene	100414				
20	ICE_APIIN_230	230	Formaldehyde	50000				
20	ICE_APIIN_230	230	HCl	7647010				
20	ICE_APIIN_230	230	HexaMeDiisocyan	822060				
20	ICE_APIIN_230	230	Hexane	110543				
20	ICE_APIIN_230	230	Lead	7439921				
20	ICE_APIIN_230	230	Manganese	7439965				
20	ICE_APIIN_230	230	MeDiphenDiisocy	101688				
20	ICE_APIIN_230	230	MEK	78933				
20	ICE_APIIN_230	230	Mercury	7439976				
20	ICE_APIIN_230	230	MIBK	108101				
20	ICE_APIIN_230	230	Naphthalene	91203				
20	ICE_APIIN_230	230	NH3	7664417				
20	ICE_APIIN_230	230	Nickel	7440020				
20	ICE_APIIN_230	230	PAHs-w/o	1151				
20	ICE_APIIN_230	230	PGMEA	108656				
20	ICE_APIIN_230	230	Selenium	7782492				
20	ICE_APIIN_230	230	T-2,4-diisocyan	584849				
20	ICE_APIIN_230	230	Toluene	108883				
20	ICE_APIIN_230	230	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
21	ICE_APIIN_232	232	1,2,4TriMeBenze	95636				
21	ICE_APIIN_232	232	1,3-Butadiene	106990				
21	ICE_APIIN_232	232	Acetaldehyde	75070				
21	ICE_APIIN_232	232	Acrolein	107028				
21	ICE_APIIN_232	232	Arsenic	7440382				
21	ICE_APIIN_232	232	Benzene	71432				
21	ICE_APIIN_232	232	Cadmium	7440439				
21	ICE_APIIN_232	232	CFC-113	76131				
21	ICE_APIIN_232	232	Copper	7440508				
21	ICE_APIIN_232	232	Cr(VI)	18540299				
21	ICE_APIIN_232	232	DieselExhPM	9901			4.24E+00	6.10E-05
21	ICE_APIIN_232	232	Ethyl Benzene	100414				
21	ICE_APIIN_232	232	Formaldehyde	50000				
21	ICE_APIIN_232	232	HCl	7647010				
21	ICE_APIIN_232	232	HexaMeDiisocyan	822060				
21	ICE_APIIN_232	232	Hexane	110543				
21	ICE_APIIN_232	232	Lead	7439921				
21	ICE_APIIN_232	232	Manganese	7439965				
21	ICE_APIIN_232	232	MeDiphenDiisocy	101688				
21	ICE_APIIN_232	232	MEK	78933				
21	ICE_APIIN_232	232	Mercury	7439976				
21	ICE_APIIN_232	232	MIBK	108101				
21	ICE_APIIN_232	232	Naphthalene	91203				
21	ICE_APIIN_232	232	NH3	7664417				
21	ICE_APIIN_232	232	Nickel	7440020				
21	ICE_APIIN_232	232	PAHs-w/o	1151				
21	ICE_APIIN_232	232	PGMEA	108656				
21	ICE_APIIN_232	232	Selenium	7782492				
21	ICE_APIIN_232	232	T-2,4-diisocyan	584849				
21	ICE_APIIN_232	232	Toluene	108883				
21	ICE_APIIN_232	232	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
22	HTHWG_APIIN_233	233	1,2,4TriMeBenze	95636				
22	HTHWG_APIIN_233	233	1,3-Butadiene	106990				
22	HTHWG_APIIN_233	233	Acetaldehyde	75070	9.54E-05	1.20E-05	1.00E-01	1.44E-06
22	HTHWG_APIIN_233	233	Acrolein	107028	8.31E-05	1.05E-05	9.00E-02	1.30E-06
22	HTHWG_APIIN_233	233	Arsenic	7440382				
22	HTHWG_APIIN_233	233	Benzene	71432	1.78E-04	2.24E-05	2.00E-01	2.88E-06
22	HTHWG_APIIN_233	233	Cadmium	7440439				
22	HTHWG_APIIN_233	233	CFC-113	76131				
22	HTHWG_APIIN_233	233	Copper	7440508				
22	HTHWG_APIIN_233	233	Cr(VI)	18540299				
22	HTHWG_APIIN_233	233	DieselExhPM	9901				
22	HTHWG_APIIN_233	233	Ethyl Benzene	100414	2.12E-04	2.67E-05	2.40E-01	3.46E-06
22	HTHWG_APIIN_233	233	Formaldehyde	50000	3.78E-04	4.77E-05	4.30E-01	6.19E-06
22	HTHWG_APIIN_233	233	HCl	7647010				
22	HTHWG_APIIN_233	233	HexaMeDiisocyan	822060				
22	HTHWG_APIIN_233	233	Hexane	110543	1.42E-04	1.79E-05	1.60E-01	2.30E-06
22	HTHWG_APIIN_233	233	Lead	7439921				
22	HTHWG_APIIN_233	233	Manganese	7439965				
22	HTHWG_APIIN_233	233	MeDiphenDiisocy	101688				
22	HTHWG_APIIN_233	233	MEK	78933				
22	HTHWG_APIIN_233	233	Mercury	7439976				
22	HTHWG_APIIN_233	233	MIBK	108101				
22	HTHWG_APIIN_233	233	Naphthalene	91203	9.23E-06	1.16E-06	1.00E-02	1.44E-07
22	HTHWG_APIIN_233	233	NH3	7664417	9.00E-02	1.14E-02	1.12E+02	1.61E-03
22	HTHWG_APIIN_233	233	Nickel	7440020				
22	HTHWG_APIIN_233	233	PAHs-w/o	1151	3.08E-06	3.88E-07	3.50E-03	5.04E-08
22	HTHWG_APIIN_233	233	PGMEA	108656				
22	HTHWG_APIIN_233	233	Selenium	7782492				
22	HTHWG_APIIN_233	233	T-2,4-diisocyan	584849				
22	HTHWG_APIIN_233	233	Toluene	108883	8.15E-04	1.03E-04	9.20E-01	1.32E-05
22	HTHWG_APIIN_233	233	Xylenes	1330207	6.06E-04	7.64E-05	6.80E-01	9.79E-06

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
23	HTHWG_APIIN_234	234	1,2,4TriMeBenze	95636				
23	HTHWG_APIIN_234	234	1,3-Butadiene	106990				
23	HTHWG_APIIN_234	234	Acetaldehyde	75070	9.54E-05	1.20E-05	7.00E-02	1.01E-06
23	HTHWG_APIIN_234	234	Acrolein	107028	8.31E-05	1.05E-05	6.00E-02	8.64E-07
23	HTHWG_APIIN_234	234	Arsenic	7440382				
23	HTHWG_APIIN_234	234	Benzene	71432	1.78E-04	2.24E-05	1.40E-01	2.02E-06
23	HTHWG_APIIN_234	234	Cadmium	7440439				
23	HTHWG_APIIN_234	234	CFC-113	76131				
23	HTHWG_APIIN_234	234	Copper	7440508				
23	HTHWG_APIIN_234	234	Cr(VI)	18540299				
23	HTHWG_APIIN_234	234	DieselExhPM	9901				
23	HTHWG_APIIN_234	234	Ethyl Benzene	100414	2.12E-04	2.67E-05	1.70E-01	2.45E-06
23	HTHWG_APIIN_234	234	Formaldehyde	50000	3.78E-04	4.77E-05	3.10E-01	4.46E-06
23	HTHWG_APIIN_234	234	HCl	7647010				
23	HTHWG_APIIN_234	234	HexaMeDiisocyan	822060				
23	HTHWG_APIIN_234	234	Hexane	110543	1.42E-04	1.79E-05	1.10E-01	1.58E-06
23	HTHWG_APIIN_234	234	Lead	7439921				
23	HTHWG_APIIN_234	234	Manganese	7439965				
23	HTHWG_APIIN_234	234	MeDiphenDiisocy	101688				
23	HTHWG_APIIN_234	234	MEK	78933				
23	HTHWG_APIIN_234	234	Mercury	7439976				
23	HTHWG_APIIN_234	234	MIBK	108101				
23	HTHWG_APIIN_234	234	Naphthalene	91203	9.23E-06	1.16E-06	7.59E-03	1.09E-07
23	HTHWG_APIIN_234	234	NH3	7664417	9.00E-02	1.14E-02	8.10E+01	1.17E-03
23	HTHWG_APIIN_234	234	Nickel	7440020				
23	HTHWG_APIIN_234	234	PAHs-w/o	1151	3.08E-06	3.88E-07	2.53E-03	3.64E-08
23	HTHWG_APIIN_234	234	PGMEA	108656				
23	HTHWG_APIIN_234	234	Selenium	7782492				
23	HTHWG_APIIN_234	234	T-2,4-diisocyan	584849				
23	HTHWG_APIIN_234	234	Toluene	108883	8.15E-04	1.03E-04	6.70E-01	9.65E-06
23	HTHWG_APIIN_234	234	Xylenes	1330207	6.06E-04	7.64E-05	4.90E-01	7.05E-06

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
24	SPRAY_BOOTH_APIIN_17	17	1,2,4TriMeBenze	95636	4.86E-04	6.13E-05	1.94E+00	2.79E-05
24	SPRAY_BOOTH_APIIN_17	17	1,3-Butadiene	106990				
24	SPRAY_BOOTH_APIIN_17	17	Acetaldehyde	75070				
24	SPRAY_BOOTH_APIIN_17	17	Acrolein	107028				
24	SPRAY_BOOTH_APIIN_17	17	Arsenic	7440382				
24	SPRAY_BOOTH_APIIN_17	17	Benzene	71432				
24	SPRAY_BOOTH_APIIN_17	17	Cadmium	7440439				
24	SPRAY_BOOTH_APIIN_17	17	CFC-113	76131				
24	SPRAY_BOOTH_APIIN_17	17	Copper	7440508				
24	SPRAY_BOOTH_APIIN_17	17	Cr(VI)	18540299	1.91E-06	2.41E-07	7.69E-03	1.11E-07
24	SPRAY_BOOTH_APIIN_17	17	DieselExhPM	9901				
24	SPRAY_BOOTH_APIIN_17	17	Ethyl Benzene	100414				
24	SPRAY_BOOTH_APIIN_17	17	Formaldehyde	50000	6.10E-06	7.69E-07	2.00E-02	2.88E-07
24	SPRAY_BOOTH_APIIN_17	17	HCl	7647010				
24	SPRAY_BOOTH_APIIN_17	17	HexaMeDiisocyan	822060	1.13E-05	1.43E-06	4.00E-02	5.76E-07
24	SPRAY_BOOTH_APIIN_17	17	Hexane	110543				
24	SPRAY_BOOTH_APIIN_17	17	Lead	7439921				
24	SPRAY_BOOTH_APIIN_17	17	Manganese	7439965				
24	SPRAY_BOOTH_APIIN_17	17	MeDiphenDiisocy	101688				
24	SPRAY_BOOTH_APIIN_17	17	MEK	78933	3.00E-02	3.78E-03	1.29E+02	1.86E-03
24	SPRAY_BOOTH_APIIN_17	17	Mercury	7439976				
24	SPRAY_BOOTH_APIIN_17	17	MIBK	108101	2.00E-02	2.52E-03	8.25E+01	1.19E-03
24	SPRAY_BOOTH_APIIN_17	17	Naphthalene	91203				
24	SPRAY_BOOTH_APIIN_17	17	NH3	7664417				
24	SPRAY_BOOTH_APIIN_17	17	Nickel	7440020				
24	SPRAY_BOOTH_APIIN_17	17	PAHs-w/o	1151				
24	SPRAY_BOOTH_APIIN_17	17	PGMEA	108656	5.03E-03	6.34E-04	2.01E+01	2.89E-04
24	SPRAY_BOOTH_APIIN_17	17	Selenium	7782492				
24	SPRAY_BOOTH_APIIN_17	17	T-2,4-diisocyan	584849	1.39E-05	1.75E-06	5.00E-02	7.20E-07
24	SPRAY_BOOTH_APIIN_17	17	Toluene	108883				
24	SPRAY_BOOTH_APIIN_17	17	Xylenes	1330207	2.00E-02	2.52E-03	1.19E+02	1.71E-03

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
25	SPRAY_BOOTH_APIIN_60	60	1,2,4TriMeBenze	95636	5.15E-05	6.49E-06	2.00E-01	2.88E-06
25	SPRAY_BOOTH_APIIN_60	60	1,3-Butadiene	106990				
25	SPRAY_BOOTH_APIIN_60	60	Acetaldehyde	75070				
25	SPRAY_BOOTH_APIIN_60	60	Acrolein	107028				
25	SPRAY_BOOTH_APIIN_60	60	Arsenic	7440382				
25	SPRAY_BOOTH_APIIN_60	60	Benzene	71432				
25	SPRAY_BOOTH_APIIN_60	60	Cadmium	7440439				
25	SPRAY_BOOTH_APIIN_60	60	CFC-113	76131				
25	SPRAY_BOOTH_APIIN_60	60	Copper	7440508				
25	SPRAY_BOOTH_APIIN_60	60	Cr(VI)	18540299	2.66E-06	3.35E-07	1.00E-02	1.44E-07
25	SPRAY_BOOTH_APIIN_60	60	DieselExhPM	9901				
25	SPRAY_BOOTH_APIIN_60	60	Ethyl Benzene	100414				
25	SPRAY_BOOTH_APIIN_60	60	Formaldehyde	50000	8.00E-08	1.01E-08	3.25E-04	4.68E-09
25	SPRAY_BOOTH_APIIN_60	60	HCl	7647010				
25	SPRAY_BOOTH_APIIN_60	60	HexaMeDiisocyan	822060	3.21E-05	4.05E-06	1.20E-01	1.73E-06
25	SPRAY_BOOTH_APIIN_60	60	Hexane	110543				
25	SPRAY_BOOTH_APIIN_60	60	Lead	7439921				
25	SPRAY_BOOTH_APIIN_60	60	Manganese	7439965				
25	SPRAY_BOOTH_APIIN_60	60	MeDiphenDiisocy	101688				
25	SPRAY_BOOTH_APIIN_60	60	MEK	78933	1.00E-02	1.26E-03	4.30E+01	6.19E-04
25	SPRAY_BOOTH_APIIN_60	60	Mercury	7439976				
25	SPRAY_BOOTH_APIIN_60	60	MIBK	108101	4.64E-03	5.85E-04	1.86E+01	2.68E-04
25	SPRAY_BOOTH_APIIN_60	60	Naphthalene	91203				
25	SPRAY_BOOTH_APIIN_60	60	NH3	7664417				
25	SPRAY_BOOTH_APIIN_60	60	Nickel	7440020				
25	SPRAY_BOOTH_APIIN_60	60	PAHs-w/o	1151				
25	SPRAY_BOOTH_APIIN_60	60	PGMEA	108656	1.00E-02	1.26E-03	6.95E+01	1.00E-03
25	SPRAY_BOOTH_APIIN_60	60	Selenium	7782492				
25	SPRAY_BOOTH_APIIN_60	60	T-2,4-diisocyan	584849	3.42E-05	4.31E-06	1.30E-01	1.87E-06
25	SPRAY_BOOTH_APIIN_60	60	Toluene	108883				
25	SPRAY_BOOTH_APIIN_60	60	Xylenes	1330207	3.02E-03	3.81E-04	1.21E+01	1.74E-04

**Emission Rate by Substance & Source
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Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
26	SPRAY_BOOTH_APIIN_63	63	1,2,4TriMeBenze	95636				
26	SPRAY_BOOTH_APIIN_63	63	1,3-Butadiene	106990				
26	SPRAY_BOOTH_APIIN_63	63	Acetaldehyde	75070				
26	SPRAY_BOOTH_APIIN_63	63	Acrolein	107028				
26	SPRAY_BOOTH_APIIN_63	63	Arsenic	7440382				
26	SPRAY_BOOTH_APIIN_63	63	Benzene	71432				
26	SPRAY_BOOTH_APIIN_63	63	Cadmium	7440439				
26	SPRAY_BOOTH_APIIN_63	63	CFC-113	76131				
26	SPRAY_BOOTH_APIIN_63	63	Copper	7440508				
26	SPRAY_BOOTH_APIIN_63	63	Cr(VI)	18540299				
26	SPRAY_BOOTH_APIIN_63	63	DieselExhPM	9901				
26	SPRAY_BOOTH_APIIN_63	63	Ethyl Benzene	100414				
26	SPRAY_BOOTH_APIIN_63	63	Formaldehyde	50000				
26	SPRAY_BOOTH_APIIN_63	63	HCl	7647010				
26	SPRAY_BOOTH_APIIN_63	63	HexaMeDiisocyan	822060				
26	SPRAY_BOOTH_APIIN_63	63	Hexane	110543				
26	SPRAY_BOOTH_APIIN_63	63	Lead	7439921				
26	SPRAY_BOOTH_APIIN_63	63	Manganese	7439965				
26	SPRAY_BOOTH_APIIN_63	63	MeDiphenDiisocy	101688				
26	SPRAY_BOOTH_APIIN_63	63	MEK	78933				
26	SPRAY_BOOTH_APIIN_63	63	Mercury	7439976				
26	SPRAY_BOOTH_APIIN_63	63	MIBK	108101				
26	SPRAY_BOOTH_APIIN_63	63	Naphthalene	91203				
26	SPRAY_BOOTH_APIIN_63	63	NH3	7664417				
26	SPRAY_BOOTH_APIIN_63	63	Nickel	7440020				
26	SPRAY_BOOTH_APIIN_63	63	PAHs-w/o	1151				
26	SPRAY_BOOTH_APIIN_63	63	PGMEA	108656	3.22E-04	4.06E-05	1.28E+00	1.84E-05
26	SPRAY_BOOTH_APIIN_63	63	Selenium	7782492				
26	SPRAY_BOOTH_APIIN_63	63	T-2,4-diisocyan	584849				
26	SPRAY_BOOTH_APIIN_63	63	Toluene	108883				
26	SPRAY_BOOTH_APIIN_63	63	Xylenes	1330207	3.22E-04	4.06E-05	1.28E+00	1.84E-05

**Emission Rate by Substance & Source
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Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
27	SPRAY_BOOTH_APIIN_208	208	1,2,4TriMeBenze	95636				
27	SPRAY_BOOTH_APIIN_208	208	1,3-Butadiene	106990				
27	SPRAY_BOOTH_APIIN_208	208	Acetaldehyde	75070				
27	SPRAY_BOOTH_APIIN_208	208	Acrolein	107028				
27	SPRAY_BOOTH_APIIN_208	208	Arsenic	7440382				
27	SPRAY_BOOTH_APIIN_208	208	Benzene	71432				
27	SPRAY_BOOTH_APIIN_208	208	Cadmium	7440439				
27	SPRAY_BOOTH_APIIN_208	208	CFC-113	76131				
27	SPRAY_BOOTH_APIIN_208	208	Copper	7440508				
27	SPRAY_BOOTH_APIIN_208	208	Cr(VI)	18540299				
27	SPRAY_BOOTH_APIIN_208	208	DieselExhPM	9901				
27	SPRAY_BOOTH_APIIN_208	208	Ethyl Benzene	100414				
27	SPRAY_BOOTH_APIIN_208	208	Formaldehyde	50000				
27	SPRAY_BOOTH_APIIN_208	208	HCl	7647010				
27	SPRAY_BOOTH_APIIN_208	208	HexaMeDiisocyan	822060				
27	SPRAY_BOOTH_APIIN_208	208	Hexane	110543				
27	SPRAY_BOOTH_APIIN_208	208	Lead	7439921				
27	SPRAY_BOOTH_APIIN_208	208	Manganese	7439965				
27	SPRAY_BOOTH_APIIN_208	208	MeDiphenDiisocy	101688				
27	SPRAY_BOOTH_APIIN_208	208	MEK	78933				
27	SPRAY_BOOTH_APIIN_208	208	Mercury	7439976				
27	SPRAY_BOOTH_APIIN_208	208	MIBK	108101				
27	SPRAY_BOOTH_APIIN_208	208	Naphthalene	91203				
27	SPRAY_BOOTH_APIIN_208	208	NH3	7664417				
27	SPRAY_BOOTH_APIIN_208	208	Nickel	7440020				
27	SPRAY_BOOTH_APIIN_208	208	PAHs-w/o	1151				
27	SPRAY_BOOTH_APIIN_208	208	PGMEA	108656				
27	SPRAY_BOOTH_APIIN_208	208	Selenium	7782492				
27	SPRAY_BOOTH_APIIN_208	208	T-2,4-diisocyan	584849				
27	SPRAY_BOOTH_APIIN_208	208	Toluene	108883				
27	SPRAY_BOOTH_APIIN_208	208	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
28	SPRAY_BOOTH_APIIN_209	209	1,2,4TriMeBenze	95636				
28	SPRAY_BOOTH_APIIN_209	209	1,3-Butadiene	106990				
28	SPRAY_BOOTH_APIIN_209	209	Acetaldehyde	75070				
28	SPRAY_BOOTH_APIIN_209	209	Acrolein	107028				
28	SPRAY_BOOTH_APIIN_209	209	Arsenic	7440382				
28	SPRAY_BOOTH_APIIN_209	209	Benzene	71432				
28	SPRAY_BOOTH_APIIN_209	209	Cadmium	7440439				
28	SPRAY_BOOTH_APIIN_209	209	CFC-113	76131				
28	SPRAY_BOOTH_APIIN_209	209	Copper	7440508				
28	SPRAY_BOOTH_APIIN_209	209	Cr(VI)	18540299				
28	SPRAY_BOOTH_APIIN_209	209	DieselExhPM	9901				
28	SPRAY_BOOTH_APIIN_209	209	Ethyl Benzene	100414				
28	SPRAY_BOOTH_APIIN_209	209	Formaldehyde	50000				
28	SPRAY_BOOTH_APIIN_209	209	HCl	7647010				
28	SPRAY_BOOTH_APIIN_209	209	HexaMeDiisocyan	822060				
28	SPRAY_BOOTH_APIIN_209	209	Hexane	110543				
28	SPRAY_BOOTH_APIIN_209	209	Lead	7439921				
28	SPRAY_BOOTH_APIIN_209	209	Manganese	7439965				
28	SPRAY_BOOTH_APIIN_209	209	MeDiphenDiisocy	101688				
28	SPRAY_BOOTH_APIIN_209	209	MEK	78933				
28	SPRAY_BOOTH_APIIN_209	209	Mercury	7439976				
28	SPRAY_BOOTH_APIIN_209	209	MIBK	108101				
28	SPRAY_BOOTH_APIIN_209	209	Naphthalene	91203				
28	SPRAY_BOOTH_APIIN_209	209	NH3	7664417				
28	SPRAY_BOOTH_APIIN_209	209	Nickel	7440020				
28	SPRAY_BOOTH_APIIN_209	209	PAHs-w/o	1151				
28	SPRAY_BOOTH_APIIN_209	209	PGMEA	108656				
28	SPRAY_BOOTH_APIIN_209	209	Selenium	7782492				
28	SPRAY_BOOTH_APIIN_209	209	T-2,4-diisocyan	584849				
28	SPRAY_BOOTH_APIIN_209	209	Toluene	108883				
28	SPRAY_BOOTH_APIIN_209	209	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
29	SPRAY_BOOTH_APIIN_210	210	1,2,4TriMeBenze	95636				
29	SPRAY_BOOTH_APIIN_210	210	1,3-Butadiene	106990				
29	SPRAY_BOOTH_APIIN_210	210	Acetaldehyde	75070				
29	SPRAY_BOOTH_APIIN_210	210	Acrolein	107028				
29	SPRAY_BOOTH_APIIN_210	210	Arsenic	7440382				
29	SPRAY_BOOTH_APIIN_210	210	Benzene	71432				
29	SPRAY_BOOTH_APIIN_210	210	Cadmium	7440439				
29	SPRAY_BOOTH_APIIN_210	210	CFC-113	76131				
29	SPRAY_BOOTH_APIIN_210	210	Copper	7440508				
29	SPRAY_BOOTH_APIIN_210	210	Cr(VI)	18540299				
29	SPRAY_BOOTH_APIIN_210	210	DieselExhPM	9901				
29	SPRAY_BOOTH_APIIN_210	210	Ethyl Benzene	100414				
29	SPRAY_BOOTH_APIIN_210	210	Formaldehyde	50000				
29	SPRAY_BOOTH_APIIN_210	210	HCl	7647010				
29	SPRAY_BOOTH_APIIN_210	210	HexaMeDiisocyan	822060				
29	SPRAY_BOOTH_APIIN_210	210	Hexane	110543				
29	SPRAY_BOOTH_APIIN_210	210	Lead	7439921				
29	SPRAY_BOOTH_APIIN_210	210	Manganese	7439965				
29	SPRAY_BOOTH_APIIN_210	210	MeDiphenDiisocy	101688				
29	SPRAY_BOOTH_APIIN_210	210	MEK	78933				
29	SPRAY_BOOTH_APIIN_210	210	Mercury	7439976				
29	SPRAY_BOOTH_APIIN_210	210	MIBK	108101				
29	SPRAY_BOOTH_APIIN_210	210	Naphthalene	91203				
29	SPRAY_BOOTH_APIIN_210	210	NH3	7664417				
29	SPRAY_BOOTH_APIIN_210	210	Nickel	7440020				
29	SPRAY_BOOTH_APIIN_210	210	PAHs-w/o	1151				
29	SPRAY_BOOTH_APIIN_210	210	PGMEA	108656				
29	SPRAY_BOOTH_APIIN_210	210	Selenium	7782492				
29	SPRAY_BOOTH_APIIN_210	210	T-2,4-diisocyan	584849				
29	SPRAY_BOOTH_APIIN_210	210	Toluene	108883				
29	SPRAY_BOOTH_APIIN_210	210	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
30	SPRAY_FOAM_APIIN_186	186	1,2,4TriMeBenze	95636				
30	SPRAY_FOAM_APIIN_186	186	1,3-Butadiene	106990				
30	SPRAY_FOAM_APIIN_186	186	Acetaldehyde	75070				
30	SPRAY_FOAM_APIIN_186	186	Acrolein	107028				
30	SPRAY_FOAM_APIIN_186	186	Arsenic	7440382				
30	SPRAY_FOAM_APIIN_186	186	Benzene	71432				
30	SPRAY_FOAM_APIIN_186	186	Cadmium	7440439				
30	SPRAY_FOAM_APIIN_186	186	CFC-113	76131				
30	SPRAY_FOAM_APIIN_186	186	Copper	7440508				
30	SPRAY_FOAM_APIIN_186	186	Cr(VI)	18540299				
30	SPRAY_FOAM_APIIN_186	186	DieselExhPM	9901				
30	SPRAY_FOAM_APIIN_186	186	Ethyl Benzene	100414				
30	SPRAY_FOAM_APIIN_186	186	Formaldehyde	50000				
30	SPRAY_FOAM_APIIN_186	186	HCl	7647010				
30	SPRAY_FOAM_APIIN_186	186	HexaMeDiisocyan	822060				
30	SPRAY_FOAM_APIIN_186	186	Hexane	110543				
30	SPRAY_FOAM_APIIN_186	186	Lead	7439921				
30	SPRAY_FOAM_APIIN_186	186	Manganese	7439965				
30	SPRAY_FOAM_APIIN_186	186	MeDiphenDiisocy	101688	2.70E-01	3.41E-02	1.09E+03	1.57E-02
30	SPRAY_FOAM_APIIN_186	186	MEK	78933				
30	SPRAY_FOAM_APIIN_186	186	Mercury	7439976				
30	SPRAY_FOAM_APIIN_186	186	MIBK	108101				
30	SPRAY_FOAM_APIIN_186	186	Naphthalene	91203				
30	SPRAY_FOAM_APIIN_186	186	NH3	7664417				
30	SPRAY_FOAM_APIIN_186	186	Nickel	7440020				
30	SPRAY_FOAM_APIIN_186	186	PAHs-w/o	1151				
30	SPRAY_FOAM_APIIN_186	186	PGMEA	108656				
30	SPRAY_FOAM_APIIN_186	186	Selenium	7782492				
30	SPRAY_FOAM_APIIN_186	186	T-2,4-diisocyan	584849				
30	SPRAY_FOAM_APIIN_186	186	Toluene	108883				
30	SPRAY_FOAM_APIIN_186	186	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
31	TANK_LINE_APIIN_178	178	1,2,4TriMeBenze	95636				
31	TANK_LINE_APIIN_178	178	1,3-Butadiene	106990				
31	TANK_LINE_APIIN_178	178	Acetaldehyde	75070				
31	TANK_LINE_APIIN_178	178	Acrolein	107028				
31	TANK_LINE_APIIN_178	178	Arsenic	7440382				
31	TANK_LINE_APIIN_178	178	Benzene	71432				
31	TANK_LINE_APIIN_178	178	Cadmium	7440439				
31	TANK_LINE_APIIN_178	178	CFC-113	76131				
31	TANK_LINE_APIIN_178	178	Copper	7440508				
31	TANK_LINE_APIIN_178	178	Cr(VI)	18540299	4.00E-08	5.04E-09	1.40E-04	2.02E-09
31	TANK_LINE_APIIN_178	178	DieselExhPM	9901				
31	TANK_LINE_APIIN_178	178	Ethyl Benzene	100414				
31	TANK_LINE_APIIN_178	178	Formaldehyde	50000				
31	TANK_LINE_APIIN_178	178	HCl	7647010				
31	TANK_LINE_APIIN_178	178	HexaMeDiisocyan	822060				
31	TANK_LINE_APIIN_178	178	Hexane	110543				
31	TANK_LINE_APIIN_178	178	Lead	7439921				
31	TANK_LINE_APIIN_178	178	Manganese	7439965				
31	TANK_LINE_APIIN_178	178	MeDiphenDiisocy	101688				
31	TANK_LINE_APIIN_178	178	MEK	78933				
31	TANK_LINE_APIIN_178	178	Mercury	7439976				
31	TANK_LINE_APIIN_178	178	MIBK	108101				
31	TANK_LINE_APIIN_178	178	Naphthalene	91203				
31	TANK_LINE_APIIN_178	178	NH3	7664417				
31	TANK_LINE_APIIN_178	178	Nickel	7440020				
31	TANK_LINE_APIIN_178	178	PAHs-w/o	1151				
31	TANK_LINE_APIIN_178	178	PGMEA	108656				
31	TANK_LINE_APIIN_178	178	Selenium	7782492				
31	TANK_LINE_APIIN_178	178	T-2,4-diisocyan	584849				
31	TANK_LINE_APIIN_178	178	Toluene	108883				
31	TANK_LINE_APIIN_178	178	Xylenes	1330207				

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
32	BOILER_B17_XAPIN_212	212	1,2,4TriMeBenze	95636				
32	BOILER_B17_XAPIN_212	212	1,3-Butadiene	106990				
32	BOILER_B17_XAPIN_212	212	Acetaldehyde	75070	6.11E-06	7.71E-07	2.00E-02	2.88E-07
32	BOILER_B17_XAPIN_212	212	Acrolein	107028	3.83E-06	4.83E-07	1.00E-02	1.44E-07
32	BOILER_B17_XAPIN_212	212	Arsenic	7440382				
32	BOILER_B17_XAPIN_212	212	Benzene	71432	1.14E-05	1.44E-06	4.00E-02	5.76E-07
32	BOILER_B17_XAPIN_212	212	Cadmium	7440439				
32	BOILER_B17_XAPIN_212	212	CFC-113	76131				
32	BOILER_B17_XAPIN_212	212	Copper	7440508				
32	BOILER_B17_XAPIN_212	212	Cr(VI)	18540299				
32	BOILER_B17_XAPIN_212	212	DieselExhPM	9901				
32	BOILER_B17_XAPIN_212	212	Ethyl Benzene	100414	1.35E-05	1.70E-06	5.00E-02	7.20E-07
32	BOILER_B17_XAPIN_212	212	Formaldehyde	50000	2.41E-05	3.04E-06	9.00E-02	1.30E-06
32	BOILER_B17_XAPIN_212	212	HCl	7647010				
32	BOILER_B17_XAPIN_212	212	HexaMeDiisocyan	822060				
32	BOILER_B17_XAPIN_212	212	Hexane	110543	8.94E-06	1.13E-06	3.00E-02	4.32E-07
32	BOILER_B17_XAPIN_212	212	Lead	7439921				
32	BOILER_B17_XAPIN_212	212	Manganese	7439965				
32	BOILER_B17_XAPIN_212	212	MeDiphenDiisocy	101688				
32	BOILER_B17_XAPIN_212	212	MEK	78933				
32	BOILER_B17_XAPIN_212	212	Mercury	7439976				
32	BOILER_B17_XAPIN_212	212	MIBK	108101				
32	BOILER_B17_XAPIN_212	212	Naphthalene	91203	4.30E-07	5.42E-08	1.70E-03	2.45E-08
32	BOILER_B17_XAPIN_212	212	NH3	7664417	4.54E-03	5.73E-04	1.82E+01	2.62E-04
32	BOILER_B17_XAPIN_212	212	Nickel	7440020				
32	BOILER_B17_XAPIN_212	212	PAHs-w/o	1151	1.40E-07	1.77E-08	5.68E-04	8.18E-09
32	BOILER_B17_XAPIN_212	212	PGMEA	108656				
32	BOILER_B17_XAPIN_212	212	Selenium	7782492				
32	BOILER_B17_XAPIN_212	212	T-2,4-diisocyan	584849				
32	BOILER_B17_XAPIN_212	212	Toluene	108883	5.20E-05	6.56E-06	2.00E-01	2.88E-06
32	BOILER_B17_XAPIN_212	212	Xylenes	1330207	3.86E-05	4.87E-06	1.50E-01	2.16E-06

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
33	BOILER_B28_XAPIN_223	223	1,2,4TriMeBenze	95636				
33	BOILER_B28_XAPIN_223	223	1,3-Butadiene	106990				
33	BOILER_B28_XAPIN_223	223	Acetaldehyde	75070	8.60E-07	1.08E-07	3.43E-03	4.94E-08
33	BOILER_B28_XAPIN_223	223	Acrolein	107028	5.40E-07	6.81E-08	2.15E-03	3.10E-08
33	BOILER_B28_XAPIN_223	223	Arsenic	7440382				
33	BOILER_B28_XAPIN_223	223	Benzene	71432	1.59E-06	2.01E-07	6.38E-03	9.18E-08
33	BOILER_B28_XAPIN_223	223	Cadmium	7440439				
33	BOILER_B28_XAPIN_223	223	CFC-113	76131				
33	BOILER_B28_XAPIN_223	223	Copper	7440508				
33	BOILER_B28_XAPIN_223	223	Cr(VI)	18540299				
33	BOILER_B28_XAPIN_223	223	DieselExhPM	9901				
33	BOILER_B28_XAPIN_223	223	Ethyl Benzene	100414	1.89E-06	2.38E-07	7.57E-03	1.09E-07
33	BOILER_B28_XAPIN_223	223	Formaldehyde	50000	3.39E-06	4.28E-07	1.00E-02	1.44E-07
33	BOILER_B28_XAPIN_223	223	HCl	7647010				
33	BOILER_B28_XAPIN_223	223	HexaMeDiisocyan	822060				
33	BOILER_B28_XAPIN_223	223	Hexane	110543	1.26E-06	1.59E-07	5.02E-03	7.23E-08
33	BOILER_B28_XAPIN_223	223	Lead	7439921				
33	BOILER_B28_XAPIN_223	223	Manganese	7439965				
33	BOILER_B28_XAPIN_223	223	MeDiphenDiisocy	101688				
33	BOILER_B28_XAPIN_223	223	MEK	78933				
33	BOILER_B28_XAPIN_223	223	Mercury	7439976				
33	BOILER_B28_XAPIN_223	223	MIBK	108101				
33	BOILER_B28_XAPIN_223	223	Naphthalene	91203	6.00E-08	7.57E-09	2.39E-04	3.44E-09
33	BOILER_B28_XAPIN_223	223	NH3	7664417	6.38E-04	8.05E-05	2.55E+00	3.67E-05
33	BOILER_B28_XAPIN_223	223	Nickel	7440020				
33	BOILER_B28_XAPIN_223	223	PAHs-w/o	1151	2.00E-08	2.52E-09	7.97E-05	1.15E-09
33	BOILER_B28_XAPIN_223	223	PGMEA	108656				
33	BOILER_B28_XAPIN_223	223	Selenium	7782492				
33	BOILER_B28_XAPIN_223	223	T-2,4-diisocyan	584849				
33	BOILER_B28_XAPIN_223	223	Toluene	108883	7.29E-06	9.19E-07	2.00E-02	2.88E-07
33	BOILER_B28_XAPIN_223	223	Xylenes	1330207	5.42E-06	6.84E-07	2.00E-02	2.88E-07

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
34	DEGREASER_APIIN_169	169	1,2,4TriMeBenze	95636				
34	DEGREASER_APIIN_169	169	1,3-Butadiene	106990				
34	DEGREASER_APIIN_169	169	Acetaldehyde	75070				
34	DEGREASER_APIIN_169	169	Acrolein	107028				
34	DEGREASER_APIIN_169	169	Arsenic	7440382				
34	DEGREASER_APIIN_169	169	Benzene	71432				
34	DEGREASER_APIIN_169	169	Cadmium	7440439				
34	DEGREASER_APIIN_169	169	CFC-113	76131				
34	DEGREASER_APIIN_169	169	Copper	7440508				
34	DEGREASER_APIIN_169	169	Cr(VI)	18540299				
34	DEGREASER_APIIN_169	169	DieselExhPM	9901				
34	DEGREASER_APIIN_169	169	Ethyl Benzene	100414				
34	DEGREASER_APIIN_169	169	Formaldehyde	50000				
34	DEGREASER_APIIN_169	169	HCl	7647010				
34	DEGREASER_APIIN_169	169	HexaMeDiisocyan	822060				
34	DEGREASER_APIIN_169	169	Hexane	110543				
34	DEGREASER_APIIN_169	169	Lead	7439921				
34	DEGREASER_APIIN_169	169	Manganese	7439965				
34	DEGREASER_APIIN_169	169	MeDiphenDiisocy	101688				
34	DEGREASER_APIIN_169	169	MEK	78933				
34	DEGREASER_APIIN_169	169	Mercury	7439976				
34	DEGREASER_APIIN_169	169	MIBK	108101				
34	DEGREASER_APIIN_169	169	Naphthalene	91203				
34	DEGREASER_APIIN_169	169	NH3	7664417				
34	DEGREASER_APIIN_169	169	Nickel	7440020				
34	DEGREASER_APIIN_169	169	PAHs-w/o	1151				
34	DEGREASER_APIIN_169	169	PGMEA	108656				
34	DEGREASER_APIIN_169	169	Selenium	7782492				
34	DEGREASER_APIIN_169	169	T-2,4-diisocyan	584849				
34	DEGREASER_APIIN_169	169	Toluene	108883				
34	DEGREASER_APIIN_169	169	Xylenes	1330207				

**Emission Rate by Substance & Source
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Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
35	B21	215	1,2,4TriMeBenze	95636	1.70E-04	2.14E-05	6.70E-01	9.65E-06
35	B21	215	1,3-Butadiene	106990				
35	B21	215	Acetaldehyde	75070				
35	B21	215	Acrolein	107028				
35	B21	215	Arsenic	7440382				
35	B21	215	Benzene	71432				
35	B21	215	Cadmium	7440439				
35	B21	215	CFC-113	76131	8.22E-04	1.04E-04	3.28E+00	4.72E-05
35	B21	215	Copper	7440508				
35	B21	215	Cr(VI)	18540299				
35	B21	215	DieselExhPM	9901				
35	B21	215	Ethyl Benzene	100414				
35	B21	215	Formaldehyde	50000	4.90E-07	6.18E-08	2.04E-03	2.94E-08
35	B21	215	HCl	7647010				
35	B21	215	HexaMeDiisocyan	822060	5.96E-06	7.52E-07	2.00E-02	2.88E-07
35	B21	215	Hexane	110543				
35	B21	215	Lead	7439921				
35	B21	215	Manganese	7439965				
35	B21	215	MeDiphenDiisocy	101688				
35	B21	215	MEK	78933	3.00E-02	3.78E-03	1.44E+02	2.07E-03
35	B21	215	Mercury	7439976				
35	B21	215	MIBK	108101	1.83E-03	2.31E-04	7.33E+00	1.06E-04
35	B21	215	Naphthalene	91203	1.94E-05	2.45E-06	7.00E-02	1.01E-06
35	B21	215	NH3	7664417				
35	B21	215	Nickel	7440020				
35	B21	215	PAHs-w/o	1151				
35	B21	215	PGMEA	108656	5.01E-04	6.32E-05	2.00E+00	2.88E-05
35	B21	215	Selenium	7782492				
35	B21	215	T-2,4-diisocyan	584849	3.60E-07	4.54E-08	1.45E-03	2.09E-08
35	B21	215	Toluene	108883				
35	B21	215	Xylenes	1330207	1.05E-03	1.32E-04	4.20E+00	6.05E-05

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
36	B45	216	1,2,4TriMeBenze	95636	2.16E-04	2.72E-05	8.60E-01	1.24E-05
36	B45	216	1,3-Butadiene	106990				
36	B45	216	Acetaldehyde	75070				
36	B45	216	Acrolein	107028				
36	B45	216	Arsenic	7440382				
36	B45	216	Benzene	71432				
36	B45	216	Cadmium	7440439				
36	B45	216	CFC-113	76131	1.05E-03	1.32E-04	4.18E+00	6.02E-05
36	B45	216	Copper	7440508				
36	B45	216	Cr(VI)	18540299				
36	B45	216	DieselExhPM	9901				
36	B45	216	Ethyl Benzene	100414				
36	B45	216	Formaldehyde	50000	6.30E-07	7.95E-08	2.59E-03	3.73E-08
36	B45	216	HCl	7647010				
36	B45	216	HexaMeDiisocyan	822060	7.57E-06	9.55E-07	3.00E-02	4.32E-07
36	B45	216	Hexane	110543				
36	B45	216	Lead	7439921				
36	B45	216	Manganese	7439965				
36	B45	216	MeDiphenDiisocy	101688				
36	B45	216	MEK	78933	4.00E-02	5.04E-03	1.84E+02	2.65E-03
36	B45	216	Mercury	7439976				
36	B45	216	MIBK	108101	2.33E-03	2.94E-04	9.33E+00	1.34E-04
36	B45	216	Naphthalene	91203	2.47E-05	3.11E-06	9.00E-02	1.30E-06
36	B45	216	NH3	7664417				
36	B45	216	Nickel	7440020				
36	B45	216	PAHs-w/o	1151				
36	B45	216	PGMEA	108656	6.38E-04	8.05E-05	2.55E+00	3.67E-05
36	B45	216	Selenium	7782492				
36	B45	216	T-2,4-diisocyan	584849	4.60E-07	5.80E-08	1.85E-03	2.66E-08
36	B45	216	Toluene	108883				
36	B45	216	Xylenes	1330207	1.34E-03	1.69E-04	5.35E+00	7.70E-05

**Emission Rate by Substance & Source
RAG-001**

Source ID	Source Name	APIN No.	Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
37	B16	213	1,2,4TriMeBenze	95636				
37	B16	213	1,3-Butadiene	106990				
37	B16	213	Acetaldehyde	75070	9.23E-06	1.16E-06	3.00E-02	4.32E-07
37	B16	213	Acrolein	107028	5.80E-06	7.31E-07	2.00E-02	2.88E-07
37	B16	213	Arsenic	7440382				
37	B16	213	Benzene	71432	1.72E-05	2.17E-06	6.00E-02	8.64E-07
37	B16	213	Cadmium	7440439				
37	B16	213	CFC-113	76131				
37	B16	213	Copper	7440508				
37	B16	213	Cr(VI)	18540299				
37	B16	213	DieselExhPM	9901				
37	B16	213	Ethyl Benzene	100414	2.04E-05	2.57E-06	8.00E-02	1.15E-06
37	B16	213	Formaldehyde	50000	3.65E-05	4.60E-06	1.40E-01	2.02E-06
37	B16	213	HCl	7647010				
37	B16	213	HexaMeDiisocyan	822060				
37	B16	213	Hexane	110543	1.35E-05	1.70E-06	5.00E-02	7.20E-07
37	B16	213	Lead	7439921				
37	B16	213	Manganese	7439965				
37	B16	213	MeDiphenDiisocy	101688				
37	B16	213	MEK	78933				
37	B16	213	Mercury	7439976				
37	B16	213	MIBK	108101				
37	B16	213	Naphthalene	91203	6.40E-07	8.07E-08	2.58E-03	3.71E-08
37	B16	213	NH3	7664417	6.87E-03	8.66E-04	2.75E+01	3.96E-04
37	B16	213	Nickel	7440020				
37	B16	213	PAHs-w/o	1151	2.10E-07	2.65E-08	8.59E-04	1.24E-08
37	B16	213	PGMEA	108656				
37	B16	213	Selenium	7782492				
37	B16	213	T-2,4-diisocyan	584849				
37	B16	213	Toluene	108883	7.86E-05	9.91E-06	3.10E-01	4.46E-06
37	B16	213	Xylenes	1330207	5.84E-05	7.36E-06	2.30E-01	3.31E-06

**Emission Rate by Substance - Totals
RAG-002**

Substance	CAS	1-Hour Maximum (lb/hr)	1-Hour Maximum (g/s)	Annual Average (lb/yr)	Annual Average (g/s)
1,2,4TriMeBenze	95636	9.24E-04	1.16E-04	3.67E+00	5.28E-05
1,3-Butadiene	106990				
Acetaldehyde	75070	2.07E-04	2.61E-05	2.23E-01	3.22E-06
Acrolein	107028	1.76E-04	2.22E-05	1.82E-01	2.62E-06
Arsenic	7440382				
Benzene	71432	3.86E-04	4.87E-05	4.46E-01	6.43E-06
Cadmium	7440439				
CFC-113	76131	1.87E-03	2.36E-04	7.46E+00	1.07E-04
Copper	7440508				
Cr(VI)	18540299	4.61E-06	5.81E-07	1.78E-02	2.57E-07
DieselExhPM	9901			1.06E+02	1.52E-03
Ethyl Benzene	100414	4.60E-04	5.80E-05	5.48E-01	7.88E-06
Formaldehyde	50000	8.27E-04	1.04E-04	1.00E+00	1.45E-05
HCl	7647010				
HexaMeDiisocyan	822060	5.69E-05	7.18E-06	2.10E-01	3.02E-06
Hexane	110543	3.08E-04	3.88E-05	3.55E-01	5.11E-06
Lead	7439921				
Manganese	7439965				
MeDiphenDiisocy	101688	2.70E-01	3.41E-02	1.09E+03	1.57E-02
MEK	78933	1.10E-01	1.39E-02	5.00E+02	7.20E-03
Mercury	7439976				
MIBK	108101	2.88E-02	3.63E-03	1.18E+02	1.70E-03
Naphthalene	91203	6.37E-05	8.03E-06	1.82E-01	2.62E-06
NH3	7664417	1.92E-01	2.42E-02	2.41E+02	3.47E-03
Nickel	7440020				
PAHs-w/o	1151	6.53E-06	8.24E-07	7.54E-03	1.09E-07
PGMEA	108656	1.65E-02	2.08E-03	9.54E+01	1.37E-03
Selenium	7782492				
T-2,4-diisocyan	584849	4.89E-05	6.17E-06	1.83E-01	2.64E-06
Toluene	108883	1.77E-03	2.23E-04	2.12E+00	3.05E-05
Xylenes	1330207	2.70E-02	3.41E-03	1.44E+02	2.07E-03

Source Parameters - Stacks
RAG-003

Point Sources

Source ID	Source Name	APIN No.	UTM	UTM	Height	Diameter	Diameter	Temp		Flow Rate	Exit Vel.
			Easting	Northing				(F)	(K)		
			(m)	(m)	(m)	(in)	(m)			(acfm)	(m/sec)
1	ICE APIN 76	76	403742.16	3734823.84	3.7	10.0	0.25	985	802	3194	29.75
2	ICE_APIN_114	114	403632.65	3734567.89	0.9	5.0	0.13	810	705	794	29.58
3	ICE_APIN_115	115	403634.32	3734569.05	1.2	7.0	0.18	910	761	2110	40.11
4	ICE_APIN_117	117	404027.59	3734710.87	4.0	3.5	0.09	1075	852	305	23.19
5	ICE_APIN_118	118	404035.67	3734930.78	2.1	4.0	0.10	985	802	391	22.76
6	ICE_APIN_119	119	403858.2	3734903.72	2.7	8.0	0.20	965	791	2300	33.47
7	ICE_APIN_120	120	403767.8	3734643.8	5.5	4.0	0.10	985	802	391	22.76
8	ICE_APIN_122	122	404164.93	3734660.86	2.1	3.5	0.09	985	802	391	29.73
9	ICE_APIN_123	123	404047.73	3735010.92	2.1	3.5	0.09	985	802	391	29.73
10	ICE_APIN_124	124	404166.85	3734662.91	2.0	4.0	0.10	1075	852	308	17.93
11	ICE_APIN_151	151	404139.8	3734903.34	3.0	8.0	0.20	965	791	2300	33.47
12	ICE_APIN_193	193	404242.25	3734588.28	14.6	10.0	0.25	948	782	3927	36.58
13	ICE_APIN_204	204	404219.43	3734680.86	14.6	4.0	0.10	946	781	480	27.94
14	ICE_APIN_211	211	404093.89	3734754.85	2.4	3.9	0.10	1004	813	550	34.38
15	ICE_APIN_218	218	403902.7	3734999.64	10.1	4.0	0.10	950	783	503	29.28
16	ICE_APIN_219	219	403889.36	3734881.54	14.6	4.0	0.10	950	783	503	29.28
17	ICE_APIN_220	220	404164.16	3734663.04	14.6	4.0	0.10	928	771	320	18.63
18	ICE_APIN_228	228	404219.17	3734695.74	14.6	8.0	0.20	1074	852	679	9.88
19	ICE_APIN_229	229	404315.85	3734481.34	3.7	5.0	0.13	1000	811	1100	40.98
20	ICE_APIN_230	230	403555.32	3734599.56	3.7	5.0	0.13	1000	811	1100	40.98
21	ICE_APIN_232	232	404039.52	3735010.8	3.7	7.0	0.18	1157	898	1911	36.32
22	HTHWG_APIN_233	233	404089.53	3735182.24	10.1	29.5	0.75	275	408	9675	10.35
23	HTHWG_APIN_234	234	404098.25	3735182.24	10.1	29.5	0.75	275	408	9675	10.35
24	SPRAY_BOOTH_APIN_17	17	403836.92	3734662.78	9.8	12.0	0.30	70	294	3600	23.28
25	SPRAY_BOOTH_APIN_60	60	404098.51	3734860.64	6.1	34.0	0.86	70	294	188.7	0.00
26	SPRAY_BOOTH_APIN_63	63	403955.91	3734684.58	17.1	12.0	0.30	70	294	3500	22.64
27	SPRAY_BOOTH_APIN_208	208	403733.44	3734641.88	7.3	12.0	0.30	70	294	1600	10.35
28	SPRAY_BOOTH_APIN_209	209	403733.44	3734641.88	7.3	12.0	0.30	70	294	1600	10.35
29	SPRAY_BOOTH_APIN_210	210	404197.5	3734845.38	9.8	34.0	0.86	70	294	13965	11.25
30	SPRAY_FOAM APIN_186	186	403842.94	3734617.64	9.8	32.0	0.81	130	327	14400	13.10
31	TANK_LINE_APIN_178	178	403761.39	3734705.99	7.3	12.0	0.30	70	294	235	1.52
32	BOILER_B17_XAPIN_212	212	403637.01	3734530.19	36.9	12.0	0.30	500	533	788	5.10
33	BOILER_B28_XAPIN_223	223	403870.51	3734398.37	7.3	6.0	0.15	500	533	197	5.10
34	DEGREASER_APIN_169	169	404018.88	3734820.5	3.0	12.0	0.30	100	311	943	6.10

Source Parameters - Stacks
RAG-003

Volume Sources

Source ID	Source Name	APIN No.	UTM Easting	UTM Northing	Physical Dimensions		
			(m)	(m)	X (ft)	Y	Z (ft)
35	B21	215	403715.68	3734644.4	425	200	24
36	B45	216	404131	3734802	300	800	45
37	B16	213	404002	3734600	150	180	25

**Source Operating Hours
RAG-004**

Source ID	Source Name	APIN No.	Average Operating Hours		Maximum Operating Hours	
			(hours/day)	(days/year)	(hours/day)	(days/year)
1	ICE_API_76	76	1	12	4	50
2	ICE_API_114	114	1	12	4	50
3	ICE_API_115	115	1	12	4	50
4	ICE_API_117	117	1	12	4	50
5	ICE_API_118	118	1	12	4	50
6	ICE_API_119	119	1	12	4	50
7	ICE_API_120	120	1	12	4	50
8	ICE_API_122	122	1	12	4	50
9	ICE_API_123	123	1	12	4	50
10	ICE_API_124	124	1	12	4	50
11	ICE_API_151	151	1	12	4	50
12	ICE_API_193	193	1	12	4	50
13	ICE_API_204	204	1	12	4	50
14	ICE_API_211	211	1	12	4	50
15	ICE_API_218	218	1	12	4	50
16	ICE_API_219	219	1	12	4	50
17	ICE_API_220	220	1	12	4	50
18	ICE_API_228	228	1	12	4	50
19	ICE_API_229	229	1	12	4	50
20	ICE_API_230	230	1	12	4	50
21	ICE_API_232	232	1	12	4	50
22	HTHWG_API_233	233	8	100	16	250
23	HTHWG_API_234	234	8	100	16	250
24	SPRAY_BOOTH_API_17	17	2	50	16	250
25	SPRAY_BOOTH_API_60	60	2	50	16	250
26	SPRAY_BOOTH_API_63	63	2	50	16	250
27	SPRAY_BOOTH_API_208	208	0	0	0	0
28	SPRAY_BOOTH_API_209	209	0	0	0	0
29	SPRAY_BOOTH_API_210	210	2	50	16	250
30	SPRAY_FOAM_API_186	186	2	50	16	250
31	TANK_LINE_API_178	178	2	50	16	250
32	BOILER_B17_XAPI_212	212	8	100	16	250
33	BOILER_B28_XAPI_223	223	8	100	16	250
34	DEGREASER_API_169	169	0	0	0	0
35	B21	215	8	100	16	250
36	B45	216	2	50	16	250
37	B16	213	2	50	16	250

**Diesel-Fueled
Internal Combustion Engine Usage**

Source ID	Source Name	APIN No.	Annual Hours of Operation	Fuel Use Rate (gal/hr)	Annual Fuel Use (gal/yr)
1	ICE_APIN_76	76	4.6	74.1	340.86
2	ICE_APIN_114	114	27.8	8.6	239.08
3	ICE_APIN_115	115	7.8	21.0	163.80
4	ICE_APIN_117	117	7.8	2.6	20.28
5	ICE_APIN_118	118	7.7	12.3	94.71
6	ICE_APIN_119	119	7.7	23.6	181.72
7	ICE_APIN_120	120	7.7	10.0	77.00
8	ICE_APIN_122	122	7.9	10.0	79.00
9	ICE_APIN_123	123	7.9	10.0	79.00
10	ICE_APIN_124	124	8.2	7.6	62.32
11	ICE_APIN_151	151	4.0	29.0	116.00
12	ICE_APIN_193	193	17.0	37.6	639.20
13	ICE_APIN_204	204	19.2	4.9	94.08
14	ICE_APIN_211	211	14.7	5.1	74.97
15	ICE_APIN_218	218	7.9	4.6	36.34
16	ICE_APIN_219	219	9.8	4.6	45.08
17	ICE_APIN_220	220	7.8	3.1	24.18
18	ICE_APIN_228	228	7.0	6.9	48.30
19	ICE_APIN_229	229	26.3	10.4	273.52
20	ICE_APIN_230	230	33.1	10.4	344.24
21	ICE_APIN_232	232	7.2	17.6	126.72

Appendix E: Receptors

This appendix contains a listing of the residential, business, and sensitive receptors used in the model.

Receptor Coordinates

Grid No.	Description	Address	UTM Coordinates (km)	
			(E)	(N)
298	Clegg Elementary School	6311 Larchwood Dr, Huntington Beach, CA	405.300	3734.600
298	Stacey Intermediate School	6311 Larchwood Dr, Huntington Beach, CA	405.300	3734.600
257	Schroeder Elementary	15151 Columbia Ln, Huntington Beach, CA	405.600	3734.100
108	Marina High School	15871 Springdale St, Huntington Beach, CA	404.600	3733.100
177	Grace Lutheran School	5172 McFadden Ave, Huntington Beach, CA	403.900	3733.500
137	Circle View Elementary School	6261 Hooker Dr, Huntington Beach, CA	405.497	3733.201
367	Hebrew Academy High School	14401 Willow Lane, Huntington Beach, Ca	405.500	3735.100
344	Assisted Living Royal Care (Nursing Home)	6141 Glenwood Drive, Huntington Beach, CA	405.300	3735.000
234	Meadowlark Gardens (Nursing Home)	6102 Cornell Drive, Huntington Beach, CA	405.300	3733.900

Grid No.	Description	Address	UTM Coordinates (km)	
333	Residence 1		403.500	3735.000
334	Residence 2		403.567	3735.050
353	Residence 3		403.600	3735.100
354	Residence 4		403.672	3735.133
332	Residence 5		403.729	3735.178
376	Residence 6		403.782	3735.225
377	Residence 7		403.536	3735.273
400	Residence 8		403.880	3735.329
378	Residence 9		403.931	3735.367
424	Residence 10		403.992	3735.411
401	Residence 11		404.040	3735.447
425	Residence 12		404.108	3735.405
402	Residence 13		404.151	3735.355
403	Residence 14		404.200	3735.300
379	Residence 15		404.250	2735.247
380	Residence 16		404.293	3735.198
355	Residence 17		404.343	3735.152
356	Residence 18		404.401	3735.111
335	Residence 19		404.457	3735.082
336	Residence 20		404.541	3735.046
337	Residence 21		404.625	3735.024
338	Residence 22		404.699	3735.026
339	Residence 23		404.799	3735.027
340	Residence 24		404.899	3735.022
975	Business 1		404.058	3735.184
700	Business 2		404.000	3735.282
701	Business 3		404.100	3735.282
976	Business 4		404.150	3735.184
959	Business 5		404.266	3735.100
958	Business 6		404.266	3734.100
957	Business 7		404.265	3734.899
956	Business 8		404.266	3734.800
960	Business 9		404.265	3734.765
961	Business 10		404.300	3734.765
962	Business 11		404.401	3734.766
963	Business 12		404.501	3734.766