# RISK REDUCTION PLAN

## PAC RANCHO, INC. – RANCHO CUCAMONGA, CA

### REVISED FEBRUARY 2024

SUBMITTED BY:

**Pac Rancho, Inc.**
11000 Jersey Boulevard
Rancho Cucamonga, CA

SUBMITTED TO:

**South Coast AQMD**
21865 Copley Drive
Diamond Bar, CA

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# 1. INTRODUCTION

This Risk Reduction Plan has been prepared on behalf of Pac Rancho, Inc. (Pac Rancho) with the intent of satisfying the requirements of South Coast Air Quality Management District (SCAQMD) Rule 1402(f)(2).

# 2. FACILITY INFORMATION

Pac Rancho is located at 11000 Jersey Boulevard in Rancho Cucamonga, California (the "Facility"). Pac Rancho is currently conducting operations at the facility under existing permits to operate issued by SCAQMD. A summary of business information is provided in Table 2-1**.**

**Table 2-1**
**Business Identification Information**

| | |
|---|---|
| Business Name: | Pac Rancho, Inc. |
| Facility Address: | 11000 Jersey Boulevard, Rancho Cucamonga, CA |
| Mailing Address: | 11000 Jersey Boulevard, Rancho Cucamonga, CA 91730 |
| County: | San Bernardino |
| Phone: | 909.595.2252 |
| Facility ID: | 140871 |
| Principal Business Activity: | Aluminum Foundry |
| Contact Person: | Ms. Marisol Gallegos |
| SIC: | 3365 |
| NAICS: | 331524 |

# 3. PROCESS DESCRIPTION

Pac Rancho is an aluminum foundry that utilizes molds to fabricate steel and aluminum castings used in the aircraft and aerospace industries. Steel and aluminum castings are produced by first creating wax patterns by injection molding. Heated raw material is injected under pressure into a heated mold where the uncured wax cures and hardens into the shape of the mold. A silica shell is then formed around the wax pattern. The wax pattern is melted out of the silica shell in an autoclave and then the molten aluminum or steel is poured into the silica shell. The silica shell is then removed using high pressure water. The castings go through grinding and deburring operations.

# 4. FACILITY RISK CHARACTERIZATION

A health risk assessment prepared by ALL4 Environmental CA, LLC in January 2022 (and subsequently revised by SCAQMD) estimates that the cancer risk at the off-site point of maximum impact (PMI) was determined to be 222.48 in one million during the 2018 calendar year. The cancer risk at the maximum exposed individual worker (MEIW) was determined to be 38.76 per one million. The cancer risk at the maximum exposed individual resident (MEIR) was determined to be 1.72 per one million. Atmospheric emissions of hexavalent chromium and nickel are the most significant contributors to the estimated cumulative potential cancer risk at the PMI, MEIR, and MEIW.

The primary source of atmospheric emissions of hexavalent chromium is the metal melting furnaces. The primary source of atmospheric emissions of nickel is metal grinding activities.

The chronic hazard index was determined to be 0.04 at the MEIR and 4.48 at the MEIW. Atmospheric emissions of nickel are the most significant contributor to the estimated cumulative potential chronic hazards at the MEIR and MEIW.

The acute hazard index was determined to be 21.26 at the PMI. The 8-hour hazard index was determined to be 2.87 at the PMI. Atmospheric emissions of nickel are the most significant contributor to the estimated cumulative potential acute hazards.

# 5. RISK REDUCTION MEASURES

Upon learning of the apparent increased cancer and health risks, the Facility conducted an evaluation of air emission sources. During the evaluation it was determined that the data and emissions estimation methodologies that were initially used to calculate emissions of hexavalent chromium and nickel from the metal melting furnaces were not representative of actual conditions. The original emission factors used to estimate emissions were default emissions factors based on various sources as published by the California Air Toxics Emissions Factor (CATEF) database, and the United States Environmental Protection Agency (USEPA) Compilation of Air Emissions Factors (AP-42). Since the emissions factors were not specific to the operations conducted at the Facility, it was believed that the emissions factors overestimated actual emissions. To more accurately estimate emissions from the metal melting operations, the Facility conducted air emissions source testing to more accurately quantify and characterize the emissions from the metal melting process. The results of the air emissions source testing confirmed the initial belief and yielded lower emissions rates than those previously used to estimate emissions from the process. The use of the more accurate and representative emissions factors resulted in significantly lower estimated cancer and health risk values. Initial estimates yielded a cancer risk reduction of approximately 75% which correlates to an offsite worker cancer risk of less than 10 in one million. Similar reductions of the non-cancer hazard indices were achieved; however, the acute non-cancer hazard index was 5 which still requires further risk reduction measures.

To address the non-cancer hazard indices, the Facility evaluated the grinding and deburring operations to evaluate potential opportunities to further reduce atmospheric emissions of nickel. As currently configured, the metal grinding and deburring operations are vented to a standard dust collection system estimated to have a control efficiency approaching 99%. The Facility has determined that retrofitting or replacing the existing dust collection system with a High Efficiency Particulate Arrestor (HEPA) with a rated control efficiency of at least 99.97% will significantly reduce atmospheric emissions of nickel from the process, and therefore, significantly reduce the overall estimated potential cancer risk and health risks from the Facility (see 7. Residual Facility Risk Characterization).

# 6. IMPLEMENTATION SCHEDULE

Risk reduction measures involving source testing for emissions factors have already been completed and implemented at the facility. The upgrade to the dust collection system serving the metal grinding and deburring operations will generally include the following steps:

1. Equipment vendor identification and selection.
2. Engineering and design of the emissions control system.
3. Preparation of application for permit to construct emission control system and application for permit to operate permit to operate existing metal grinding operations currently exempt from permit requirements pursuant to Rule 219.
4. SCAQMD review and approval of application for permit to construct emission control system and application for permit to operate metal grinding operation.
5. Issue purchase order to equipment vendor based on approved permit to construct.
6. Manufacture and install air pollution control system.

The estimated schedule for implementation of the risk reduction measures not yet completed is provided in Table 6-1.

**Table 6-1**
**Risk Reduction Measure Implementation Table**

| Item | Description | Estimated Time to Completion (Day) |
|---|---|---|
| 0 | District approval of Risk Reduction plan. | 0 |
| 1 | Equipment vendor identification and selection. | 30 |
| 2 | Engineering and design of emission control system. | 60 |
| 3 | Preparation and submittal of application for permit to construct emission control system and application for permit to operate metal grinding operation. | 80 |
| 4 | SCAQMD permit application review and approval | 260 |
| 5 | Issue purchase order to equipment vendor based on approved permit to construct. | 280 |
| 6 | Manufacture and install air pollution control system. | 440 |

# 7. RESIDUAL FACILITY RISK CHARACTERIZATION

The modifications to the emission estimation methodologies for the existing furnaces and the proposed modifications to the air pollution control device (APCD) serving the grinding operations as presented in this Plan are expected to significantly reduce the calculated cancer risk and non-cancer hazard indices. The resulting values are summarized in Table 7-1.

**Table 7-1**
**Estimation of Residual Health Risk After Risk Reduction Measures**

| Type | Initial | Residual |
|---|---|---|
| PMI (cancer risk) | 2.22E-04 | 2.03E-05 |
| MEIR (cancer risk) | 1.72E-06 | 1.56E-07 |
| MEIW (cancer risk) | 3.88E-05 | 3.01E-06 |
| PMI (acute hazard) | 21.26 | 0.20 |
| PMI (8 hr hazard) | 2.87 | 0.62 |
| MEIR (chronic hazard) | 0.04 | 2.93E-03 |
| MEIW (chronic hazard) | 4.48 | 0.39 |

# APPENDIX A -
# HEALTH RISK ASSESSMENT

# HEALTH RISK ASSESSMENT

## PAC RANCHO, INC. – RANCHO CUCAMONGA, CA

REVISED FEBRUARY 2024

SUBMITTED BY:

**Pac Rancho, Inc.**
Rancho Cucamonga, CA
11000 Jersey Boulevard
Rancho Cucamonga, CA

SUBMITTED TO:

**South Coast Air Quality Management District**
AB2588
21865 Copley Drive
Diamond Bar, CA

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# 1. EXECUTIVE SUMMARY

## *1.1 FACILITY DESCRIPTION*

Pac Rancho is located at 11000 Jersey Boulevard in Rancho Cucamonga, California (the "facility") within the southwestern portion of San Bernardino County. The facility is located in a commercial and industrial area. The facility occupies approximately five acres of land. The geographic coordinates of the facility are 34°05'42" latitude and 117°33'53" longitude, and the Universal Transverse Mercator (UTM) coordinates are 447.899 kilometers east, 3,772.846 kilometers north. Table 1 of Appendix A provides facility information, including facility identification number and address. A map of the area is provided as Figure 2-1.

## *1.2 PROCESS DESCRIPTION*

PAC Rancho, Inc. utilizes molds to manufacture steel and aluminum castings used in the aircraft and aerospace industries. Steel and aluminum castings are produced by first creating wax patterns by injection molding. Heated raw material is injected under pressure into a heated mold where the uncured wax cures and hardens into the shape of the mold. A silica shell is then formed around the wax pattern. The wax pattern is melted out of the silica shell in an autoclave and then the molten aluminum or steel is poured into the silica shell. The silica shell is then removed using high pressure water. The castings go through grinding and deburring operations. To check for defects, PAC Rancho uses x-ray and penetrant for the steel and aluminum castings.

## *1.3 OVERVIEW OF FACILITY EMISSIONS*

According to the Air Toxic Inventory Report (ATIR) for the facility, approximately 55 substances listed under the Air Toxics Hot Spots Information and Assessment Act of 1987 were emitted from the facility. Table 2 of Appendix A summarizes the maximum one-hour and average annual emissions for each of these eighty listed substances at the facility. Table 3 of Appendix A summarizes the maximum one-hour and average annual emissions by device for the substances emitted at the facility. The ATIR was updated to account for source testing conducted by Alliance Source Testing in January 2022 on a steel melting electric furnace as well as a 99.97% control efficiency for metal grinding emissions since the facility has committed to installing upgraded control as part of risk reduction measures.

The Hot Spots Analysis and Reporting Program (HARP2) risk assessment algorithm contained methods for calculating the risk for certain pollutants potentially created by exposures other than inhalations, including soil ingestion, dermal absorption, mother's milk, water ingestion, fish and beef consumption, and homegrown vegetables. These substances are referred to as multipathway substances. To determine total predicted exposure at each receptor, the applicable pathways of exposure for each pollutant were included in the assessment. The exposure routes for each pollutant for which multipathway exposures were considered are listed in Table 9 of Appendix A.

## *1.4 OVERVIEW OF DISPERSION MODELING AND ASSESSMENT*

The purpose of the exposure assessment was to estimate the extent of public exposure to each listed substance for which cancer potency or non-cancer reference exposure levels have been developed. This involved emission quantification, modeling of environmental fate and transport, identification of exposure routes, identification of exposed populations, and estimation of short-term and long-term exposure levels. Air dispersion modeling employing the American Meteorological Society/Environmental Protection Agency Regulatory Model, version 22118 ("AERMOD") and health risk assessment using the HARP2 software, version 22118 for cancer, acute and 8-hour hazard indices and version 22118 for updates to chronic indices (HARP2) was conducted to predict air concentrations of emitted listed substances in the area surrounding the facility.

## *1.5 VARIABLE EMISSIONS MODELING*

The exposure assessment utilized variable emissions modeling based on feedback from SCAQMD. A previous iteration of the report dated October 2020 used the conservative worker adjustment factor (WAF) of 4.2 which assumes equipment operating schedules of 8 hours per day and 5 days per week. Since most of the equipment at the facility, with the exception of the aluminum parts bright dip line, operates between 9 and 10 hours per day and 6 days per week a conservative value of 9 hours/day was used to calculate a WAF of 3.11.

Use of a WAF is not appropriate for sources that operate 24 hours/day, 7 days/week, and 52 weeks/year. Since source S0004 aluminum parts bright dip line emits 24 hours/day, 7 days/week, and 52 weeks/year

a separate HARP assessment run would be needed for worker cancer and 8-hour hazard indices. However, none of the toxics emitted from S0004 are listed carcinogens or 8-hour hazard indices.

Variable emissions were utilized for the sources that do not operate 24/7 for cancer risk, chronic and 8-hour hazard indices. The flash fire oven 5 and afterburner, heat treat oven, and metal grinding operated 10 hours per day and 6 days per week. Based on guidance from SCAQMD, hour of day / 7 days per week (HRDOW7) variable emission methodology was used. Since the production source has operation hours that vary between 9 and 10 hours per day, 10 hours per day was used to be conservative. The aluminum parts bright dip line operates 24 hours per day and 7 days per week so variable emission methodology was not used for this source.

Variable emissions were utilized for acute hazard based on feedback from SCAQMD. However, since acute risk can occur immediately on exposure or within a short period of time variable emission factor used was 1.

## *1.6 OVERVIEW OF DOSE-RESPONSE ASSESSMENT FOR CANCER AND NON-CANCER IMPACTS*

Cancer potency factors were used to calculate the probability or risk of cancer associated with the estimated exposure to listed substances emitted from the facility. The cancer risk created by the emission of each substance was calculated by multiplying the estimated average daily dose at a particular receptor by the chemical specific cancer potency factor. The total cancer risk at a given receptor location is the sum of the individual risks for each substance.

Hazard indices were used to quantify the acute or chronic exposure of a substance at its toxicological endpoints. To estimate the acute and chronic non-cancer health hazards presented by emissions from the facility, a hazard index was developed. Hazard indices were developed for both short-term (acute) and long-term (chronic) exposures using reference exposure levels (RELs). The hazard index was calculated at each receptor by dividing the concentration, maximum hourly for acute exposures or average annual for chronic exposures, of each substance by its corresponding acute or chronic REL. RELs are concentrations or doses at or below the level at which no adverse health effects are likely to occur. A hazard index of one

or less indicates that an adverse health effect is not expected to result from exposure to the given substance.

Individual pollutants may affect the human body differently. For example, scientific research has shown that exposure to acrolein or copper may affect the respiratory system at certain concentrations, but do not adversely affect the skin. Human organs or organ systems that may be affected differently are referred to as “toxicological endpoints”. The total hazard index was calculated by summing the index derived for each substance and each toxicological endpoint.

A summary of cancer unit risks, RELs, and toxicological endpoint organs and organ systems affected by non-cancer impacts of the 55 substances included in this Report is provided in Table 10a of Appendix A. A summary of the chemicals included in the ATIR with no risk factors are provided in Table 10b of Appendix A.

## *1.7 SUMMARY OF RESULTS*

The potential health risks posed from emissions of listed substances from the facility were estimated using the HARP2 software. No subpopulations such as subsistence fishers were identified within the zone of impact. Cancer and non-cancer health risks were determined for the off-site point of maximum impact (PMI), the maximum exposed individual resident (MEIR), the maximum exposed individual worker (MEIW). No sensitive receptors were located within the vicinity of the facility with cancer risk of ten in one million or above. UTM coordinates for the PMI, MEIR, and MEIW are provided in the Health Risk Assessment Summary Form located in Appendix B. Sensitive receptors were further assessed for health risk concerns due to their location within the one in one million zone of impact (ZOI) for cancer risk. One of the receptors was assessed for cancer risk and chronic and 8-hour hazard contributions by source and substance. No sensitive receptors were located within the 0.5 hazard index isopleth.

### 1.7.1 Total Cancer Health Risks

The overall risk of cancer associated with emissions of listed substances from the facility was measured in terms of a cancer risk factor.

The predicted cancer risk represents the theoretical probability of extra cancer cases occurring in the exposed population over a lifetime of thirty years. An off-site worker's cancer risk is based on a 25-year work schedule. Based upon this Report, the cancer risk at the PMI was determined to be 20.3 per million. The PMI is located UTM coordinates 447,895.8 East and 3,772,804 North on the fence line directly to the south of the facility. The cancer risk at the MEIW located at 447,995.7 East and 3,772,864 North to the east of the facility was determined to be 3 per million. The cancer risk at the MEIR located at 447,900 East and 3,772,450 North to the southwest of the facility was determined to be 0.2 per million. Hexavalent chromium appeared to contribute the most potential cancer risk at the PMI, MEIR, and MEIW. A cancer risk summary by listed substance at the PMI, MEIW, and MEIR is provided in Table 13 of Appendix A.

A 30-year cancer risk isopleth map for the one in one million ZOI is provided in Figure 7-1. The locations of the PMI, MEIW, MEIR, and sensitive receptors are provided in Figure 7-2.

Cancer burden is the estimated number of people in a defined population that could potentially contract cancer from a lifetime exposure to emitted substances from the facility. The cancer burden was calculated by multiplying the cancer risk by the number of people exposed. The one in one million ZOI for the 70-year cancer risk isopleth had a residential population of zero people according to the 2010 Census data utilized by the HARP2 software which resulted in an estimated cancer burden of zero. Table 14 of Appendix A summarizes the cancer burden for the one in one million ZOI.

### 1.7.2 Total Chronic, Acute, and 8-Hour Non-Cancer Health Risks

The chronic, acute, and 8-hour non-cancer health risks were measured in terms of level of exposure relative to the reference level. The reference exposure level is the level of exposure considered to cause no adverse health effects.

The chronic hazard index was determined to be 2.93E-03 at the MEIR and 0.39 at the MEIW. Manganese along with nickel and beryllium appeared to contribute the most potential chronic hazards at the MEIR and MEIW. Primary target organ system impacted by chronic exposure is expected to be central nervous system, respiratory, and hematological systems. Toxicological endpoints chronically affected by these substances are provided in Table 10a of Appendix A. The locations of the MEIW and MEIR for chronic

hazards are provided in Figure 7-3. A chronic hazard index isopleth map for hazard index levels 0.5, 1, 3, and 5 is included in Figure 7-4.

The acute hazard index was determined to be 0.20 at the PMI. Emissions of nickel, isopropyl alcohol, and nitric acid appeared to contribute the most potential acute hazards at the PMI. Primary target organ system impacted by acute exposure is expected to be immune and respiratory system. Toxicological endpoints acutely affected by these substances are provided in Table 10a of Appendix A. The location of the PMI is provided in Figure 7-5. No map for acute hazard index levels 0.5, 1, 3, and 5 is included since there were no isopleths at those levels.

The 8-hour hazard index was determined to be 0.62 at the PMI. Emissions of manganese and nickel appeared to contribute the most potential 8-hour hazards at the PMI. Primary target organ system impacted by 8-hour exposure is expected to be central nervous system, immune system, and respiratory system. Toxicological endpoints acutely affected by these substances are provided in Table 10a of Appendix A. The location of the 8-hour hazards is provided in Figure 7-6. An 8-hour hazard index isopleth map for hazard index levels 0.5, 1, 3, and 5 is included in Figure 7-7.

# 2. INTRODUCTION

This Health Risk Assessment Report ("Report") has been prepared at the request and direction of Pac Rancho for the facility located at 11000 Jersey Boulevard in Rancho Cucamonga, California (the "facility"). In a letter dated August 7, 2020 from the South Coast Air Quality Management District (SCAQMD) required that a health risk assessment be completed for the facility for reporting year 2018 (see Appendix C). The Report has been revised based on a request from SCAQMD in March and August 2023 to include approved source test data and anticipated risk reduction measures that will include installation of a HEPA filter on metal grinding activities.

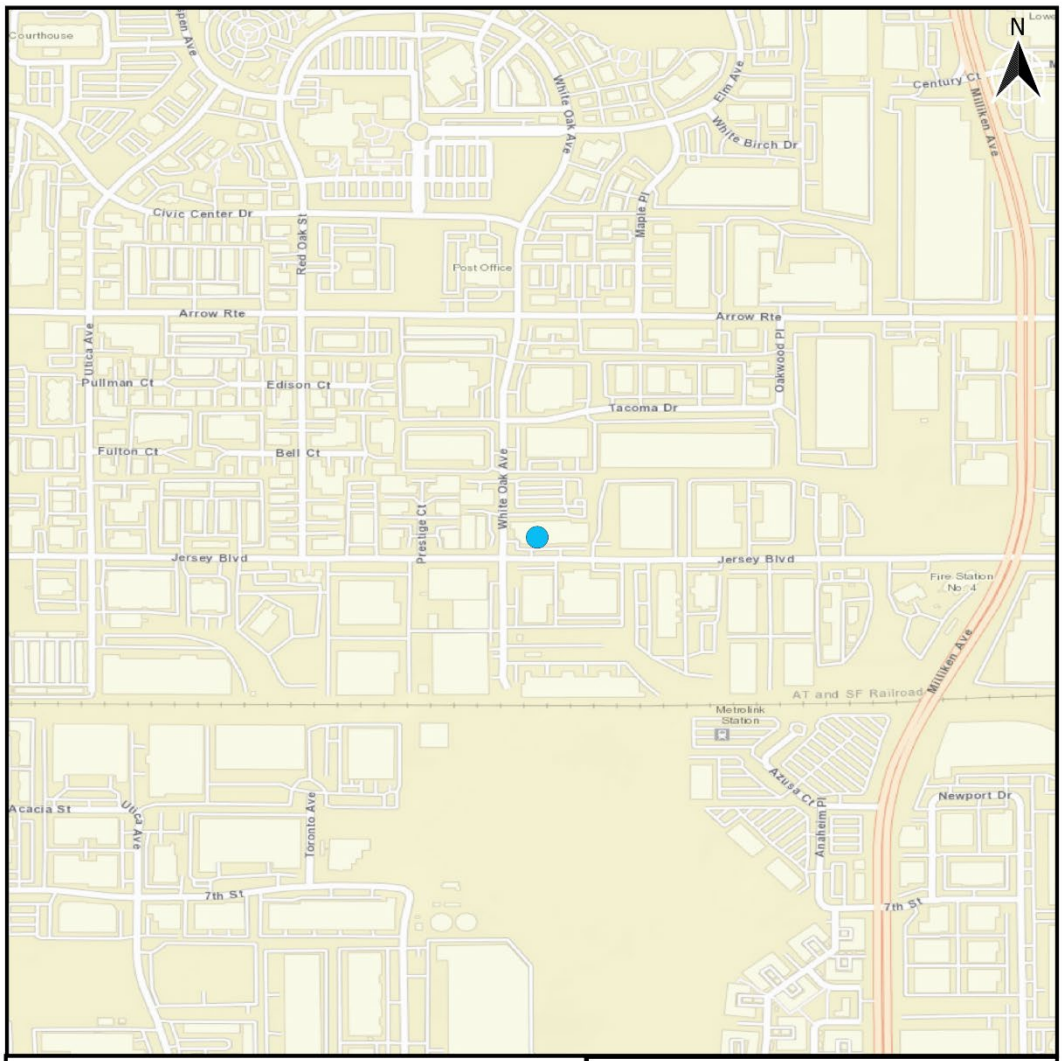
This Report has been prepared in accordance with the California Office of Environmental Health Hazard Assessment Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments, February 2015 and SCAQMD Supplemental Guidelines for Preparing Risk Assessments and Risk Reduction Plan for the Air Toxics "Hot Spots" Information and Assessment Act, October 2020).

Air dispersion modeling employing the Meteorological Society/Environmental Protection Agency Regulatory Model, version 22118 ("AERMOD") and health risk assessment using the Hot Spots Analysis and Reporting (HARP2) software, version 22118 for cancer, acute and 8-hour hazard indices and version 22118 for updates to chronic indices (HARP2) was conducted in accordance with SCAQMD and California Office of Environmental Health Hazard Assessment recommended practices.

## *2.1 FACILITY INFORMATION*

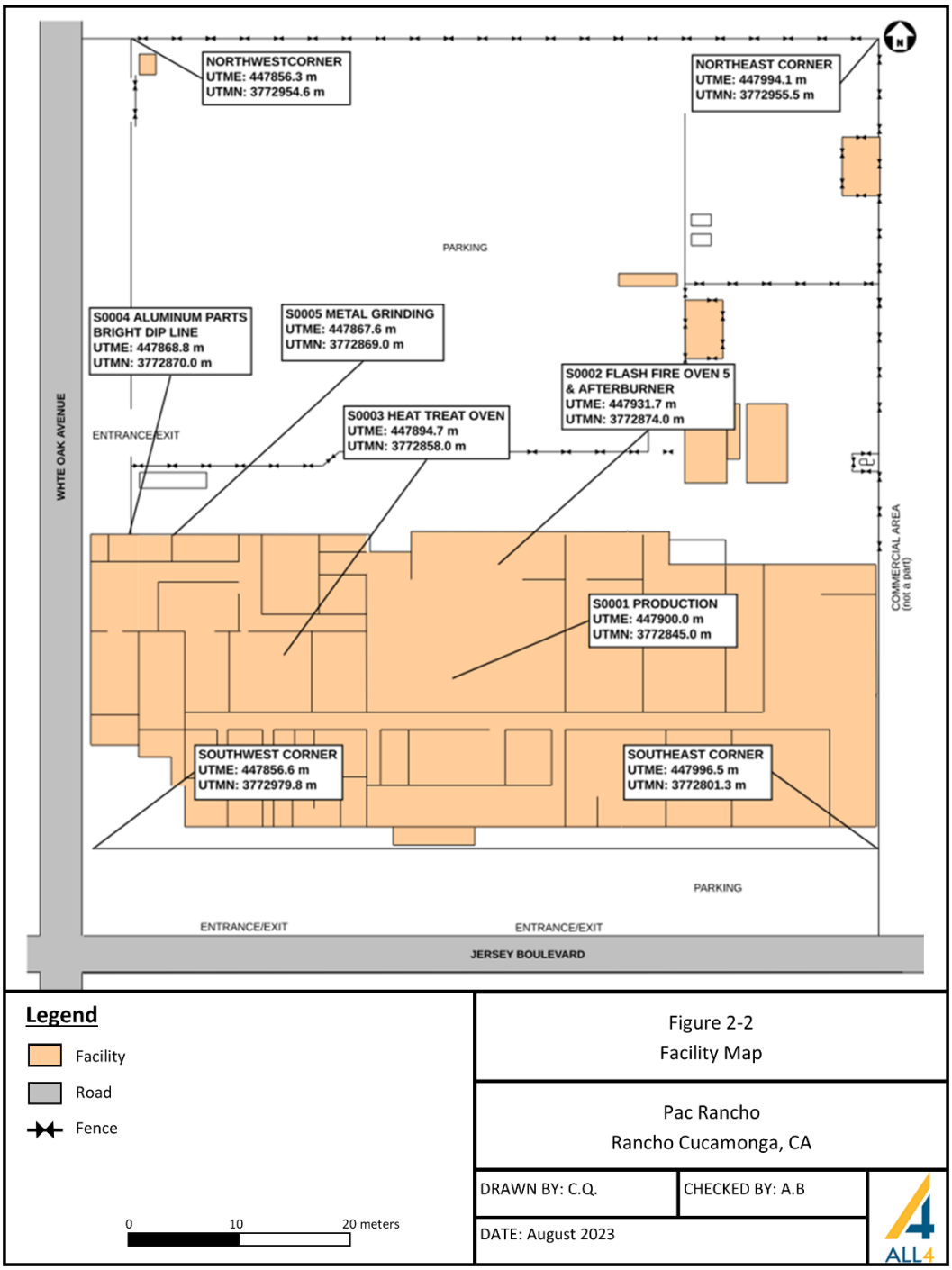
The facility is located in a commercial and industrial area. A facility location map is provided as Figure 2-1. A facility map showing the approximate locations of the emission sources, property boundaries, and building dimensions of the facility is provided as Figure 2-2. See Table 1 of Appendix A for facility information including facility address, and facility ID.

**Figure 2-1**
**Facility Location Map**




Street Map Courtesy of ESRI

**Figure 2-2**
**Facility Map**



## *2.2 PROCESS DESCRIPTION*

PAC Rancho, Inc. utilizes molds to manufacture steel and aluminum castings used in the aircraft and aerospace industries. Steel and aluminum castings are produced by first creating wax patterns by injection molding. Heated raw material is injected under pressure into a heated mold where the uncured wax cures and hardens into the shape of the mold. A silica shell is then formed around the wax pattern. The wax pattern is melted out of the silica shell in an autoclave and then the molten aluminum or steel is poured into the silica shell. The silica shell is then removed using high pressure water. The castings go through grinding and deburring operations. To check for defects, PAC Rancho uses x-ray and penetrant for the steel and aluminum castings.

# 3. HAZARD IDENTIFICATION

Approximately 55 substances listed under the Air Toxics Hot Spots Information and Assessment Act 1987 are emitted from the facility. Table 2 of Appendix A summarize the maximum one-hour and average annual emissions for each of these eighty listed substances for emission sources at the facility. Emission sources at the site are identified in the section titled Emissions Inventory.

## *3.1 MULTIPATHWAY ANALYSIS*

The HARP2 risk assessment algorithm includes methods for calculating the risk for certain pollutants potentially created by exposures other than inhalation, including soil ingestion, dermal absorption, water ingestion, and homegrown vegetables. These substances are referred to as multipathway substances.

To determine total predicted exposure at each receptor, the applicable pathways of exposure for each pollutant were included in the assessment.

Pathways enabled in the HARP2 software for the analysis in addition to inhalation included dermal absorption, soil ingestion, mother's milk, and homegrown produce (vegetable).

Pathways that were disabled during the evaluation include drinking water, fish, pasture (dairy), beef, pigs, chickens, and eggs. The exposure routes for each pollutant for which multipathway exposures were considered are listed in Table 9 of Appendix A.

# 4. EXPOSURE ASSESSMENT

Cancer potency factors were used to calculate the probability or risk of cancer associated with the estimated exposure to listed substances emitted from the facility. Cancer potency factors represent the theoretical probability of extra cancer cases occurring in the exposed population assuming 70-year lifetime exposure. The cancer risk created by the emission of each substance was calculated by multiplying the estimated average daily dose at a particular receptor by the chemical specific cancer potency factor. The total cancer risk at a given receptor location was the sum of the individual risks for each substance, including multipathway contributors.

Hazard indices quantify the acute, chronic, or 8-hour exposure of a substance at its toxicological endpoints. To estimate the acute, chronic, or 8-hour non-cancer health hazards presented by emissions from the facility, a hazard index was developed. Hazard indices were developed for both short-term (acute) and long-term (chronic) exposures using reference exposure levels (RELs). The hazard index was calculated at each receptor by dividing the concentration, maximum hourly for acute exposures or average annual for chronic exposures, of each substance by its corresponding acute or chronic REL. RELs are concentrations or doses at or below the level at which no adverse health effects are likely to occur. A hazard index of one or less indicates that an adverse health effect is not expected to result from exposure to the given substance.

Individual pollutants may affect the human body differently. For example, scientific research has shown that long-term exposure to acrolein or copper may affect the respiratory system above certain concentrations, but do not adversely affect the skin. Human organs or organ systems that may be affected differently are referred to as “toxicological endpoints”. The total hazard index was calculated by summing the index derived for each substance and each toxicological endpoint.

The determination of risk values for listed substances carries a level of uncertainty. In some cases, the uncertainty may be quite large. Most acceptable risk or exposure levels are based on animal studies or epidemiological studies on workers. Uncertainty is enhanced when the results of these studies are applied to human beings or to a general population.

Predicated doses calculated by pathway for each listed substance are contained in the attached electronic file. Air dispersion modeling inputs for assessment reproduction are also provided in the attached electronic file (see Appendix E).

# 5. EMISSIONS INVENTORY

Average annual emissions were determined from the average daily process rate. Maximum hourly emissions were determined from the maximum hourly process rate. Table 2 of Appendix A summarizes the annual emissions by substance for the facility in pounds per year and grams per second, and maximum hourly emissions in pounds per hour and grams per second. Table 3 of Appendix A summarizes annual emissions by source in pounds per year and grams per second, and the maximum hourly emissions by source in pounds per hour and grams per second.

Predictable emissions occur from activities such as: natural gas and propane combustion; melting, pouring, and casting; abrasive blasting; welding; aluminum parts bright dip line; metal grinding; shell making; and wax burnout. Additionally, evaporative emissions from the facility occur from the use of binders, cleaners, lubricants, adhesives, solvents, non-destructive testing, mold release, and foam packing. No unpredictable emissions from activities such as spilling or leaking occurred during the 2018 calendar year. A description of the methodologies used to calculate emissions is provided in Table 4 of Appendix A.

Multiple devices at the facility utilize air pollution control equipment. Aluminum pusher furnaces, steel wax burnout ovens, and flash fire oven wax burnout operations are vented to an afterburner with a 99% control efficiency. Metal grinding operations are vented to a dust collector with a 99% control efficiency but will be upgraded to be vented to a dust collector with 99.97% control efficiency. A description of emission control equipment used to control emissions are provided in Table 5 of Appendix A.

To more accurately quantify emissions, the facility conducted a source test on an electric steel melting furnace in January 2022. The source test was approved by SCAQMD in December 2022 for use in emission calculations. Emissions from metal melting, pouring, and casting were updated from the methodology that used AP-42 and California Air Toxics Emission factors to utilize the emission factors from the approved source test.

The Air Toxic Inventory Report (ATIR) was revised using the emission factors from the approved source test. Additionally, the ATIR was updated to identify a 99.97% control efficiency for metal grinding

emissions since the facility has committed to installing upgraded control as part of risk reduction measures. The ATIR that includes detailed emission calculations and approved source test is provided in Appendix D.

Tables 6A and 6B of Appendix A contain information about the emission sources at the facility. Source parameters including UTM coordinates, elevations, stack height and diameters, flow rates, and temperature. Operational hours are also provided in Table 7 of Appendix A.

# 6. AIR DISPERSION MODELING

Air dispersion modeling employing the Meteorological Society/Environmental Protection Agency Regulatory Model, version 22118 ("AERMOD") and health risk assessment using the Hot Spots Analysis and Reporting (HARP2) software, version 22118 for cancer, acute and 8-hour hazard indices, and chronic indices (HARP2) was conducted to predict air concentrations of emitted listed substances in the area surrounding Pac Rancho. The AERMOD model is typically used by air pollution control agencies for risk assessment in the types of terrain represented in the site vicinity and for the types of emissions sources present at the site. AERMOD was developed by the US Environmental Protection Agency and is integrated into the HARP2 software. AERMOD version 22118, although not contained in the HARP software, was utilized at the request of SCAQMD since it was the most current version of AERMOD at the time of this assessment.

HARP is an integrated health risk assessment program that includes modules for air dispersion modeling and health risk assessment. The risk analysis algorithms used in HARP2 are based on the guidelines provided in Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments (OEHHA, February 2015).

HARP2 was used to enter receptor, source, emissions, and building wake effect data and model the emissions of listed substances from the facility using AERMOD. Execution of the AERMOD model produced a series of dispersion coefficients calculated by setting emissions from emission sources to one gram per second and running the AERMOD program using only one pollutant. Essentially, this process produced a number at each receptor and for each separate emission source representing the concentration of the pollutant that would be produced if one gram per second were emitted from that source. This data file of dispersion coefficients was used as an input to the health risk assessment module.

To cover the site vicinity, 40,000 grid receptors on 50-meter centers were used to cover approximately 9,950-meter by 9,950-meter receptor grid. The Office of Environmental Health Hazard Assessment (OEHHA) and SCAQMD require a minimum of 100-meter centers to ensure sufficient receptor density. The grid was situated to capture the one in a million zone of influence. Sensitive receptors such as schools, hospitals, and day-care facilities within the general area of the facility were captured by the spacing on

the grid. There were no sensitive receptors within the general area of the facility. In addition, 30 boundary receptors at 20 meter spacing and 1,061 Census Block receptors were included in the analysis. Population data from the 2010 Census and aerial terrain maps were used to define residential and worker exposures.

SCAQMD maintains data for twenty-four meteorological surface air monitoring stations throughout the South Coast Air Basin. Pre-processed hourly meteorological data for Ontario Airport for calendar years 2012 through 2016 was identified as the most representative station for the site.

Regulatory default options were turned on. The AERMOD modeling program was run using the urban Pasquill-Gifford dispersion coefficients with six stability classes. Stack-tip downwash calculations and building wake effects were included. To be conservative, gravitational settling calculations were not included. Table 8 of Appendix A summarizes the AERMOD modeling options selected for the assessment.

# 7. RISK CHARACTERIZATION AND RESULTS

The potential health risks posed from emissions of listed substances from the facility were estimated using the HARP2 software. Cancer and non-cancer health risks were determined at the following locations:

1. Point of Maximum Impact (PMI) – offsite receptor location where the highest health risk occurs; receptor 40010 for cancer risks, 40004 for 8-hour health risks, and 41091 for acute health risks.
2. Maximum Exposed Individual Resident (MEIR) – offsite receptor location where the maximum exposure occurs at an existing residential receptor; receptor 18500 for cancer risks and chronic health risks.
3. Maximum Exposed Individual Worker (MEIW) – offsite receptor location where the highest health risk occurs; receptor 40004 for cancer risks and 40010 for chronic health risks.

The determination of risk values for listed substances carries a level of uncertainty. In some cases, the uncertainty may be quite large. Most acceptable risk or exposure levels are based on animal studies or epidemiological studies on workers. Uncertainty is enhanced when the results of these studies are applied to human beings or to the general population.

## *7.1 SENSITIVE RECEPTORS*

Sensitive receptors may include hospitals, day-care facilities, and schools (K-12). No sensitive receptors were identified in the general vicinity of the facility.

## *7.2 CANCER HEALTH RISKS*

Potential multipathway cancer risks contributed by source at the PMI, MEIW, and MEIR are provided in Tables 15 through 17 of Appendix A. The 30-year potential cancer risks at the PMI, MEIW, and MEIR are provided in Tables 18 of Appendix A. Potential multipathway cancer risks contributed by substance at the PMI, MEIW, MEIR are provided in Tables 19 through 21 of Appendix A.

Based upon this Report, the cancer risk at the PMI was determined to be 20.3 per million. The PMI is located at 447,895.8 meters East and 3,772,804 meters North. The cancer risk at the MEIW was determined to be 3 per million. The cancer risk at the MEIR was determined to be 0.2 per million. Hexavalent chromium appeared to contribute the most potential cancer risk at the PMI, MEIR, and MEIW.

Total cancer risk values for the PMI, MEIW, and MEIR by each substance are provided in Table 12 of Appendix A. A 30-year cancer risk isopleth map for the one in one million ZOI is provided in Figure 7-1. The locations of the PMI, MEIW, MEIR, and sensitive receptors are provided in Figure 7-2.

## *7.3 CHRONIC AND ACUTE NON-CANCER HEALTH RISKS*

Chronic hazard indices contributed by each source and toxicological endpoint at the MEIW and MEIR are provided in Tables 22 and 23 of Appendix A. Chronic hazard indices contribution by each substance and to each toxicological endpoint at the MEIW and MEIR are provided in Tables 24 and 25 of Appendix A.

The chronic hazard index was determined to be 2.93E-03 at the MEIR and 0.39 at the MEIW. Manganese along with nickel and beryllium appeared to contribute the most potential chronic hazards at the MEIR. The locations of the MEIW, MEIR for chronic hazards are provided in Figure 7-3. A chronic hazard index isopleth map for hazard index levels 0.5, 1, 3, and 5 is included in Figure 7-4.

Acute hazard indices contributed by each source and toxicological endpoint at the PMI are provided in Table 26 of Appendix A. Acute hazard indices contributed by each substance and at each toxicological endpoint at the PMI are provided in Table 27 of Appendix A.

The acute hazard index was determined to be 0.20 at the PMI. Emissions of nickel, isopropyl alcohol, and nitric acid appeared to contribute the most potential acute hazards at the PMI. The location of the PMI for acute hazard is provided in Figure 7-5. No map for acute hazard index levels 0.5, 1, 3, and 5 is included since there were no isopleths at those levels.

The 8-hour hazard indices contributed by each source and toxicological endpoint at the PMI are provided in Table 28 of Appendix A. The 8-hour hazard indices contributed by each substance and toxicological endpoint at the PMI are provided in Table 29 of Appendix A.

The 8-hour hazard index was determined to be 0.62 at the PMI. Emissions of manganese and nickel appeared to contribute the most potential 8-hour hazards at the PMI. The location of the PMI for 8-hour

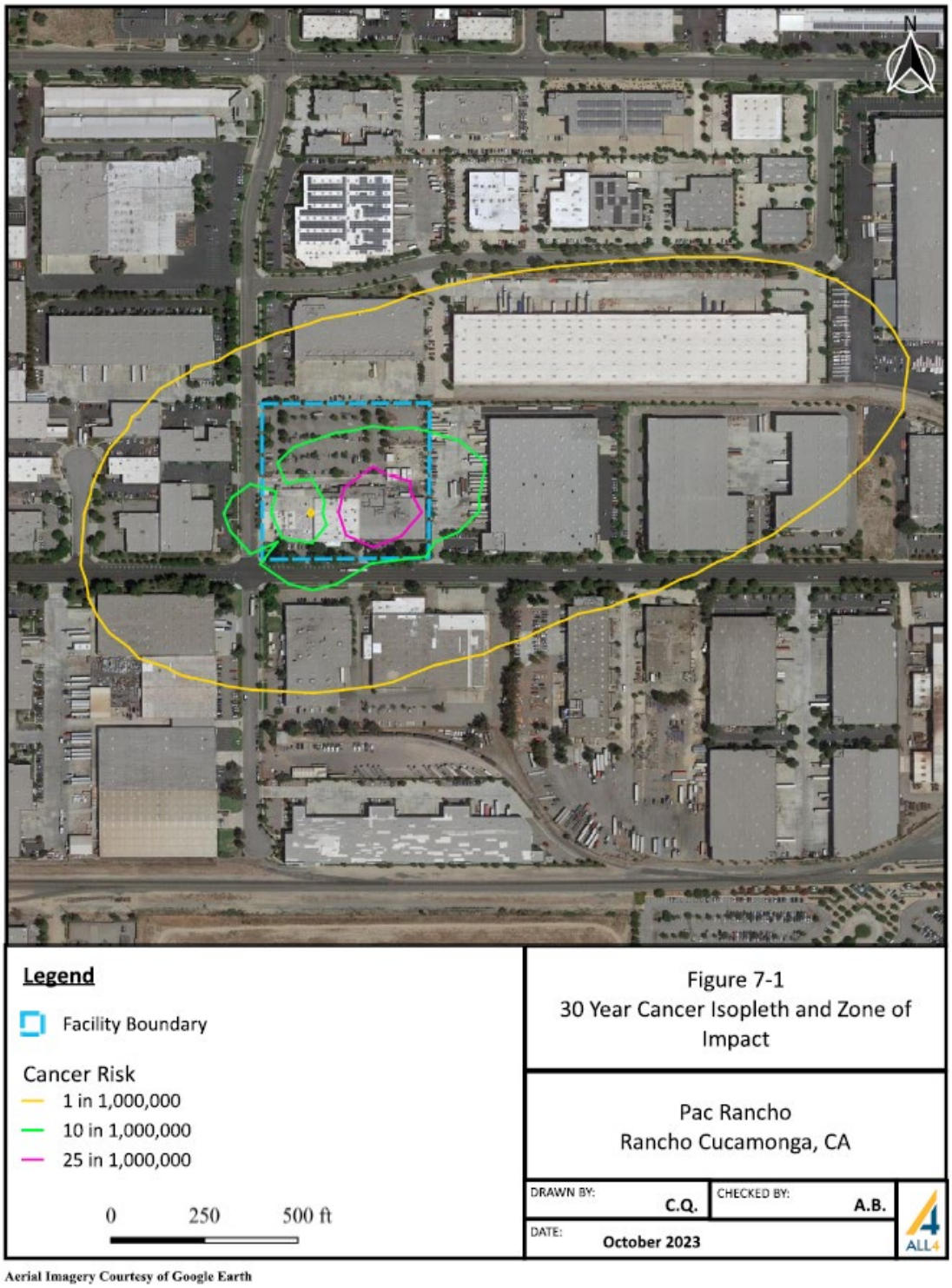
hazard is provided in Figure 7-6. An 8-hour hazard index isopleth map for hazard index levels 0.5, 1, 3, and 5 is included in Figure 7-7.

## *7.4 CANCER BURDEN*

Cancer burden is the estimated number of people in a defined population that could potentially contract cancer from a lifetime exposure to emitted substances from the facility. The cancer burden was calculated by summing the product of the cancer risk in each receptor in a one in one million ZOI and the number of people exposed in each receptor. The ZOI for the 70-year cancer risk isopleth has a residential population of zero according to the 2010 Census data utilized by the HARP2 software. The resulting cancer burden was estimated to be zero.

Table 14 of Appendix A summarizes the cancer burden for the residential receptors included for one in one million ZOI for cancer risks.

**Figure 7-1**
**30 Year Cancer Isopleth and Zone of Impact**

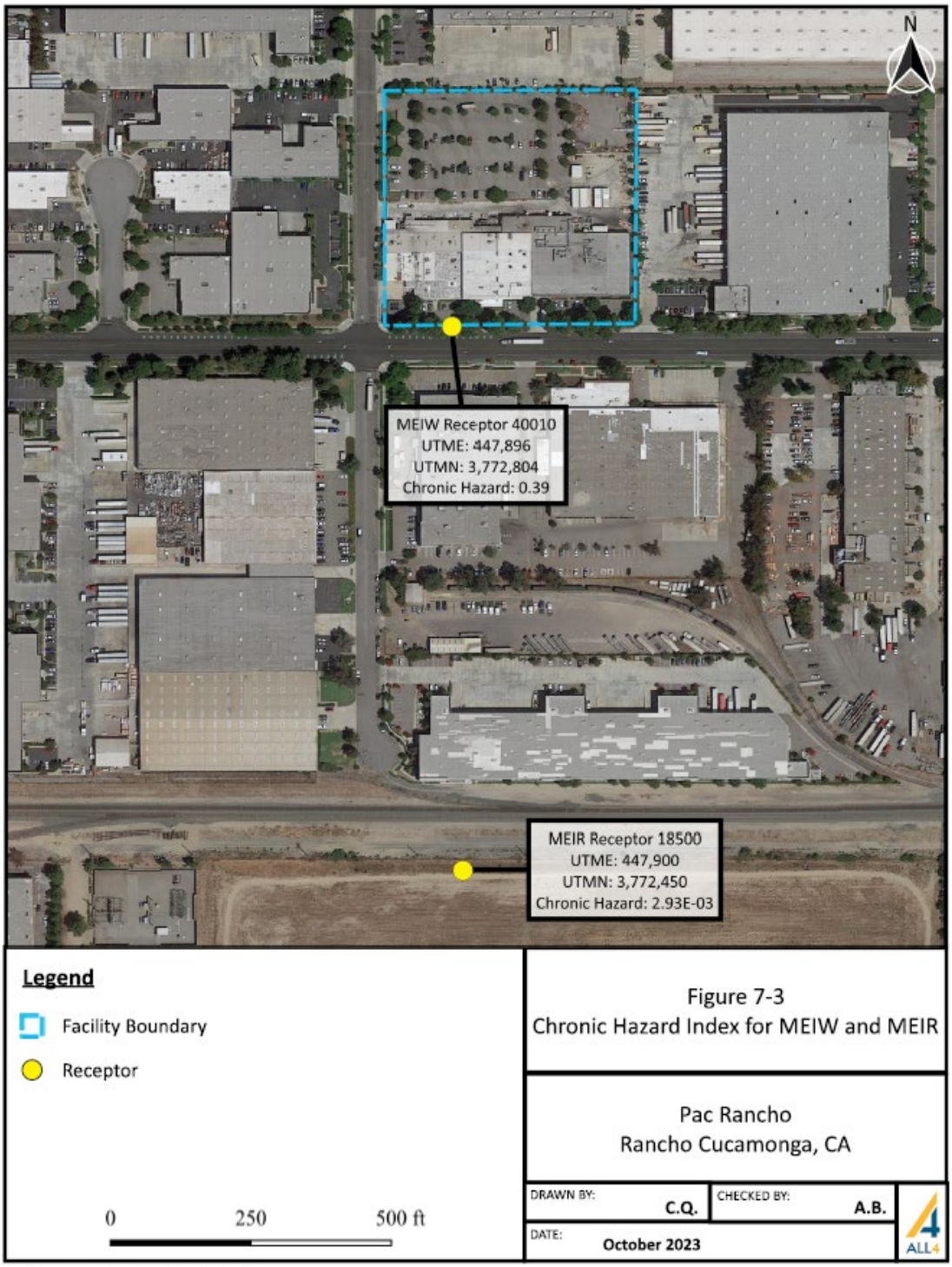



Aerial Imagery Courtesy of Google Earth

**Figure 7-2**
**Cancer Risk for PMI, MEIW, and MEIR**


Aerial Imagery Courtesy of Google Earth

**Figure 7-3**
**Chronic Hazard Index for MEIW and MEIR**




Aerial Imagery Courtesy of Google Earth

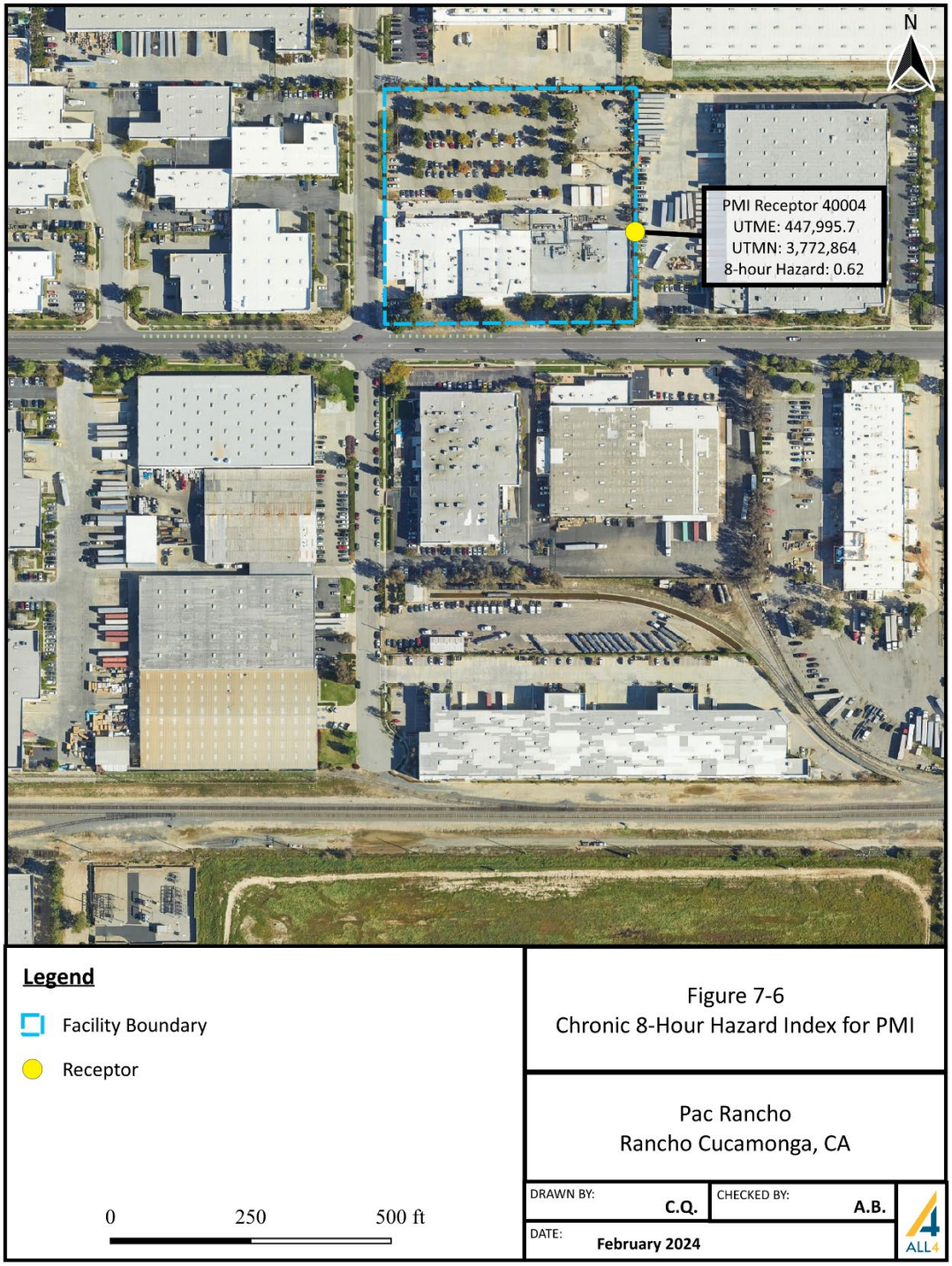
**Figure 7-4**
**Chronic Hazard Index Isopleths**


Aerial Imagery Courtesy of Google Earth

**Figure 7-5**
**Acute Hazard Index for PMI**

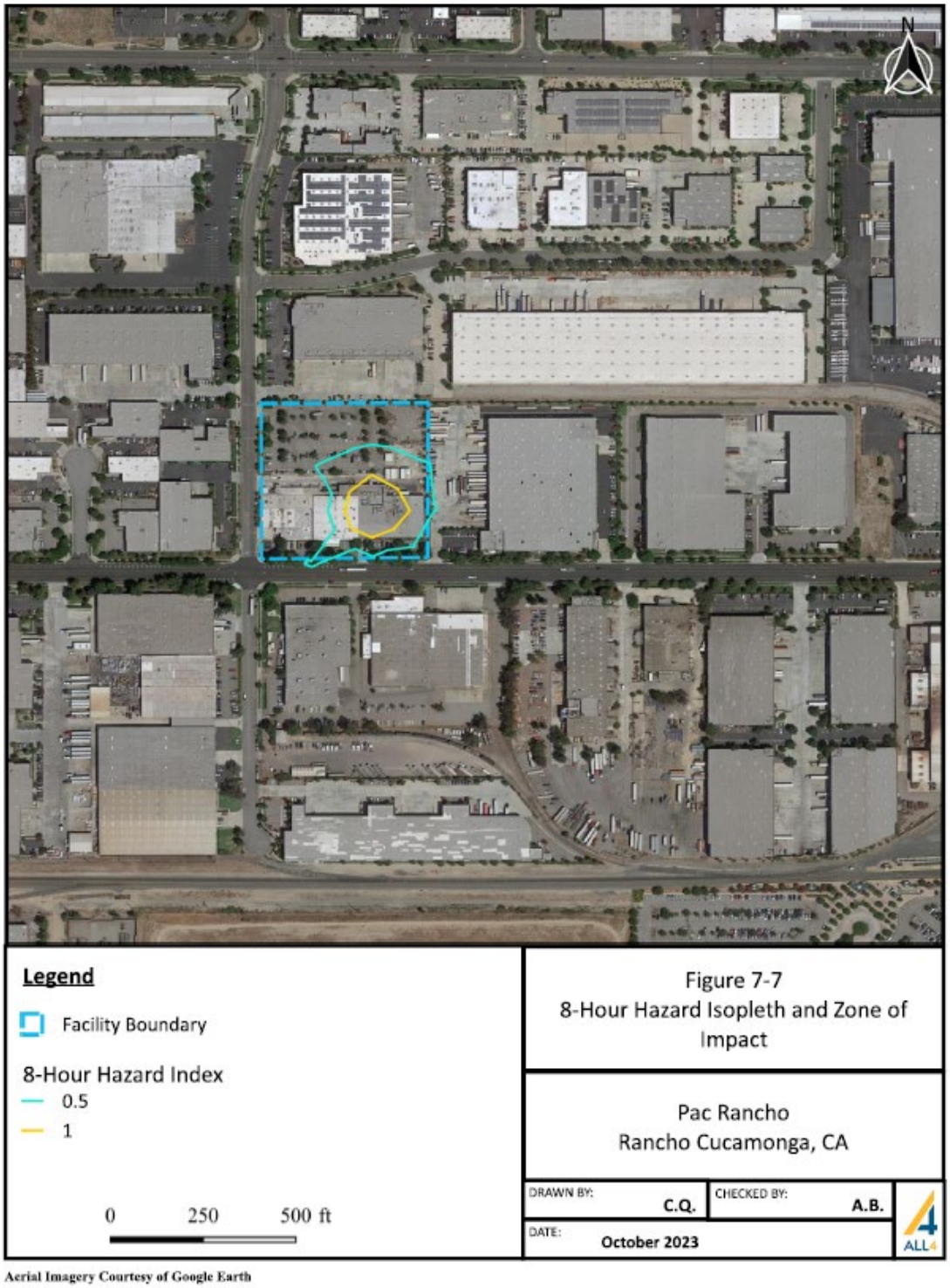

Aerial Imagery Courtesy of Google Earth

**Figure 7-6**
**Chronic 8-Hour Hazard Index for PMI**




Aerial Imagery Courtesy of Google Earth

**Figure 7-7**
**Chronic 8-Hour Hazard Index Isopleths**




Aerial Imagery Courtesy of Google Earth

# 8. SUMMARY OF FINDINGS

Based upon this Report, the cancer risk at the PMI was determined to be 20.3 per million. The cancer risk at the MEIW was determined to be 3 per million. The cancer risk at the MEIR was determined to be 0.2 per million. Hexavalent chromium appeared to contribute the most potential cancer risk at the PMI, MEIR, and MEIW.

The chronic hazard index was determined to be 2.93E-03 at the MEIR and 0.39 at the MEIW. Manganese along with nickel and beryllium appeared to contribute the most potential chronic hazards at the MEIR, and MEIW.

The acute hazard index was determined to be 0.20 at the PMI. Emissions of nickel, isopropyl alcohol, and nitric acid appeared to contribute the most potential acute hazards at the PMI.

The 8-hour hazard index was determined to be 0.62 at the PMI. Emissions of manganese and nickel appeared to contribute the most potential 8-hour hazards at the PMI.

# 9. REFERENCES

California Air Resources Board, Hotspots Analysis and Reporting Program Air Dispersion Modeling and Risk Assessment Tool User's Manual, 2015.

OEHHA, Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments, February 2015.

SCAQMD, Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics "Hot Spots" Information and Assessment Act (AB2588), October 2020.

USEPA, AERMOD Implementation Guide, 19 March 2009.

USEPA, Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, 1995.

USEPA, User's Guide for AMS/EPA Regulatory Model – AERMOD, (EPA)454/B-03-001.

# 10. DEFINITIONS AND ABBREVIATIONS

**8- hour health impacts -** health effect that occurs from short term exposure to substances with 8 hour chronic RELs.

**Acute health impacts** - health effect that occurs from short term exposure to substances with acute RELs.

**Cancer burden** - the estimated number of theoretical cancer cases in a defined population resulting from lifetime exposure to pollutants emitted from a facility.

**Cancer health impacts** - health effect that occurs from exposure to carcinogenic substances.

**Census tract** - a physical area used by the U.S. Census Bureau to compile population and other statistical data.

**Chronic health impacts** - health effect that occurs from long term exposure to substances with chronic RELs.

**HARP2**- Hot Spots Analysis and Reporting Program.

**Hazard index, acute** - health risk index created by dividing the concentration of a substance by its corresponding acute REL.

**Hazard index, chronic** - health risk index created by dividing the concentration of a substance by its corresponding chronic REL.

**MEIW** - maximum exposed individual worker.

**MEIR** - maximum exposed individual resident.

**Multipathway substances** - substances that can be taken into a human receptor by inhalation and by other exposure routes.

**OEHHA** - Office of Environmental Health Hazard Assessment.

**PMI** - point of maximum impact; offsite receptor location where the highest health risk occurs.

**REL** - reference exposure level - An exposure level at or below which no noncancer adverse health effect is anticipated to occur in a human population exposed for a specific duration.

**SCAQMD** - South Coast Air Quality Management District.

**Sensitive receptors** - a location such as a school, hospital, or daycare center, where the human occupants are considered to be more sensitive to pollutants than average.

**Toxicological endpoint** - an organ or organ system that could potentially be adversely affected by a substance if above a certain concentration.

**ZOI** - zone of impact - the area in the vicinity of the facility in which an individual is exposed to a cancer risk greater than one in a million, or a non-cancer health risk (acute or chronic) greater than one.

# APPENDIX A -
# TABLES

**Table 1 - Business Identification Information**

| | |
|---|---|
| Business Name | Pac Rancho, Inc. |
| Facility Address | 11000 Jersey Boulevard in Rancho Cucamonga, California |
| Mailing Address | 11000 Jersey Boulevard in Rancho Cucamonga, California |
| County | San Bernardino |
| Phone | 909.595.2252 |
| Facility ID | 140871 |
| Principle Business Activity | Aluminum foundry |
| Contact Person | Marisol Gallegos |
| SIC | 3365 |
| NAICS | 331524 |

**Table 2 - Maximum One-Hour and Annual Emissions for All Sources at Facility**

| Listed substance | CAS/CARB Number | Maximum 1-Hour Emissions | | Average Annual Emissions | |
|---|---|---|---|---|---|
| | | lbs/hr | grams/sec | lbs/yr | grams/sec |
| Acenaphthene | 83329 | 3.98E-08 | 5.01E-09 | 2.86E-05 | 4.12E-10 |
| Acenaphthylene | 208968 | 3.98E-08 | 5.01E-09 | 2.86E-05 | 4.12E-10 |
| Acetaldehyde | 75070 | 9.57E-05 | 1.21E-05 | 7.04E-02 | 1.01E-06 |
| Acrolein | 107028 | 5.97E-05 | 7.52E-06 | 4.29E-02 | 6.17E-07 |
| Aluminum | 7429905 | 7.21E-02 | 9.08E-03 | 2.25E+02 | 3.23E-03 |
| Aluminum oxide | 1344281 | 3.64E-03 | 4.59E-04 | 1.02E+01 | 1.47E-04 |
| Ammonia | 7664417 | 1.43E-01 | 1.80E-02 | 2.86E+02 | 4.12E-03 |
| Anthracene | 120127 | 5.30E-08 | 6.68E-09 | 3.81E-05 | 5.49E-10 |
| Benzene | 71432 | 1.77E-04 | 2.23E-05 | 1.27E-01 | 1.83E-06 |
| Beryllium | 7440417 | 2.36E-05 | 2.98E-06 | 7.37E-02 | 1.06E-06 |
| Benzo (a) anthracene | 56553 | 3.98E-08 | 5.01E-09 | 2.86E-05 | 4.12E-10 |
| Benzo (a) pyrene | 50328 | 2.65E-08 | 3.34E-09 | 1.91E-05 | 2.74E-10 |
| Benzo (b) fluoranthene | 205992 | 3.98E-08 | 5.01E-09 | 2.86E-05 | 4.12E-10 |
| Benzo (g,h,i) perylene | 191242 | 2.65E-08 | 3.34E-09 | 1.91E-05 | 2.74E-10 |
| Benzo (k) fluoranthene | 207089 | 3.98E-08 | 5.01E-09 | 2.86E-05 | 4.12E-10 |
| Carbon monoxide | 630080 | 7.74E-01 | 9.75E-02 | 5.56E+02 | 8.00E-03 |
| Chromium | 7440473 | 4.13E-04 | 5.21E-05 | 1.25E+00 | 1.79E-05 |
| Chrysene | 218019 | 3.98E-08 | 5.01E-09 | 2.86E-05 | 4.12E-10 |
| Cobalt | 7440484 | 3.86E-07 | 4.86E-08 | 1.20E-03 | 1.73E-08 |
| Copper | 7440508 | 5.26E-03 | 6.62E-04 | 1.64E+01 | 2.36E-04 |
| Crystalline silica | 1175 | 1.04E-03 | 1.31E-04 | 3.24E+00 | 4.66E-05 |
| Cyclohexane | 110827 | 2.20E-02 | 2.77E-03 | 6.87E+01 | 9.88E-04 |
| Dibenz (a,h) anthracene | 53703 | 2.65E-08 | 3.34E-09 | 1.91E-05 | 2.74E-10 |
| Dichlorobenzene | 106467 | 2.65E-05 | 3.34E-06 | 1.91E-02 | 2.74E-07 |
| Diethylene glycol | 111466 | 7.55E-02 | 9.51E-03 | 2.36E+02 | 3.39E-03 |
| Dimethylbenz(a)anthracene, 7,12- | 57976 | 3.54E-07 | 4.46E-08 | 2.54E-04 | 3.66E-09 |
| Dioxane, 1,4- | 123911 | 1.83E-05 | 2.30E-06 | 5.70E-02 | 8.20E-07 |
| Ethyl acrylate | 140885 | 2.43E-06 | 3.06E-07 | 7.59E-03 | 1.09E-07 |
| Ethylbenzene | 100414 | 2.10E-04 | 2.65E-05 | 1.51E-01 | 2.17E-06 |
| Ethylene oxide | 75218 | 1.83E-05 | 2.30E-06 | 5.70E-02 | 8.20E-07 |
| Fluoranthene | 206440 | 6.63E-08 | 8.35E-09 | 4.77E-05 | 6.86E-10 |
| Fluorene | 86737 | 6.19E-08 | 7.80E-09 | 4.45E-05 | 6.40E-10 |
| Formaldehyde | 50000 | 6.26E-04 | 7.89E-05 | 1.05E+00 | 1.51E-05 |
| Hexane, n- | 110543 | 1.39E-04 | 1.75E-05 | 1.00E-01 | 1.44E-06 |
| Hexavalent chromium | 18540299 | 7.47E-06 | 9.41E-07 | 2.12E-02 | 3.05E-07 |
| Indeno(1,2,3-cd)pyrene | 193395 | 3.98E-08 | 5.01E-09 | 2.86E-05 | 4.12E-10 |
| Isopropyl alcohol | 67630 | 3.11E-01 | 3.92E-02 | 9.70E+02 | 1.40E-02 |
| Lead | 7439921 | 1.59E-06 | 2.01E-07 | 4.97E-03 | 7.15E-08 |
| Manganese | 7439965 | 7.63E-03 | 9.62E-04 | 2.38E+01 | 3.43E-04 |
| Methylcholanthrene, 3- | 56495 | 3.98E-08 | 5.01E-09 | 2.86E-05 | 4.12E-10 |
| Methylene diphenyl diisocyanate | 101688 | 4.21E-09 | 5.31E-10 | 1.31E-05 | 1.89E-10 |
| Methylnaphthalene,2- | 91576 | 5.30E-07 | 6.68E-08 | 3.81E-04 | 5.49E-09 |
| Naphthalene | 91203 | 6.63E-06 | 8.35E-07 | 4.77E-03 | 6.86E-08 |
| Nickel | 7440020 | 1.40E-04 | 1.76E-05 | 4.22E-01 | 6.07E-06 |
| Nitric acid | 7697372 | 3.51E-03 | 4.42E-04 | 3.07E+01 | 4.42E-04 |
| PAH | 1151 | 2.61E-07 | 3.29E-08 | 1.88E-04 | 2.70E-09 |
| Phenanthrene | 85018 | 3.76E-07 | 4.73E-08 | 2.70E-04 | 3.89E-09 |
| Phosphoric acid | 7664382 | 2.98E-04 | 3.75E-05 | 2.61E+00 | 3.75E-05 |
| Phosphorous | 7723140 | 1.68E-05 | 2.11E-06 | 5.22E-02 | 7.51E-07 |
| Pyrene | 129000 | 1.11E-07 | 1.39E-08 | 7.95E-05 | 1.14E-09 |
| Sulfuric acid | 7664939 | 3.27E-20 | 4.11E-21 | 2.86E-16 | 4.11E-21 |
| Toluene | 108883 | 8.09E-04 | 1.02E-04 | 5.82E-01 | 8.37E-06 |
| Vanadium | 7440622 | 3.38E-08 | 4.26E-09 | 1.05E-04 | 1.52E-09 |
| Xylenes | 1330207 | 6.01E-04 | 7.58E-05 | 4.32E-01 | 6.22E-06 |
| Zinc compounds | 7440666 | 6.13E-04 | 7.73E-05 | 1.91E+00 | 2.75E-05 |

**Table 3 - Annual Average and Maximum Hourly Emissions Summary by Source**

| Source ID | Source Name | Substance Name | CAS Number | Average Annual Emissions, lbs/yr | Average Annual Emissions, grams/sec | Maximum One Hour Emissions, lbs/hr | Maximum One Hour Emissions, grams/sec |
|---|---|---|---|---|---|---|---|
| S0001 | Production Building | Acenaphthene | 83329 | 2.39E-05 | 3.44E-10 | 3.33E-08 | 4.19E-09 |
| S0001 | Production Building | Acenaphthylene | 208968 | 2.39E-05 | 3.44E-10 | 3.33E-08 | 4.19E-09 |
| S0001 | Production Building | Acetaldehyde | 75070 | 5.92E-02 | 8.52E-07 | 8.02E-05 | 1.01E-05 |
| S0001 | Production Building | Acrolein | 107028 | 3.59E-02 | 5.16E-07 | 4.99E-05 | 6.29E-06 |
| S0001 | Production Building | Aluminum | 7429905 | 2.23E+02 | 3.20E-03 | 7.14E-02 | 8.99E-03 |
| S0001 | Production Building | Aluminum oxide | 1344281 | 1.02E+01 | 1.47E-04 | 3.64E-03 | 4.59E-04 |
| S0001 | Production Building | Ammonia | 7664417 | 2.60E+02 | 3.74E-03 | 1.29E-01 | 1.62E-02 |
| S0001 | Production Building | Anthracene | 120127 | 3.19E-05 | 4.59E-10 | 4.44E-08 | 5.59E-09 |
| S0001 | Production Building | Benzene | 56553 | 2.39E-05 | 3.44E-10 | 3.33E-08 | 4.19E-09 |
| S0001 | Production Building | Beryllium | 71432 | 1.06E-01 | 1.53E-06 | 1.48E-04 | 1.86E-05 |
| S0001 | Production Building | Benzo (a) anthracene | 50328 | 1.60E-05 | 2.29E-10 | 2.22E-08 | 2.80E-09 |
| S0001 | Production Building | Benzo (a) pyrene | 205992 | 2.39E-05 | 3.44E-10 | 3.33E-08 | 4.19E-09 |
| S0001 | Production Building | Benzo (b) fluoranthene | 191242 | 1.60E-05 | 2.29E-10 | 2.22E-08 | 2.80E-09 |
| S0001 | Production Building | Benzo (g,h,i) perylene | 207089 | 2.39E-05 | 3.44E-10 | 3.33E-08 | 4.19E-09 |
| S0001 | Production Building | Benzo (k) fluoranthene | 7440417 | 7.35E-02 | 1.06E-06 | 2.36E-05 | 2.97E-06 |
| S0001 | Production Building | Carbon monoxide | 630080 | 4.65E+02 | 6.69E-03 | 6.47E-01 | 8.15E-02 |
| S0001 | Production Building | Chromium | 7440473 | 7.15E-01 | 1.03E-05 | 2.43E-04 | 3.06E-05 |
| S0001 | Production Building | Chrysene | 218019 | 2.39E-05 | 3.44E-10 | 3.33E-08 | 4.19E-09 |
| S0001 | Production Building | Cobalt | 7440484 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0001 | Production Building | Copper | 7440508 | 1.63E+01 | 2.34E-04 | 5.22E-03 | 6.58E-04 |
| S0001 | Production Building | Crystalline silica | 1175 | 3.24E+00 | 4.66E-05 | 1.04E-03 | 1.31E-04 |
| S0001 | Production Building | Cyclohexane | 110827 | 6.87E+01 | 9.88E-04 | 2.20E-02 | 2.77E-03 |
| S0001 | Production Building | Dibenz (a,h) anthracene | 53703 | 1.60E-05 | 2.29E-10 | 2.22E-08 | 2.80E-09 |
| S0001 | Production Building | Dichlorobenzene | 106467 | 1.60E-02 | 2.29E-07 | 2.22E-05 | 2.80E-06 |
| S0001 | Production Building | Diethylene glycol | 111466 | 2.36E+02 | 3.39E-03 | 7.55E-02 | 9.51E-03 |
| S0001 | Production Building | Dimethylbenz(a)anthracene, 7,12- | 57976 | 2.13E-04 | 3.06E-09 | 2.96E-07 | 3.73E-08 |
| S0001 | Production Building | Dioxane, 1,4- | 123911 | 5.70E-02 | 8.20E-07 | 1.83E-05 | 2.30E-06 |
| S0001 | Production Building | Ethyl acrylate | 140885 | 7.59E-03 | 1.09E-07 | 2.43E-06 | 3.06E-07 |
| S0001 | Production Building | Ethylbenzene | 100414 | 1.26E-01 | 1.82E-06 | 1.76E-04 | 2.21E-05 |
| S0001 | Production Building | Ethylene oxide | 75218 | 5.70E-02 | 8.20E-07 | 1.83E-05 | 2.30E-06 |
| S0001 | Production Building | Fluoranthene | 206440 | 3.99E-05 | 5.74E-10 | 5.55E-08 | 6.99E-09 |
| S0001 | Production Building | Fluorene | 86737 | 3.72E-05 | 5.35E-10 | 5.18E-08 | 6.52E-09 |
| S0001 | Production Building | Formaldehyde | 50000 | 1.01E+00 | 1.45E-05 | 5.65E-04 | 7.12E-05 |
| S0001 | Production Building | Hexane, n- | 110543 | 8.38E-02 | 1.20E-06 | 1.16E-04 | 1.47E-05 |
| S0001 | Production Building | Hexavalent chromium | 18540299 | 2.12E-02 | 3.05E-07 | 7.47E-06 | 9.41E-07 |
| S0001 | Production Building | Indeno(1,2,3-cd)pyrene | 193395 | 2.39E-05 | 3.44E-10 | 3.33E-08 | 4.19E-09 |
| S0001 | Production Building | Isopropyl alcohol | 67630 | 9.70E+02 | 1.40E-02 | 3.11E-01 | 3.92E-02 |
| S0001 | Production Building | Lead | 7439921 | 4.79E-03 | 6.90E-08 | 1.54E-06 | 1.94E-07 |
| S0001 | Production Building | Manganese | 7439965 | 2.38E+01 | 3.42E-04 | 7.62E-03 | 9.61E-04 |
| S0001 | Production Building | Methylcholanthrene, 3- | 56495 | 2.39E-05 | 3.44E-10 | 3.33E-08 | 4.19E-09 |
| S0001 | Production Building | Methylene diphenyl diisocyanate | 101688 | 1.31E-05 | 1.89E-10 | 4.21E-09 | 5.31E-10 |
| S0001 | Production Building | Methylnaphthalene,2- | 91576 | 3.19E-04 | 4.59E-09 | 4.44E-07 | 5.59E-08 |
| S0001 | Production Building | Naphthalene | 91203 | 3.99E-03 | 5.74E-08 | 5.55E-06 | 6.99E-07 |
| S0001 | Production Building | Nickel | 7440020 | 2.63E-01 | 3.79E-06 | 8.86E-05 | 1.12E-05 |
| S0001 | Production Building | Nitric acid | 7697372 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0001 | Production Building | PAH | 1151 | 1.57E-04 | 2.26E-09 | 2.18E-07 | 2.75E-08 |
| S0001 | Production Building | Phenanthrene | 85018 | 2.26E-04 | 3.25E-09 | 3.14E-07 | 3.96E-08 |
| S0001 | Production Building | Phosphoric acid | 7664382 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0001 | Production Building | Phosphorous | 7723140 | 5.07E-02 | 7.29E-07 | 1.63E-05 | 2.05E-06 |
| S0001 | Production Building | Pyrene | 129000 | 6.65E-05 | 9.56E-10 | 9.24E-08 | 1.16E-08 |
| S0001 | Production Building | Sulfuric acid | 7664939 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0001 | Production Building | Toluene | 108883 | 4.87E-01 | 7.00E-06 | 6.77E-04 | 8.53E-05 |
| S0001 | Production Building | Vanadium | 7440622 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0001 | Production Building | Xylenes | 1330207 | 3.62E-01 | 5.20E-06 | 5.03E-04 | 6.34E-05 |
| S0001 | Production Building | Zinc compounds | 7440666 | 1.91E+00 | 2.75E-05 | 6.13E-04 | 7.72E-05 |

**Table 3 - Annual Average and Maximum Hourly Emissions Summary by Source**

| Source ID | Source Name | Substance Name | CAS Number | Average Annual Emissions, lbs/yr | Average Annual Emissions, grams/sec | Maximum One Hour Emissions, lbs/hr | Maximum One Hour Emissions, grams/sec |
|---|---|---|---|---|---|---|---|
| S0002 | Flash Fire Oven | Acenaphthene | 83329 | 2.79E-06 | 4.01E-11 | 3.88E-09 | 4.89E-10 |
| S0002 | Flash Fire Oven | Acenaphthylene | 208968 | 2.79E-06 | 4.01E-11 | 3.88E-09 | 4.89E-10 |
| S0002 | Flash Fire Oven | Acetaldehyde | 75070 | 6.66E-03 | 9.58E-08 | 9.27E-06 | 1.17E-06 |
| S0002 | Flash Fire Oven | Acrolein | 107028 | 4.18E-03 | 6.02E-08 | 5.82E-06 | 7.33E-07 |
| S0002 | Flash Fire Oven | Aluminum | 7429905 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Aluminum oxide | 1344281 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Ammonia | 7664417 | 4.96E+00 | 7.13E-05 | 6.89E-03 | 8.69E-04 |
| S0002 | Flash Fire Oven | Anthracene | 120127 | 3.72E-06 | 5.35E-11 | 5.17E-09 | 6.52E-10 |
| S0002 | Flash Fire Oven | Benzene | 56553 | 2.79E-06 | 4.01E-11 | 3.88E-09 | 4.89E-10 |
| S0002 | Flash Fire Oven | Beryllium | 71432 | 1.24E-02 | 1.78E-07 | 1.72E-05 | 2.17E-06 |
| S0002 | Flash Fire Oven | Benzo (a) anthracene | 50328 | 1.86E-06 | 2.67E-11 | 2.59E-09 | 3.26E-10 |
| S0002 | Flash Fire Oven | Benzo (a) pyrene | 205992 | 2.79E-06 | 4.01E-11 | 3.88E-09 | 4.89E-10 |
| S0002 | Flash Fire Oven | Benzo (b) fluoranthene | 191242 | 1.86E-06 | 2.67E-11 | 2.59E-09 | 3.26E-10 |
| S0002 | Flash Fire Oven | Benzo (g,h,i) perylene | 207089 | 2.79E-06 | 4.01E-11 | 3.88E-09 | 4.89E-10 |
| S0002 | Flash Fire Oven | Benzo (k) fluoranthene | 7440417 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Carbon monoxide | 630080 | 5.42E+01 | 7.80E-04 | 7.54E-02 | 9.50E-03 |
| S0002 | Flash Fire Oven | Chromium | 7440473 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Chrysene | 218019 | 2.79E-06 | 4.01E-11 | 3.88E-09 | 4.89E-10 |
| S0002 | Flash Fire Oven | Cobalt | 7440484 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Copper | 7440508 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Crystalline silica | 1175 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Cyclohexane | 110827 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Dibenz (a,h) anthracene | 53703 | 1.86E-06 | 2.67E-11 | 2.59E-09 | 3.26E-10 |
| S0002 | Flash Fire Oven | Dichlorobenzene | 106467 | 1.86E-03 | 2.67E-08 | 2.59E-06 | 3.26E-07 |
| S0002 | Flash Fire Oven | Diethylene glycol | 111466 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Dimethylbenz(a)anthracene, 7,12- | 57976 | 2.48E-05 | 3.57E-10 | 3.45E-08 | 4.34E-09 |
| S0002 | Flash Fire Oven | Dioxane, 1,4- | 123911 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Ethyl acrylate | 140885 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Ethylbenzene | 100414 | 1.47E-02 | 2.12E-07 | 2.05E-05 | 2.58E-06 |
| S0002 | Flash Fire Oven | Ethylene oxide | 75218 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Fluoranthene | 206440 | 4.65E-06 | 6.69E-11 | 6.46E-09 | 8.14E-10 |
| S0002 | Flash Fire Oven | Fluorene | 86737 | 4.34E-06 | 6.24E-11 | 6.03E-09 | 7.60E-10 |
| S0002 | Flash Fire Oven | Formaldehyde | 50000 | 2.63E-02 | 3.79E-07 | 3.66E-05 | 4.62E-06 |
| S0002 | Flash Fire Oven | Hexane, n- | 110543 | 9.76E-03 | 1.40E-07 | 1.36E-05 | 1.71E-06 |
| S0002 | Flash Fire Oven | Hexavalent chromium | 18540299 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Indeno(1,2,3-cd)pyrene | 193395 | 2.79E-06 | 4.01E-11 | 3.88E-09 | 4.89E-10 |
| S0002 | Flash Fire Oven | Isopropyl alcohol | 67630 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Lead | 7439921 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Manganese | 7439965 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Methylcholanthrene, 3- | 56495 | 2.79E-06 | 4.01E-11 | 3.88E-09 | 4.89E-10 |
| S0002 | Flash Fire Oven | Methylene diphenyl diisocyanate | 101688 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Methylnaphthalene,2- | 91576 | 3.72E-05 | 5.35E-10 | 5.17E-08 | 6.52E-09 |
| S0002 | Flash Fire Oven | Naphthalene | 91203 | 4.65E-04 | 6.69E-09 | 6.46E-07 | 8.14E-08 |
| S0002 | Flash Fire Oven | Nickel | 7440020 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Nitric acid | 7697372 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | PAH | 1151 | 1.83E-05 | 2.63E-10 | 2.54E-08 | 3.20E-09 |
| S0002 | Flash Fire Oven | Phenanthrene | 85018 | 2.63E-05 | 3.79E-10 | 3.66E-08 | 4.62E-09 |
| S0002 | Flash Fire Oven | Phosphoric acid | 7664382 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Phosphorous | 7723140 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Pyrene | 129000 | 7.75E-06 | 1.11E-10 | 1.08E-08 | 1.36E-09 |
| S0002 | Flash Fire Oven | Sulfuric acid | 7664939 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Toluene | 108883 | 5.67E-02 | 8.16E-07 | 7.89E-05 | 9.94E-06 |
| S0002 | Flash Fire Oven | Vanadium | 7440622 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0002 | Flash Fire Oven | Xylenes | 1330207 | 4.21E-02 | 6.06E-07 | 5.86E-05 | 7.38E-06 |
| S0002 | Flash Fire Oven | Zinc compounds | 7440666 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**Table 3 - Annual Average and Maximum Hourly Emissions Summary by Source**

| Source ID | Source Name | Substance Name | CAS Number | Average Annual Emissions, lbs/yr | Average Annual Emissions, grams/sec | Maximum One Hour Emissions, lbs/hr | Maximum One Hour Emissions, grams/sec |
|---|---|---|---|---|---|---|---|
| S0003 | Heat Treat Oven | Acenaphthene | 83329 | 1.89E-06 | 2.72E-11 | 2.63E-09 | 3.31E-10 |
| S0003 | Heat Treat Oven | Acenaphthylene | 208968 | 1.89E-06 | 2.72E-11 | 2.63E-09 | 3.31E-10 |
| S0003 | Heat Treat Oven | Acetaldehyde | 75070 | 4.51E-03 | 6.49E-08 | 6.27E-06 | 7.91E-07 |
| S0003 | Heat Treat Oven | Acrolein | 107028 | 2.83E-03 | 4.07E-08 | 3.94E-06 | 4.96E-07 |
| S0003 | Heat Treat Oven | Aluminum | 7429905 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Aluminum oxide | 1344281 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Ammonia | 7664417 | 3.36E+00 | 4.83E-05 | 4.67E-03 | 5.88E-04 |
| S0003 | Heat Treat Oven | Anthracene | 120127 | 2.52E-06 | 3.62E-11 | 3.50E-09 | 4.41E-10 |
| S0003 | Heat Treat Oven | Benzene | 56553 | 1.89E-06 | 2.72E-11 | 2.63E-09 | 3.31E-10 |
| S0003 | Heat Treat Oven | Beryllium | 71432 | 8.39E-03 | 1.21E-07 | 1.17E-05 | 1.47E-06 |
| S0003 | Heat Treat Oven | Benzo (a) anthracene | 50328 | 1.26E-06 | 1.81E-11 | 1.75E-09 | 2.21E-10 |
| S0003 | Heat Treat Oven | Benzo (a) pyrene | 205992 | 1.89E-06 | 2.72E-11 | 2.63E-09 | 3.31E-10 |
| S0003 | Heat Treat Oven | Benzo (b) fluoranthene | 191242 | 1.26E-06 | 1.81E-11 | 1.75E-09 | 2.21E-10 |
| S0003 | Heat Treat Oven | Benzo (g,h,i) perylene | 207089 | 1.89E-06 | 2.72E-11 | 2.63E-09 | 3.31E-10 |
| S0003 | Heat Treat Oven | Benzo (k) fluoranthene | 7440417 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Carbon monoxide | 630080 | 3.67E+01 | 5.28E-04 | 5.11E-02 | 6.43E-03 |
| S0003 | Heat Treat Oven | Chromium | 7440473 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Chrysene | 218019 | 1.89E-06 | 2.72E-11 | 2.63E-09 | 3.31E-10 |
| S0003 | Heat Treat Oven | Cobalt | 7440484 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Copper | 7440508 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Crystalline silica | 1175 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Cyclohexane | 110827 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Dibenz (a,h) anthracene | 53703 | 1.26E-06 | 1.81E-11 | 1.75E-09 | 2.21E-10 |
| S0003 | Heat Treat Oven | Dichlorobenzene | 106467 | 1.26E-03 | 1.81E-08 | 1.75E-06 | 2.21E-07 |
| S0003 | Heat Treat Oven | Diethylene glycol | 111466 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Dimethylbenz(a)anthracene, 7,12- | 57976 | 1.68E-05 | 2.41E-10 | 2.33E-08 | 2.94E-09 |
| S0003 | Heat Treat Oven | Dioxane, 1,4- | 123911 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Ethyl acrylate | 140885 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Ethylbenzene | 100414 | 9.97E-03 | 1.43E-07 | 1.39E-05 | 1.75E-06 |
| S0003 | Heat Treat Oven | Ethylene oxide | 75218 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Fluoranthene | 206440 | 3.15E-06 | 4.53E-11 | 4.38E-09 | 5.52E-10 |
| S0003 | Heat Treat Oven | Fluorene | 86737 | 2.94E-06 | 4.23E-11 | 4.09E-09 | 5.15E-10 |
| S0003 | Heat Treat Oven | Formaldehyde | 50000 | 1.78E-02 | 2.57E-07 | 2.48E-05 | 3.13E-06 |
| S0003 | Heat Treat Oven | Hexane, n- | 110543 | 6.61E-03 | 9.51E-08 | 9.19E-06 | 1.16E-06 |
| S0003 | Heat Treat Oven | Hexavalent chromium | 18540299 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Indeno(1,2,3-cd)pyrene | 193395 | 1.89E-06 | 2.72E-11 | 2.63E-09 | 3.31E-10 |
| S0003 | Heat Treat Oven | Isopropyl alcohol | 67630 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Lead | 7439921 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Manganese | 7439965 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Methylcholanthrene, 3- | 56495 | 1.89E-06 | 2.72E-11 | 2.63E-09 | 3.31E-10 |
| S0003 | Heat Treat Oven | Methylene diphenyl diisocyanate | 101688 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Methylnaphthalene,2- | 91576 | 2.52E-05 | 3.62E-10 | 3.50E-08 | 4.41E-09 |
| S0003 | Heat Treat Oven | Naphthalene | 91203 | 3.15E-04 | 4.53E-09 | 4.38E-07 | 5.52E-08 |
| S0003 | Heat Treat Oven | Nickel | 7440020 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Nitric acid | 7697372 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | PAH | 1151 | 1.24E-05 | 1.78E-10 | 1.72E-08 | 2.17E-09 |
| S0003 | Heat Treat Oven | Phenanthrene | 85018 | 1.78E-05 | 2.57E-10 | 2.48E-08 | 3.13E-09 |
| S0003 | Heat Treat Oven | Phosphoric acid | 7664382 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Phosphorous | 7723140 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Pyrene | 129000 | 5.25E-06 | 7.55E-11 | 7.30E-09 | 9.19E-10 |
| S0003 | Heat Treat Oven | Sulfuric acid | 7664939 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Toluene | 108883 | 3.84E-02 | 5.52E-07 | 5.34E-05 | 6.73E-06 |
| S0003 | Heat Treat Oven | Vanadium | 7440622 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0003 | Heat Treat Oven | Xylenes | 1330207 | 2.85E-02 | 4.11E-07 | 3.97E-05 | 5.00E-06 |
| S0003 | Heat Treat Oven | Zinc compounds | 7440666 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**Table 3 - Annual Average and Maximum Hourly Emissions Summary by Source**

| Source ID | Source Name | Substance Name | CAS Number | Average Annual Emissions, lbs/yr | Average Annual Emissions, grams/sec | Maximum One Hour Emissions, lbs/hr | Maximum One Hour Emissions, grams/sec |
|---|---|---|---|---|---|---|---|
| S0004 | Aluminum Parts Bright Dip Line | Acenaphthene | 83329 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Acenaphthylene | 208968 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Acetaldehyde | 75070 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Acrolein | 107028 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Aluminum | 7429905 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Aluminum oxide | 1344281 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Ammonia | 7664417 | 1.79E+01 | 2.58E-04 | 2.04E-03 | 2.58E-04 |
| S0004 | Aluminum Parts Bright Dip Line | Anthracene | 120127 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Benzene | 56553 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Beryllium | 71432 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Benzo (a) anthracene | 50328 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Benzo (a) pyrene | 205992 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Benzo (b) fluoranthene | 191242 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Benzo (g,h,i) perylene | 207089 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Benzo (k) fluoranthene | 7440417 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Carbon monoxide | 630080 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Chromium | 7440473 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Chrysene | 218019 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Cobalt | 7440484 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Copper | 7440508 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Crystalline silica | 1175 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Cyclohexane | 110827 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Dibenz (a,h) anthracene | 53703 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Dichlorobenzene | 106467 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Diethylene glycol | 111466 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Dimethylbenz(a)anthracene, 7,12- | 57976 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Dioxane, 1,4- | 123911 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Ethyl acrylate | 140885 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Ethylbenzene | 100414 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Ethylene oxide | 75218 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Fluoranthene | 206440 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Fluorene | 86737 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Formaldehyde | 50000 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Hexane, n- | 110543 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Hexavalent chromium | 18540299 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Indeno(1,2,3-cd)pyrene | 193395 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Isopropyl alcohol | 67630 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Lead | 7439921 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Manganese | 7439965 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Methylcholanthrene, 3- | 56495 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Methylene diphenyl diisocyanate | 101688 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Methylnaphthalene,2- | 91576 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Naphthalene | 91203 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Nickel | 7440020 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Nitric acid | 7697372 | 3.07E+01 | 4.42E-04 | 3.51E-03 | 4.42E-04 |
| S0004 | Aluminum Parts Bright Dip Line | PAH | 1151 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Phenanthrene | 85018 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Phosphoric acid | 7664382 | 2.61E+00 | 3.75E-05 | 2.98E-04 | 3.75E-05 |
| S0004 | Aluminum Parts Bright Dip Line | Phosphorous | 7723140 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Pyrene | 129000 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Sulfuric acid | 7664939 | 2.86E-16 | 4.11E-21 | 3.27E-20 | 4.11E-21 |
| S0004 | Aluminum Parts Bright Dip Line | Toluene | 108883 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Vanadium | 7440622 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Xylenes | 1330207 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0004 | Aluminum Parts Bright Dip Line | Zinc compounds | 7440666 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**Table 3 - Annual Average and Maximum Hourly Emissions Summary by Source**

| Source ID | Source Name | Substance Name | CAS Number | Average Annual Emissions, lbs/yr | Average Annual Emissions, grams/sec | Maximum One Hour Emissions, lbs/hr | Maximum One Hour Emissions, grams/sec |
|---|---|---|---|---|---|---|---|
| S0005 | Metal Grinding | Acenaphthene | 83329 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Acenaphthylene | 208968 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Acetaldehyde | 75070 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Acrolein | 107028 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Aluminum | 7429905 | 2.20E+00 | 3.16E-05 | 7.05E-04 | 8.89E-05 |
| S0005 | Metal Grinding | Aluminum oxide | 1344281 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Ammonia | 7664417 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Anthracene | 120127 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Benz(a)anthracene | 56553 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Benzene | 71432 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Benzo(a)pyrene | 50328 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Benzo(b)fluoranthene | 205992 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Benzo(g,h,i)perylene | 191242 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Benzo(k)fluoranthene | 207089 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Beryllium | 7440417 | 2.02E-04 | 2.91E-09 | 6.48E-08 | 8.16E-09 |
| S0005 | Metal Grinding | Carbon monoxide | 630080 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Chromium | 7440473 | 5.32E-01 | 7.65E-06 | 1.71E-04 | 2.15E-05 |
| S0005 | Metal Grinding | Chrysene | 218019 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Cobalt | 7440484 | 1.20E-03 | 1.73E-08 | 3.86E-07 | 4.86E-08 |
| S0005 | Metal Grinding | Copper | 7440508 | 1.10E-01 | 1.58E-06 | 3.53E-05 | 4.45E-06 |
| S0005 | Metal Grinding | Crystalline silica | 1175 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Cyclohexane | 110827 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Dibenz(a,h)anthracene | 53703 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Dichlorobenzene | 106467 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Diethylene glycol | 111466 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Dimethylbenz(a)anthracene, 7,12- | 57976 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Dioxane, 1,4- | 123911 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Ethyl acrylate | 140885 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Ethylbenzene | 100414 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Ethylene oxide | 75218 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Fluoranthene | 206440 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Fluorene | 86737 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Formaldehyde | 50000 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Hexane, n- | 110543 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Hexavalent chromium | 18540299 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Indeno(1,2,3-cd)pyrene | 193395 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Isopropyl alcohol | 67630 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Lead | 7439921 | 1.74E-04 | 2.50E-09 | 5.57E-08 | 7.02E-09 |
| S0005 | Metal Grinding | Manganese | 7439965 | 3.48E-02 | 5.01E-07 | 1.12E-05 | 1.41E-06 |
| S0005 | Metal Grinding | Methylcholanthrene, 3- | 56495 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Methylene diphenyl diisocyanate | 101688 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Methylnaphthalene, 2- | 91576 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Naphthalene | 91203 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Nickel | 7440020 | 1.59E-01 | 2.28E-06 | 5.09E-05 | 6.41E-06 |
| S0005 | Metal Grinding | Nitric acid | 7697372 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | PAH (unspeciated) | 1151 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Phenanthrene | 85018 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Phosphoric acid | 7664382 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Phosphorus | 7723140 | 1.50E-03 | 2.16E-08 | 4.81E-07 | 6.06E-08 |
| S0005 | Metal Grinding | Pyrene | 129000 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Sulfuric acid | 7664939 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Toluene | 108883 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Vanadium | 7440622 | 1.05E-04 | 1.52E-09 | 3.38E-08 | 4.26E-09 |
| S0005 | Metal Grinding | Xylenes | 1330207 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | Zinc | 7440666 | 1.47E-03 | 2.12E-08 | 4.71E-07 | 5.94E-08 |

**Table 4 - Emission Inventory Methods**

| Source ID | Source Description | Method |
|---|---|---|
| S0001 | Steel Wax Burnout Oven 1 | Not operating |
| S0001 | Aluminum Pusher Furnace 4 and Afterburner | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0001 | Aluminum Pusher Furnace 2 and Afterburner | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0001 | Aluminum Box Oven and Afterburner | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0001 | Steel Wax Burnout Oven 4 and Afterburner | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0001 | Steel Wax Burnout Oven 3 and Afterburner | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0001 | Aluminum Pusher Furnace 3 | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0001 | Steel Wax Burnout Oven 2 | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0001 | Thermtronix Aluminum Melting 1 | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0001 | Thermtronix Aluminum Melting 2 | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0001 | Hot Straight Oven | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0001 | Propane Handheld Torch | Estimated using SCAQMD Emission Factors[1] |
| S0001 | Baghouse | Controls 70018 |
| S0001 | Abrasive Blasting Cabinet | Estimated using SCAQMD Emission Factors for Abrasive Blasting Operations |
| S0001 | Steel Melting, Pouring, Casting 75 lb Crucible | Estimated using AP-42 Table 12.13-2 and California Air Toxics Emission Factors)[3] |
| S0001 | Steel Melting, Pouring, Casting 65 lb Crucible | Estimated using AP-42 Table 12.13-2 and California Air Toxics Emission Factors)[3] |
| S0001 | Steel Melting, Pouring, Casting 300/650 lb Crucible | Estimated using AP-42 Table 12.13-2 and California Air Toxics Emission Factors)[3] |
| S0001 | Aluminum Melting, Pouring, Casting Thermtronix 1 | Estimated using AP-42 Table 12.8-2 and 12.11-2 and California Air Toxics Emission Factors)[4] |
| S0001 | Aluminum Melting, Pouring, Casting Thermtronix 2 | Estimated using AP-42 Table 12.8-2 and 12.11-2 and California Air Toxics Emission Factors)[4] |
| S0001 | Production - Binders | Mass balance |
| S0001 | Production - Cleaners | Mass balance |
| S0001 | Production - Lubricants | Mass balance |
| S0001 | Production - Adhesives and Solvents | Mass balance |
| S0001 | Production - Non Destructive Testing and Mold Release | Mass balance |
| S0001 | Production - Foam Packing | MDI Emissions Reporting Guidelines for the Polyurethane Industry American Chemistry Council May 2012 |
| S0001 | Welding | Estimated using San Diego Air Pollution Control District Welding Emission Factors |
| S0001 | Shell Making | Estimated using AP-42 Table 12.13-2 |
| S0001 | Abrasive Blasting Cabinet | Estimated using SCAQMD Emission Factors for Abrasive Blasting Operations |
| S0001 | Steel and Aluminum Testing | Reported under Production - Non Destructive Testing and Mold Release and Aluminum Parts Brite Dip Line |
| S0001 | Wax Burnout | Estimated using SCAQMD Flash Fire Oven A/N 312486 Evaluation |
| S0002 | Flash Fire Oven 5 and Afterburner | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0003 | Heat Treat Oven | Estimated using SCAQMD Emission Factors[1] and USEPA AP-42[2] |
| S0004 | Aluminum Parts Bright Dip Line and Scrubber | Estimated using SCAQMD Emission Factors[1] |
| S0005 | Metal Grinding | Estimated using engineering evaluation with SCAQMD Emission Factors[1] and metal dust analysis[5] |

1. SCAQMD, Reporting Procedures for AB2588 Faciliites Reporting their Quadrennial Air Toxics Emission Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3.

3. Hexavalent chromium emissions based on California Air Toxics Emission Factor for alloy stock, electric induction, primary metal production steel.

4. Hexavalent chromium emissions based on California Air Toxics Emission Factor for aluminum, reverberatory, secondary metal production.

5. Envirochem analysis, 4 June 2020.

**Table 5 - Emission Control Equipment**

| Source ID | Device | Efficiency, % | Substances |
|---|---|---|---|
| S0001 | Afterburner | 99 | Volatile TAC |
| S0005 | Metal Grinding | 99.97 | Non volatile TAC |

**Table 6a - Point Source Parameters**

| Source ID | Source Name | Source Type | WGS 84 | | Elevation, m | Release Height, m | Stack Temp, k | Stack diameter, m | Exit Velocity, m/s |
|---|---|---|---|---|---|---|---|---|---|
| | | | UTM East, m | UTM North, m | | | | | |
| S0002 | Flash Fire Oven 5 and Afterburner | Point | 447,931.70 | 3,772,874.00 | 346.81 | 7.315 | 1,033.15 | 0.457 | 12.959 |
| S0003 | Heat Treat Oven | Point | 447,894.70 | 3,772,858.00 | 346.49 | 7.315 | 620.65 | 0.457 | 12.959 |
| S0004 | Aluminum Parts Bright Dip Line | Point | 447,868.80 | 3,772,870.00 | 346.73 | 1.875 | 298.15 | 0.814 | 21.770 |
| S0005 | Metal Grinding | Point | 447,867.60 | 3,772,869.00 | 346.71 | 1.875 | 298.15 | 0.762 | 10.619 |

**Table 6b - Volume Source Parameters**

| Source ID | Source Name | Source Type | WGS 84 | | Elevation, m | Release Height, m | Init. Late. Dime., m | Init. Vert. Dime., m |
|---|---|---|---|---|---|---|---|---|
| | | | UTM East, m | UTM North, m | | | | |
| S0001 | Production | Volume | 447,900.00 | 3,772,845.00 | 346.24 | 3.075 | 11.628 | 2.859 |

**Table 7 - Source Operating Parameters**

| Source ID | Source Description | Hours/day | Days/week | Weeks/year | Hours/yr |
|---|---|---|---|---|---|
| S0001 | Steel Wax Burnout Oven 1 | 10 | 6 | 52 | 3,120 |
| S0001 | Aluminum Pusher Furnace 4 and Afterburner | 10 | 6 | 52 | 3,120 |
| S0001 | Aluminum Pusher Furnace 2 and Afterburner | 10 | 6 | 52 | 3,120 |
| S0001 | Aluminum Box Oven and Afterburner | 10 | 6 | 52 | 3,120 |
| S0001 | Steel Wax Burnout Oven 4 and Afterburner | 10 | 6 | 52 | 3,120 |
| S0001 | Steel Wax Burnout Oven 3 and Afterburner | 10 | 6 | 52 | 3,120 |
| S0001 | Aluminum Pusher Furnace 3 | 10 | 6 | 52 | 3,120 |
| S0001 | Steel Wax Burnout Oven 2 | 10 | 6 | 52 | 3,120 |
| S0001 | Thermtronix Aluminum Melting 1 | 10 | 6 | 52 | 3,120 |
| S0001 | Thermtronix Aluminum Melting 2 | 10 | 6 | 52 | 3,120 |
| S0001 | Hot Straight Oven | 10 | 6 | 52 | 3,120 |
| S0001 | Propane Handheld Torch | 10 | 6 | 52 | 3,120 |
| S0001 | Baghouse | 9 | 6 | 52 | 2,808 |
| S0001 | Abrasive Blasting Cabinet | 9 | 6 | 52 | 2,808 |
| S0001 | Steel Melting, Pouring, Casting 75 lb Crucible | 10 | 6 | 52 | 3,120 |
| S0001 | Steel Melting, Pouring, Casting 65 lb Crucible | 10 | 6 | 52 | 3,120 |
| S0001 | Steel Melting, Pouring, Casting 300/650 lb Cru | 10 | 6 | 52 | 3,120 |
| S0001 | Aluminum Melting, Pouring, Casting Thermtro | 10 | 6 | 52 | 3,120 |
| S0001 | Aluminum Melting, Pouring, Casting Thermtro | 10 | 6 | 52 | 3,120 |
| S0001 | Production - Binders | 10 | 6 | 52 | 3,120 |
| S0001 | Production - Cleaners | 10 | 6 | 52 | 3,120 |
| S0001 | Production - Lubricants | 10 | 6 | 52 | 3,120 |
| S0001 | Production - Adhesives and Solvents | 10 | 6 | 52 | 3,120 |
| S0001 | Production - Non Destructive Testing and Mol | 10 | 6 | 52 | 3,120 |
| S0001 | Production - Foam Packing | 10 | 6 | 52 | 3,120 |
| S0001 | Welding | 9 | 6 | 52 | 2,808 |
| S0001 | Shell Making | 10 | 6 | 52 | 3,120 |
| S0001 | Abrasive Blasting Cabinet | 9 | 6 | 52 | 2,808 |
| S0001 | Steel and Aluminum Testing* | NA | NA | NA | NA |
| S0001 | Wax Burnout | 10 | 6 | 52 | 3,120 |
| S0002 | Flash Fire Oven 5 and Afterburner | 10 | 6 | 52 | 3,120 |
| S0003 | Heat Treat Oven | 10 | 6 | 52 | 3,120 |
| S0004 | Aluminum Parts Bright Dip Line | 24 | 7 | 52 | 8,760 |
| S0005 | Metal Grinding | 10 | 6 | 52 | 3,120 |

* Reported under Production (Non Destructive Testing and Mold Release) and Aluminum Parts Brite Dip Line

**Table 8 - AERMOD Modeling Options**

| **Model Control Options** |
|---|
| Regulatory Default |
| Urban |
| Population - 2,035,210 |
| Roughness Length - 1 |
| **Source Options** |
| No Variable Emissions |
| **Receptor Grid** |
| 50 Meter Spacing Centered on Facility |
| 20 Meter Property Boundary Receptors |
| No Pathway Receptors |
| Flag Pole Height - 0 meters |
| **Meteorology Options** |
| Ontario |
| Period - 1 January 2012 to 31 December 2016 |
| **Terrain** |
| CARB DEM |
| **Building Downwash** |
| BPIP Prime Run |

Table 9 - Multipathway Substances Summary

| Listed substance | Potential Health Risk | CAS/CARB Number | Route of Exposure | Route of Exposure (Pending actual exposure) |
|---|---|---|---|---|
| Acenaphthene | | 83329 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Acenaphthylene | | 208968 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Acetaldehyde | Cancer, chronic, acute | 75070 | | |
| Acrolein | Chronic, acute | 107028 | | |
| Aluminum | | 7429905 | | |
| Aluminum oxide | | 1344281 | | |
| Ammonia | Chronic, acute | 7664417 | | |
| Anthracene | | 120127 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Benzene | Cancer, chronic, acute | 71432 | | |
| Benzo (a) anthracene | Cancer | 56553 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Benzo (a) pyrene | Cancer | 50328 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Benzo (b) fluoranthene | Cancer | 205992 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Benzo (g,h,i) perylene | | 191242 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Benzo (k) fluoranthene | Cancer | 207089 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Beryllium | Cancer, chronic | 7440417 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Carbon monoxide | | 630080 | | |
| Chromium | Acute, chronic | 7440473 | Inhalation, Soil ingestion, Dermal, Mother's milk | |
| Chrysene | Cancer | 218019 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Cobalt | Cancer | 7440484 | Inhalation, Soil ingestion, Dermal | |
| Copper | Acute | 7440508 | | |
| Crystalline silica | Chronic | 1175 | | |
| Cyclohexane | | 110827 | | |
| Dibenz (a,h) anthracene | Cancer | 53703 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Dichlorobenzene | Cancer, chronic | 106467 | | |
| Diethylene glycol | | 111466 | | |
| Dimethylbenz(a)anthracene, 7,12- | Cancer | 57976 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Dioxane, 1,4- | Cancer, chronic, acute | 123911 | | |
| Ethyl acrylate | | 140885 | | |
| Ethylbenzene | Cancer, chronic | 100414 | | |
| Ethylene oxide | Cancer, chronic | 75218 | | |
| Fluoranthene | | 206440 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Fluorene | | 86737 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Formaldehyde | Cancer, chronic, acute | 50000 | | |
| Hexane, n- | Chronic | 110543 | | |
| Hexavalent chromium | Cancer, chronic | 18540299 | Inhalation, Soil ingestion, Dermal | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Protected vegetable ingestion, Root vegetable ingestion, Water ingestion |
| Indeno(1,2,3-cd)pyrene | Cancer | 193395 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Isopropyl alcohol | Acute | 67630 | | |
| Lead | Cancer | 7439921 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Protected vegetable ingestion, Root vegetable ingestion, Water ingestion |
| Manganese | Chronic | 7439965 | | |
| Methylcholanthrene, 3- | Cancer | 56495 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Methylene diphenyl diisocyanate | Chronic | 101688 | | |
| Methylnaphthalene,2- | | 91576 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Naphthalene | Cancer, chronic | 91203 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Nickel | Cancer, chronic, acute | 7440020 | Inhalation, Soil ingestion, Dermal | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Protected vegetable ingestion, Root vegetable ingestion, Water ingestion |
| Nitric acid | Acute | 7697372 | | |
| PAH | Cancer | 1151 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Phenanthrene | | 85018 | Inhalation, Soil ingestion, Dermal, Mother's milk | Meat, milk, & egg ingestion, Fish ingestion, Exposed vegetable ingestion, Leafy vegetable ingestion, Water ingestion |
| Phosphoric acid | Chronic | 7664382 | | |
| Phosphorous | | 7723140 | | |
| Pyrene | | 129000 | | |
| Sulfuric acid | Acute, chronic | 7664939 | | |
| Toluene | Acute, chronic | 108883 | | |
| Vanadium | Acute | 7440622 | | |
| Xylenes | Acute, chronic | 1330207 | | |
| Zinc compounds | | 7440666 | | |

**Table 10a - Risk Factors and Affected Body Systems and Organs**

| Listed substance | CAS/CARB Number | Unit Risk ($(ug/m^3)^{-1}$) | Acute REL[1] ($ug/m^3$) | Chronic REL[1] ($ug/m^3$) | Toxicological Endpoint: System or Organ Affected[2] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CV | CNS | IMMUN | KIDNEY | GILV | REPRO/DEVEL | RESP | SKIN | EYE | BONE | ENDO | BLOOD |
| Acetaldehyde | 75070 | 2.70E-06 | 4.70E+02 | 1.40E+02 | | | | | | | a,c | | a | | | |
| Acrolein | 107028 | | 2.50E+00 | 3.50E-01 | | | | | | | a,c | | a | | | |
| Ammonia | 7664417 | | 3.20E+03 | 2.00E+02 | | | | | | | a,c | | a | | | |
| Benzene | 71432 | 2.90E-05 | 2.70E+01 | 3.00E+00 | | | a | | | a | | | | | | a,c |
| Benzo (a) anthracene | 56553 | 1.10E-04 | | | | | | | | | | | | | | |
| Benzo (a) pyrene | 50328 | 1.10E-03 | | | | | | | | | | | | | | |
| Benzo (b) fluoranthene | 205992 | 1.10E-04 | | | | | | | | | | | | | | |
| Benzo (k) fluoranthene | 207089 | 1.10E-04 | | | | | | | | | | | | | | |
| Beryllium | 7440417 | 2.40E-03 | | 7.00E-03 | | | c | | c | | c | | | | | |
| Chromium | 7440473 | | 4.80E-01 | 1.20E-01 | | | | | | a,c | | | | | | |
| Chrysene | 218019 | 1.10E-05 | | | | | | | | | | | | | | |
| Cobalt | 7440484 | 7.70E-03 | | | | | | | | | | | | | | |
| Copper | 7440508 | | 1.00E+02 | | | | | | | | a | | | | | |
| Crystalline silica | 1175 | | | 3.00E+00 | | | | | | | c | | | | | |
| Dibenz (a,h) anthracene | 53703 | 1.20E-03 | | | | | | | | | | | | | | |
| Dichlorobenzene | 106467 | 1.10E-05 | | 8.00E+02 | | c | | c | c | | c | | | | | |
| Dimethylbenz(a)anthracene, 7,12- | 57976 | 7.10E-02 | | | | | | | | | | | | | | |
| Dioxane, 1,4- | 123911 | 7.70E-06 | 3.00E+03 | 3.00E+03 | c | | | c | c | | a | | a | | | |
| Ethylbenzene | 100414 | 2.50E-06 | | 2.00E+03 | | | | c | c | c | | | | | c | |
| Ethylene oxide | 75218 | 8.80E-05 | | 3.00E+01 | | | | | | | c | | | | | |
| Formaldehyde | 50000 | 6.00E-06 | 5.50E+01 | 9.00E+00 | | | | | | | c | | a | | | |
| Hexane, n- | 110543 | | | 7.00E+03 | | c | | | | | | | | | | |
| Hexavalent chromium | 18540299 | 1.50E-01 | | 2.00E-01 | | | | | | c | | | | | | c |
| Indeno(1,2,3-cd)pyrene | 193395 | 1.10E-04 | | | | | | | | | | | | | | |
| Isopropyl alcohol | 67630 | | 3.20E+03 | 7.00E+03 | | | | | | | a | | a | | | |
| Lead | 7439921 | 1.20E-05 | | | | | | | | | | | | | | |
| Manganese | 7439965 | | | 9.00E-02 | | c | | | | | | | | | | |
| Methylcholanthrene, 3- | 56495 | 6.30E-03 | | | | | | | | | | | | | | |
| Methylene diphenyl diisocyanate | 101688 | | 1.20E+01 | 8.00E-02 | | | | | | | c | | | | | |
| Naphthalene | 91203 | 3.40E-05 | | 9.00E+00 | | | | | | | c | | | | | |
| Nickel | 7440020 | 2.60E-04 | 2.00E-01 | 1.40E-02 | | | a | | | c | c | | | | | c |
| Nitric acid | 7697372 | | 8.60E+01 | | | | | | | | a | | | | | |
| PAH | 1151 | 1.10E-03 | | | | | | | | | | | | | | |
| Phosphoric acid | 7664382 | | | 7.00E+00 | | | | | | | c | | | | | |
| Sulfuric acid | 7664939 | | 1.20E+02 | 1.00E+00 | | | | | | | a,c | | | | | |
| Toluene | 108883 | | 5.00E+03 | 4.20E+02 | | a | | | | a | a,c | | a | | | |
| Vanadium | 7440622 | | 3.00E+01 | | | | | | | | a | | a | | | |
| Xylenes | 1330207 | | 2.20E+04 | 7.00E+02 | | a,c | | | | | a,c | | a,c | | | |

1. REL = Reference Exposure Level
2. a = acute response
   c. chronic response
3. No data for cancer or non-cancer health effects

**Table 10b- Chemicals without Hazard Indices**

| Listed substance | CAS/CARB Number |
|---|---|
| Acenaphthene | 83329 |
| Acenaphthylene | 208968 |
| Aluminum | 7429905 |
| Aluminum oxide | 1344281 |
| Anthracene | 120127 |
| Benzo (g,h,i) perylene | 191242 |
| Carbon monoxide | 42101 |
| Cyclohexane | 110827 |
| Diethylene glycol | 111466 |
| Ethyl acrylate | 140885 |
| Fluoranthene | 206440 |
| Fluorene | 86737 |
| Methylnaphthalene,2- | 91576 |
| Phenanthrene | 85018 |
| Phosphorous | 7723140 |
| Pyrene | 129000 |
| Zinc compounds | 7440666 |

**Table 11 - Risk Assessment Assumptions**

| Parameter | Assumption |
|---|---|
| **Pathway** | |
| Inhalation | Included |
| Dermal | Included |
| Soil ingestion | Included |
| Mother's milk | Included |
| Home grown produce | Included |
| Fraction of homegrown produce | 13.7 |
| Drinking water | Not included |
| Fish | Not included |
| Beef and dairy | Not included |
| Pig, chicken, and egg | Not included |
| Deposition velocity | 0.02 meters per second |
| Climate | Warm |
| **Residential Cancer Risk Assumptions** | |
| Exposure duration | 30 years |
| Analysis method | RMP with OEHHA derived |
| **Worker Cancer Risk Assumptions** | |
| Exposure duration | 25 years |
| Analysis method | OEHHA derived |
| WAF adjustment | 3.11 |
| **Residential Chronic Risk Assumptions** | |
| Analysis method | OEHHA derived |
| **Worker Chronic Risk Assumptions** | |
| Analysis method | OEHHA derived |
| **Residential Acute Risk Assumptions** | |
| Analysis method | OEHHA derived |
| **Worker Acute Risk Assumptions** | |
| Analysis method | OEHHA derived |
| **Residential 8 hour** | |
| Analysis method | OEHHA derived |
| WAF adjustment | 3.11 |
| **Worker 8 hour** | |
| Analysis method | OEHHA derived |
| WAF adjustment | 3.11 |
| **Population Wide Cancer Risk Assumptions** | |
| Exposure duration | 70 years |
| Analysis method | OEHHA derived |
| **Sensitive Cancer Risk Assumptions** | |
| Exposure duration | 30 years |
| Analysis method | RMP with OEHHA derived |

**Table 12- Cancer Risk for PMI, MEIR, and MEIW Receptors**

| Type | Receptor | WGS 84 | | Risk | Risk in a million |
|---|---|---|---|---|---|
| | | UTM East (m) | UTM North (m) | | |
| PMI | 40010 | 447,896 | 3,772,804 | 2.03E-05 | 20.3 |
| MEIR | 18500 | 447,900 | 3,772,450 | 1.56E-07 | 0.2 |
| MEIW | 40004 | 447,996 | 3,772,864 | 3.01E-06 | 3.0 |

**Table 12b - Hazard Index for PMI, MEIR, and MEIW**

| Type | Receptor | WGS 84 | | Hazard Index |
|---|---|---|---|---|
| | | UTM East (m) | UTM North (m) | |
| **Chronic Hazard Indices** | | | | |
| MEIR | 18500 | 447,900 | 3,772,450 | 2.93E-03 |
| MEIW | 40010 | 447,896 | 3,772,804 | 0.39 |
| **Acute Hazard Indices** | | | | |
| PMI | 41091 | 447,856 | 3,772,876 | 0.20 |
| **8 hour Hazard Indices** | | | | |
| PMI | 40004 | 447,996 | 3,772,864 | 0.62 |

**Table 13- Listed Substances Cancer Risk Summary at PMI, MEIW, MEIR**

| Listed substance | PMI | MEIW | MEIR |
|---|---|---|---|
| Acenaphthene | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acenaphthylene | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acetaldehyde | 5.95E-10 | 1.67E-10 | 4.81E-12 |
| Acrolein | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum oxide | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ammonia | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzene | 1.07E-08 | 3.02E-09 | 8.67E-11 |
| Benzo (a) anthracene | 2.63E-10 | 6.53E-12 | 2.13E-12 |
| Benzo (a) pyrene | 1.76E-09 | 4.36E-11 | 1.42E-11 |
| Benzo (b) fluoranthene | 2.63E-10 | 6.53E-12 | 2.13E-12 |
| Benzo (g,h,i) perylene | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (k) fluoranthene | 2.63E-10 | 6.53E-12 | 2.13E-12 |
| Beryllium | 6.10E-07 | 1.55E-07 | 4.64E-09 |
| Carbon monoxide | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chrysene | 2.63E-11 | 6.53E-13 | 2.13E-13 |
| Cobalt | 2.75E-09 | 4.95E-09 | 1.71E-10 |
| Copper | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Crystalline silica | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cyclohexane | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dibenz (a,h) anthracene | 6.31E-10 | 2.74E-11 | 5.11E-12 |
| Dichlorobenzene | 6.43E-10 | 1.81E-10 | 5.20E-12 |
| Diethylene glycol | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dimethylbenz(a)anthracene, 7,12- | 5.13E-07 | 2.23E-08 | 4.16E-09 |
| Dioxane, 1,4- | 1.52E-09 | 3.86E-10 | 1.15E-11 |
| Ethyl acrylate | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethylbenzene | 1.11E-09 | 3.12E-10 | 8.96E-12 |
| Ethylene oxide | 1.74E-08 | 4.43E-09 | 1.32E-10 |
| Fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluorene | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Formaldehyde | 2.10E-08 | 5.46E-09 | 1.62E-10 |
| Hexane, n- | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexavalent chromium | 1.89E-05 | 2.73E-06 | 1.43E-07 |
| Indeno(1,2,3-cd)pyrene | 2.63E-10 | 6.53E-12 | 2.13E-12 |
| Isopropyl alcohol | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lead | 2.41E-09 | 1.32E-10 | 1.87E-11 |
| Manganese | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylcholanthrene, 3- | 5.08E-09 | 2.21E-10 | 4.11E-11 |

**Table 13- Listed Substances Cancer Risk Summary at PMI, MEIW, MEIR**

| Listed substance | PMI | MEIW | MEIR |
|---|---|---|---|
| Acenaphthene | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylene diphenyl diisocyanate | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylnaphthalene,2- | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Naphthalene | 4.82E-10 | 1.36E-10 | 3.90E-12 |
| Nickel | 2.49E-07 | 8.21E-08 | 2.55E-09 |
| Nitric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PAH | 1.73E-08 | 4.29E-10 | 1.40E-10 |
| Phenanthrene | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphoric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphorous | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sulfuric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Toluene | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Vanadium | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xylenes | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zinc compounds | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**Table 14 - Summary of Cancer Burden at Receptors for One in 1,000,000 ZOI**

| Receptor | UTM East (m) | UTM North (m) | Cancer Risk | Cummulative Population | Cummulative Cancer Burden |
|---|---|---|---|---|---|
| 40879 | 448,113 | 3,772,931 | 5.96E-06 | 0 | 0 |

Table 15 - Cancer Risk by Emission Source at PMI

| | | Exposure Pathway | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source ID | Source Description | INHAL | SOIL | DERM | MOTHER | WATER | FISH | VEG | BEEF | DAIRY | PIG | CHICK | EGG | TOTAL |
| S0001 | Production | 1.16E-05 | 2.38E-07 | 1.90E-08 | 1.12E-07 | 0.00E+00 | 0.00E+00 | 8.35E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.03E-05 |
| S0002 | Flash Fire Oven 5 and Afterburner | 5.99E-10 | 5.05E-10 | 1.26E-10 | 1.20E-09 | 0.00E+00 | 0.00E+00 | 3.42E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.85E-09 |
| S0003 | Heat Treat Oven | 4.85E-10 | 4.09E-10 | 1.02E-10 | 9.74E-10 | 0.00E+00 | 0.00E+00 | 2.77E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.74E-09 |
| S0004 | Aluminum Parts Bright Dip Line | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | 1.51E-08 | 5.32E-12 | 1.29E-13 | 9.65E-14 | 0.00E+00 | 0.00E+00 | 1.47E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.51E-08 |
| | Total Risk | 1.16E-05 | 2.39E-07 | 1.93E-08 | 1.14E-07 | 0.00E+00 | 0.00E+00 | 8.36E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.04E-05 |

**Table 16 - Cancer Risk by Emission Source at MEIW**

| | | Exposure Pathway | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source ID | Source Description | INHAL | SOIL | DERM | MOTHER | WATER | FISH | VEG | BEEF | DAIRY | PIG | CHICK | EGG | TOTAL |
| S0001 | Production | 2.95E-06 | 2.31E-08 | 3.37E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.98E-06 |
| S0002 | Flash Fire Oven 5 and Afterburner | 1.23E-09 | 3.13E-10 | 1.41E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.69E-09 |
| S0003 | Heat Treat Oven | 1.16E-09 | 2.94E-10 | 1.33E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.59E-09 |
| S0004 | Aluminum Parts Bright Dip Line | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | 2.72E-08 | 1.56E-12 | 1.63E-13 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.72E-08 |
| | Total Risk | 2.98E-06 | 2.37E-08 | 3.64E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.01E-06 |

**Table 17 - Cancer Risk by Emission Source at MEIR**

| | | Exposure Pathway | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source ID | Source Description | INHAL | SOIL | DERM | MOTHER | WATER | FISH | VEG | BEEF | DAIRY | PIG | CHICK | EGG | TOTAL |
| S0001 | Production | 8.81E-08 | 1.80E-09 | 1.44E-10 | 8.52E-10 | 0.00E+00 | 0.00E+00 | 6.34E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.54E-07 |
| S0002 | Flash Fire Oven 5 and Afterburner | 2.10E-11 | 1.77E-11 | 4.41E-12 | 4.21E-11 | 0.00E+00 | 0.00E+00 | 1.20E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.05E-10 |
| S0003 | Heat Treat Oven | 1.64E-11 | 1.39E-11 | 3.46E-12 | 3.30E-11 | 0.00E+00 | 0.00E+00 | 9.39E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.61E-10 |
| S0004 | Aluminum Parts Bright Dip Line | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | 9.39E-10 | 3.30E-13 | 8.04E-15 | 6.00E-15 | 0.00E+00 | 0.00E+00 | 9.13E-14 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.40E-10 |
| | Total Risk | 8.91E-08 | 1.83E-09 | 1.52E-10 | 9.27E-10 | 0.00E+00 | 0.00E+00 | 6.36E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.56E-07 |

Table 18 - 30 Year Cancer Risks and PMI, MEIW, MEIR, and Sensitive Receptors

| | | | Exposure Pathway | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Receptor | UTM East (m) | UTM North (m) | INHAL | SOIL | DERM | MOTHER | WATER | FISH | VEG | BEEF | DAIRY | PIG | CHICK | EGG | TOTAL |
| PMI | 447,896 | 3,772,804 | 1.16E-05 | 2.39E-07 | 1.93E-08 | 1.14E-07 | 0.00E+00 | 0.00E+00 | 8.36E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.03E-05 |
| MEIW | 447,996 | 3,772,864 | 2.98E-06 | 2.37E-08 | 3.64E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.01E-06 |
| MEIR | 447,900 | 3,772,450 | 8.91E-08 | 1.83E-09 | 1.52E-10 | 9.27E-10 | 0.00E+00 | 0.00E+00 | 6.36E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.56E-07 |

**Table 19 - Cancer Risk by Substances at PMI**

| | Exposure Pathway | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Substance | INHAL | SOIL | DERM | MOTHER | WATER | FISH | VEG | BEEF | DAIRY | PIG | CHICK | EGG | TOTAL |
| Acenaphthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acenaphthylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acetaldehyde | 5.95E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.95E-10 |
| Acrolein | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum oxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ammonia | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzene | 1.07E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.07E-08 |
| Benzo (a) anthracene | 6.63E-12 | 2.47E-11 | 6.15E-12 | 5.87E-11 | 0.00E+00 | 0.00E+00 | 1.67E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.63E-10 |
| Benzo (a) pyrene | 4.42E-11 | 1.65E-10 | 4.10E-11 | 3.92E-10 | 0.00E+00 | 0.00E+00 | 1.11E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.76E-09 |
| Benzo (b) fluoranthene | 6.63E-12 | 2.47E-11 | 6.15E-12 | 5.87E-11 | 0.00E+00 | 0.00E+00 | 1.67E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.63E-10 |
| Benzo (g,h,i) perylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (k) fluoranthene | 6.63E-12 | 2.47E-11 | 6.15E-12 | 5.87E-11 | 0.00E+00 | 0.00E+00 | 1.67E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.63E-10 |
| Beryllium | 6.10E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.10E-07 |
| Carbon monoxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chrysene | 6.63E-13 | 2.47E-12 | 6.15E-13 | 5.87E-12 | 0.00E+00 | 0.00E+00 | 1.67E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.63E-11 |
| Cobalt | 2.75E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.75E-09 |
| Copper | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Crystalline silica | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cyclohexane | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dibenz (a,h) anthracene | 4.65E-11 | 5.62E-11 | 1.40E-11 | 1.34E-10 | 0.00E+00 | 0.00E+00 | 3.81E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.31E-10 |
| Dichlorobenzene | 6.43E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.43E-10 |
| Diethylene glycol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dimethylbenz(a)anthracene, 7,12- | 3.78E-08 | 4.57E-08 | 1.14E-08 | 1.09E-07 | 0.00E+00 | 0.00E+00 | 3.09E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.13E-07 |
| Dioxane, 1,4- | 1.52E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.52E-09 |
| Ethyl acrylate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethylbenzene | 1.11E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.11E-09 |
| Ethylene oxide | 1.74E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.74E-08 |
| Fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluorene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Formaldehyde | 2.10E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.10E-08 |
| Hexane, n- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexavalent chromium | 1.07E-05 | 1.89E-07 | 7.23E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.03E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.89E-05 |
| Indeno(1,2,3-cd)pyrene | 6.63E-12 | 2.47E-11 | 6.15E-12 | 5.87E-11 | 0.00E+00 | 0.00E+00 | 1.67E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.63E-10 |
| Isopropyl alcohol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lead | 1.41E-10 | 1.72E-09 | 4.18E-11 | 3.12E-11 | 0.00E+00 | 0.00E+00 | 4.75E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.41E-09 |
| Manganese | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylcholanthrene, 3- | 3.74E-10 | 4.53E-10 | 1.13E-10 | 1.08E-09 | 0.00E+00 | 0.00E+00 | 3.06E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.08E-09 |
| Methylene diphenyl diisocyanate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylnaphthalene,2- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Naphthalene | 4.82E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.82E-10 |
| Nickel | 2.49E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.49E-07 |
| Nitric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PAH | 4.35E-10 | 1.62E-09 | 4.04E-10 | 3.85E-09 | 0.00E+00 | 0.00E+00 | 1.10E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.73E-08 |
| Phenanthrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphoric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphorous | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sulfuric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Toluene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Vanadium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xylenes | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zinc compounds | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 20 - Cancer Risk by Substances at MEIW

| | Exposure Pathway | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Substance | INHAL | SOIL | DERM | MOTHER | WATER | FISH | VEG | BEEF | DAIRY | PIG | CHICK | EGG | TOTAL |
| Acenaphthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acenaphthylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acetaldehyde | 1.67E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.67E-10 |
| Acrolein | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum oxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ammonia | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzene | 3.02E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.02E-09 |
| Benzo (a) anthracene | 2.65E-12 | 2.68E-12 | 1.21E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.53E-12 |
| Benzo (a) pyrene | 1.76E-11 | 1.79E-11 | 8.05E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.36E-11 |
| Benzo (b) fluoranthene | 2.65E-12 | 2.68E-12 | 1.21E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.53E-12 |
| Benzo (g,h,i) perylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (k) fluoranthene | 2.65E-12 | 2.68E-12 | 1.21E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.53E-12 |
| Beryllium | 1.55E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.55E-07 |
| Carbon monoxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chrysene | 2.65E-13 | 2.68E-13 | 1.21E-13 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.53E-13 |
| Cobalt | 4.95E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.95E-09 |
| Copper | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Crystalline silica | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cyclohexane | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dibenz (a,h) anthracene | 1.85E-11 | 6.10E-12 | 2.75E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.74E-11 |
| Dichlorobenzene | 1.81E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.81E-10 |
| Diethylene glycol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dimethylbenz(a)anthracene, 7,12- | 1.51E-08 | 4.96E-09 | 2.24E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.23E-08 |
| Dioxane, 1,4- | 3.86E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.86E-10 |
| Ethyl acrylate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethylbenzene | 3.12E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.12E-10 |
| Ethylene oxide | 4.43E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.43E-09 |
| Fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluorene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Formaldehyde | 5.46E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.46E-09 |
| Hexane, n- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexavalent chromium | 2.71E-06 | 1.85E-08 | 1.28E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.73E-06 |
| Indeno(1,2,3-cd)pyrene | 2.65E-12 | 2.68E-12 | 1.21E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.53E-12 |
| Isopropyl alcohol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lead | 5.16E-11 | 7.25E-11 | 7.54E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.32E-10 |
| Manganese | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylcholanthrene, 3- | 1.49E-10 | 4.91E-11 | 2.21E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.21E-10 |
| Methylene diphenyl diisocyanate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylnaphthalene,2- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Naphthalene | 1.36E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.36E-10 |
| Nickel | 8.21E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.21E-08 |
| Nitric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PAH | 1.74E-10 | 1.76E-10 | 7.92E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.29E-10 |
| Phenanthrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphoric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphorous | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sulfuric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Toluene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Vanadium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xylenes | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zinc compounds | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**Table 21 - Cancer Risk by Substances at MEIR**

| | Exposure Pathway | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Substance | INHAL | SOIL | DERM | MOTHER | WATER | FISH | VEG | BEEF | DAIRY | PIG | CHICK | EGG | TOTAL |
| Acenaphthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acenaphthylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acetaldehyde | 4.81E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.81E-12 |
| Acrolein | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum oxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ammonia | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzene | 8.67E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.67E-11 |
| Benzo (a) anthracene | 5.37E-14 | 2.00E-13 | 4.98E-14 | 4.76E-13 | 0.00E+00 | 0.00E+00 | 1.35E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.13E-12 |
| Benzo (a) pyrene | 3.58E-13 | 1.33E-12 | 3.32E-13 | 3.17E-12 | 0.00E+00 | 0.00E+00 | 9.02E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.42E-11 |
| Benzo (b) fluoranthene | 5.37E-14 | 2.00E-13 | 4.98E-14 | 4.76E-13 | 0.00E+00 | 0.00E+00 | 1.35E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.13E-12 |
| Benzo (g,h,i) perylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (k) fluoranthene | 5.37E-14 | 2.00E-13 | 4.98E-14 | 4.76E-13 | 0.00E+00 | 0.00E+00 | 1.35E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.13E-12 |
| Beryllium | 4.64E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.64E-09 |
| Carbon monoxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chrysene | 5.37E-15 | 2.00E-14 | 4.98E-15 | 4.76E-14 | 0.00E+00 | 0.00E+00 | 1.35E-13 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.13E-13 |
| Cobalt | 1.71E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.71E-10 |
| Copper | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Crystalline silica | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cyclohexane | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dibenz (a,h) anthracene | 3.76E-13 | 4.56E-13 | 1.14E-13 | 1.08E-12 | 0.00E+00 | 0.00E+00 | 3.08E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.11E-12 |
| Dichlorobenzene | 5.20E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.20E-12 |
| Diethylene glycol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dimethylbenz(a)anthracene, 7,12- | 3.06E-10 | 3.70E-10 | 9.23E-11 | 8.81E-10 | 0.00E+00 | 0.00E+00 | 2.51E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.16E-09 |
| Dioxane, 1,4- | 1.15E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.15E-11 |
| Ethyl acrylate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethylbenzene | 8.96E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.96E-12 |
| Ethylene oxide | 1.32E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.32E-10 |
| Fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluorene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Formaldehyde | 1.62E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.62E-10 |
| Hexane, n- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexavalent chromium | 8.10E-08 | 1.43E-09 | 5.49E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.09E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.43E-07 |
| Indeno(1,2,3-cd)pyrene | 5.37E-14 | 2.00E-13 | 4.98E-14 | 4.76E-13 | 0.00E+00 | 0.00E+00 | 1.35E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.13E-12 |
| Isopropyl alcohol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lead | 1.09E-12 | 1.33E-11 | 3.24E-13 | 2.42E-13 | 0.00E+00 | 0.00E+00 | 3.68E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.87E-11 |
| Manganese | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylcholanthrene, 3- | 3.03E-12 | 3.67E-12 | 9.14E-13 | 8.72E-12 | 0.00E+00 | 0.00E+00 | 2.48E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.11E-11 |
| Methylene diphenyl diisocyanate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylnaphthalene,2- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Naphthalene | 3.90E-12 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.90E-12 |
| Nickel | 2.55E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.55E-09 |
| Nitric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PAH | 3.52E-12 | 1.31E-11 | 3.27E-12 | 3.12E-11 | 0.00E+00 | 0.00E+00 | 8.88E-11 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.40E-10 |
| Phenanthrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphoric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphorous | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sulfuric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Toluene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Vanadium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xylenes | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zinc compounds | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**Table 22 - Chronic Hazard Indices by Emission Source at MEIW**

| | | Exposure Pathway | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source ID | Source Description | CV | CNS | IMMUN | KIDNEY | GILV | REPRO | RESP | SKIN | EYE | BONE | ENDO | BLOOD |
| S0001 | Production | 2.77E-08 | 3.86E-01 | 1.53E-02 | 2.02E-04 | 3.05E-04 | 3.93E-04 | 4.67E-02 | 0.00E+00 | 2.45E-06 | 0.00E+00 | 9.22E-08 | 2.75E-02 |
| S0002 | Flash Fire Oven 5 and Afterburner | 1.06E-12 | 8.67E-09 | 0.00E+00 | 1.30E-09 | 1.30E-09 | 9.86E-10 | 5.34E-06 | 0.00E+00 | 2.62E-08 | 0.00E+00 | 9.86E-10 | 5.54E-07 |
| S0003 | Heat Treat Oven | 0.00E+00 | 6.94E-09 | 0.00E+00 | 1.05E-09 | 1.05E-09 | 7.99E-10 | 4.33E-06 | 0.00E+00 | 2.12E-08 | 0.00E+00 | 7.99E-10 | 4.49E-07 |
| S0004 | Aluminum Parts Bright Dip Line | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.15E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | 0.00E+00 | 4.84E-05 | 3.61E-06 | 0.00E+00 | 7.17E-08 | 9.82E-06 | 1.42E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.42E-03 |
| | Total Hazard | 2.77E-08 | 3.86E-01 | 1.53E-02 | 2.02E-04 | 3.05E-04 | 4.02E-04 | 4.83E-02 | 0.00E+00 | 2.49E-06 | 0.00E+00 | 9.40E-08 | 2.89E-02 |

**Table 23 - Chronic Hazard Indices by Emission Source at MEIR**

| | | Exposure Pathway | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source ID | Source Description | CV | CNS | IMMUN | KIDNEY | GILV | REPRO | RESP | SKIN | EYE | BONE | ENDO | BLOOD |
| S0001 | Production | 2.10E-10 | 2.93E-03 | 1.16E-04 | 1.54E-06 | 5.22E-06 | 5.70E-06 | 3.55E-04 | 0.00E+00 | 1.86E-08 | 0.00E+00 | 6.99E-10 | 2.12E-04 |
| S0002 | Flash Fire Oven 5 and Afterburner | 3.71E-14 | 3.04E-10 | 0.00E+00 | 4.55E-11 | 4.55E-11 | 3.46E-11 | 1.87E-07 | 0.00E+00 | 9.17E-10 | 0.00E+00 | 3.46E-11 | 1.94E-08 |
| S0003 | Heat Treat Oven | 0.00E+00 | 2.35E-10 | 0.00E+00 | 3.56E-11 | 3.56E-11 | 2.71E-11 | 1.47E-07 | 0.00E+00 | 7.18E-10 | 0.00E+00 | 2.71E-11 | 1.52E-08 |
| S0004 | Aluminum Parts Bright Dip Line | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.52E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | 0.00E+00 | 3.01E-06 | 2.24E-07 | 0.00E+00 | 1.01E-08 | 1.76E-06 | 8.83E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.81E-05 |
| | Total Hazard | 2.10E-10 | 2.93E-03 | 1.17E-04 | 1.54E-06 | 5.23E-06 | 7.47E-06 | 4.58E-04 | 0.00E+00 | 2.02E-08 | 0.00E+00 | 7.61E-10 | 3.00E-04 |

**Table 24 - Chronic Hazard Indices by Substance at MEIW**

| Substances | Exposure Pathway | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | CV | CNS | IMMUN | KIDNEY | GILV | REPRO | RESP | SKIN | EYE | BONE | ENDO | BLOOD |
| Acenaphthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acenaphthylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acetaldehyde | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.29E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acrolein | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.53E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum oxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ammonia | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.93E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.28E-05 |
| Benzo (a) anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (a) pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (b) fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (g,h,i) perylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (k) fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Beryllium | 0.00E+00 | 0.00E+00 | 1.53E-02 | 0.00E+00 | 3.05E-04 | 0.00E+00 | 1.53E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Carbon monoxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chrysene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cobalt | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Copper | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Crystalline silica | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.58E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cyclohexane | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dibenz (a,h) anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dichlorobenzene | 0.00E+00 | 2.97E-08 | 0.00E+00 | 2.97E-08 | 2.97E-08 | 0.00E+00 | 2.97E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Diethylene glycol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dimethylbenz(a)anthracene, 7,12- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dioxane, 1,4- | 2.77E-08 | 0.00E+00 | 0.00E+00 | 2.77E-08 | 2.77E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethyl acrylate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethylbenzene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.40E-08 | 9.40E-08 | 9.40E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.40E-08 | 0.00E+00 |
| Ethylene oxide | 0.00E+00 | 2.77E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluorene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Formaldehyde | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.64E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexane, n- | 0.00E+00 | 1.78E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexavalent chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.55E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 8.42E-06 |
| Indeno(1,2,3-cd)pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Isopropyl alcohol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.02E-04 | 0.00E+00 | 2.02E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lead | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Manganese | 0.00E+00 | 3.86E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylcholanthrene, 3- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylene diphenyl diisocyanate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.40E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylnaphthalene,2- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Naphthalene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.59E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Nickel | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.00E-04 | 2.89E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.89E-02 |
| Nitric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PAH | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phenanthrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphoric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.29E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphorous | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sulfuric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.13E-20 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Toluene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.72E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Vanadium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xylenes | 0.00E+00 | 7.69E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.69E-07 | 0.00E+00 | 7.69E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zinc compounds | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**Table 25 - Chronic Hazard Indices by Substance at MEIR**

| | Exposure Pathway | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Substances** | **CV** | **CNS** | **IMMUN** | **KIDNEY** | **GILV** | **REPRO** | **RESP** | **SKIN** | **EYE** | **BONE** | **ENDO** | **BLOOD** |
| Acenaphthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acenaphthylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acetaldehyde | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.08E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acrolein | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.24E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum oxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ammonia | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.76E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.27E-07 |
| Benzo (a) anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (a) pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (b) fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (g,h,i) perylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (k) fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Beryllium | 0.00E+00 | 0.00E+00 | 1.17E-04 | 0.00E+00 | 5.23E-06 | 0.00E+00 | 1.17E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Carbon monoxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chrysene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cobalt | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Copper | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Crystalline silica | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.20E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cyclohexane | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dibenz (a,h) anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dichlorobenzene | 0.00E+00 | 2.40E-10 | 0.00E+00 | 2.40E-10 | 2.40E-10 | 0.00E+00 | 2.40E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Diethylene glycol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dimethylbenz(a)anthracene, 7,12- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dioxane, 1,4- | 2.10E-10 | 0.00E+00 | 0.00E+00 | 2.10E-10 | 2.10E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethyl acrylate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethylbenzene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.61E-10 | 7.61E-10 | 7.61E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.61E-10 | 0.00E+00 |
| Ethylene oxide | 0.00E+00 | 2.10E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluorene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Formaldehyde | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.26E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexane, n- | 0.00E+00 | 1.44E-10 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexavalent chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.17E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.35E-06 |
| Indeno(1,2,3-cd)pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Isopropyl alcohol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.54E-06 | 0.00E+00 | 1.54E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lead | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Manganese | 0.00E+00 | 2.93E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylcholanthrene, 3- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylene diphenyl diisocyanate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.82E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylnaphthalene,2- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Naphthalene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.34E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Nickel | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.93E-06 | 2.96E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.96E-04 |
| Nitric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PAH | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phenanthrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphoric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.23E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphorous | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sulfuric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.41E-21 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Toluene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.40E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Vanadium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xylenes | 0.00E+00 | 6.23E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.23E-09 | 0.00E+00 | 6.23E-09 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zinc compounds | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**Table 26 - Acute Hazard Indices by Emission Source at PMI**

| | | Exposure Pathway | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Source ID | Source Description | CV | CNS | IMMUN | KIDNEY | GILV | REPRO/DEVEL | RESP | SKIN | EYE | BONE | ENDO | BLOOD |
| S0001 | Production | 0.00E+00 | 1.82E-05 | 5.16E-02 | 0.00E+00 | 0.00E+00 | 6.30E-04 | 2.42E-02 | 0.00E+00 | 1.93E-02 | 0.00E+00 | 0.00E+00 | 6.30E-04 |
| S0002 | Flash Fire Oven 5 and Afterburner | 0.00E+00 | 6.35E-07 | 2.20E-05 | 0.00E+00 | 0.00E+00 | 2.20E-05 | 1.56E-04 | 0.00E+00 | 1.79E-04 | 0.00E+00 | 0.00E+00 | 2.20E-05 |
| S0003 | Heat Treat Oven | 0.00E+00 | 5.16E-07 | 1.79E-05 | 0.00E+00 | 0.00E+00 | 1.79E-05 | 1.27E-04 | 0.00E+00 | 1.45E-04 | 0.00E+00 | 0.00E+00 | 1.79E-05 |
| S0004 | Aluminum Parts Bright Dip Line | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.70E-02 | 0.00E+00 | 4.16E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | 0.00E+00 | 0.00E+00 | 1.50E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.08E-04 | 0.00E+00 | 6.62E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Total Hazard | 0.00E+00 | 1.94E-05 | 2.01E-01 | 0.00E+00 | 0.00E+00 | 6.70E-04 | 5.16E-02 | 0.00E+00 | 2.01E-02 | 0.00E+00 | 0.00E+00 | 6.70E-04 |

**Table 27 - Acute Hazard Indices by Substance at PMI**

| | Exposure Pathway | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Substances** | **CV** | **CNS** | **IMMUN** | **KIDNEY** | **GILV** | **REPRO/DEVEL** | **RESP** | **SKIN** | **EYE** | **BONE** | **ENDO** | **BLOOD** |
| Acenaphthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acenaphthylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acetaldehyde | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.09E-05 | 0.00E+00 | 2.09E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acrolein | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.44E-03 | 0.00E+00 | 2.44E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum oxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ammonia | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.19E-03 | 0.00E+00 | 5.19E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzene | 0.00E+00 | 0.00E+00 | 6.70E-04 | 0.00E+00 | 0.00E+00 | 6.70E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.70E-04 |
| Benzo (a) anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (a) pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (b) fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (g,h,i) perylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (k) fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Beryllium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Carbon monoxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chrysene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cobalt | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Copper | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.22E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Crystalline silica | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cyclohexane | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dibenz (a,h) anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dichlorobenzene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Diethylene glycol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dimethylbenz(a)anthracene, 7,12- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dioxane, 1,4- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.00E-07 | 0.00E+00 | 7.00E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethyl acrylate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethylbenzene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethylene oxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluorene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Formaldehyde | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.22E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexane, n- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexavalent chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Indeno(1,2,3-cd)pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Isopropyl alcohol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.12E-02 | 0.00E+00 | 1.12E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lead | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Manganese | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylcholanthrene, 3- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylene diphenyl diisocyanate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 4.04E-08 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylnaphthalene,2- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Naphthalene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Nickel | 0.00E+00 | 0.00E+00 | 2.01E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Nitric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.65E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PAH | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phenanthrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphoric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphorous | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sulfuric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.77E-19 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Toluene | 0.00E+00 | 1.66E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.66E-05 | 0.00E+00 | 1.66E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Vanadium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.62E-07 | 0.00E+00 | 6.62E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xylenes | 0.00E+00 | 2.80E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.80E-06 | 0.00E+00 | 2.80E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zinc compounds | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 28 - 8 Hour Hazard Indices by Emission Source at PMI

| Source ID | Source Description | Exposure Pathway | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CV | CNS | IMMUN | KIDNEY | GILV | REPRO/DEVEL | RESP | SKIN | EYE | BONE | ENDO | BLOOD |
| S0001 | Production | 0.00E+00 | 6.23E-01 | 1.95E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.03E-02 | 0.00E+00 | 2.61E-06 | 0.00E+00 | 0.00E+00 | 1.58E-04 |
| S0002 | Flash Fire Oven 5 and Afterburner | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.31E-05 | 0.00E+00 | 1.77E-07 | 0.00E+00 | 0.00E+00 | 1.07E-05 |
| S0003 | Heat Treat Oven | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.17E-05 | 0.00E+00 | 1.66E-07 | 0.00E+00 | 0.00E+00 | 1.01E-05 |
| S0004 | Aluminum Parts Bright Dip Line | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| S0005 | Metal Grinding | 0.00E+00 | 5.55E-04 | 7.17E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.17E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Total Hazard | 0.00E+00 | 6.24E-01 | 2.67E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.75E-02 | 0.00E+00 | 2.95E-06 | 0.00E+00 | 0.00E+00 | 1.79E-04 |

**Table 29 - 8 Hour Hazard Indices by Substance at PMI**

| | Exposure Pathway | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Substances** | **CV** | **CNS** | **IMMUN** | **KIDNEY** | **GILV** | **REPRO/DEVEL** | **RESP** | **SKIN** | **EYE** | **BONE** | **ENDO** | **BLOOD** |
| Acenaphthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acenaphthylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acetaldehyde | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.90E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Acrolein | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.58E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Aluminum oxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ammonia | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.79E-04 |
| Benzo (a) anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (a) pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (b) fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (g,h,i) perylene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Benzo (k) fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Beryllium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Carbon monoxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Chrysene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cobalt | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Copper | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Crystalline silica | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cyclohexane | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dibenz (a,h) anthracene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dichlorobenzene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Diethylene glycol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dimethylbenz(a)anthracene, 7,12- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Dioxane, 1,4- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethyl acrylate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethylbenzene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ethylene oxide | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluoranthene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fluorene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Formaldehyde | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.13E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexane, n- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Hexavalent chromium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Indeno(1,2,3-cd)pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Isopropyl alcohol | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lead | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Manganese | 0.00E+00 | 6.24E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylcholanthrene, 3- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylene diphenyl diisocyanate | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.66E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Methylnaphthalene,2- | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Naphthalene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Nickel | 0.00E+00 | 0.00E+00 | 2.67E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.67E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Nitric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PAH | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phenanthrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphoric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Phosphorous | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Pyrene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sulfuric acid | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Toluene | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.95E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Vanadium | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xylenes | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zinc compounds | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

# APPENDIX B -
# HEALTH RISK ASSESSMENT SUMMARY FORM

**South Coast Air Quality Management District**
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

# HEALTH RISK ASSESSMENT SUMMARY FORM

(Required in Executive Summary of HRA)

Facility Name : Pac Rancho, Inc.
Facility Address: 11000 Jersey Boulevard
Rancho Cucamonga, CA 91730-5103
Type of Business: Metal Foundry
SCAQMD ID No.: 140871

## A. Cancer Risk

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

1. Inventory Reporting Year : 2018
2. Maximum Cancer Risk to Receptors : *(Offsite and residence = 30-year exposure, worker = 25-year exposure)*
   a. Offsite 20.3 in a million Location: 447895.8, 3772804
   b. Residence 0.2 in a million Location: 447900, 3772450
   c. Worker 3 in a million Location: 447995.7, 3772864
3. Substances Accounting for 90% of Cancer Risk: Hexavalent chromium
   Processes Accounting for 90% of Cancer Risk: Production (Furnaces)
4. Cancer Burden for a 70-yr exposure: *(Cancer Burden = [cancer risk] x [# of people exposed to specific cancer risk])*
   a. Cancer Burden 0
   b. Number of people exposed to >1 per million cancer risk for a 70-yr exposure 0
   c. Maximum distance to edge of 70-year, 1 x $10^{-6}$ cancer risk isopleth (meters) 805

## 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: 2.93E-03 Location: 447900, 3772450 toxicological endpoint: Central nervous system, Respiratory
   b. Worker HI : 0.39 Location: 447896, 3772804 toxicological endpoint: Central nervous system, Respiratory
2. Substances Accounting for 90% of Chronic Hazard Index: Manganese & nickel
3. Maximum 8-hour Chronic Hazard Index:
   8-Hour Chronic HI: 0.62 Location: 447995.7, 3772864 toxicological endpoint: Central nervous system
4. Substances Accounting for 90% of 8-hour Chronic Hazard Index: Manganese
5. Maximum Acute Hazard Index:
   PMI: 0.20 Location: 447856, 3772876 toxicological endpoint: Immunity, Respiratory
6. Substances Accounting for 90% of Acute Hazard Index: Nickel, isopropyl alcohol, nitric acid

## C. Public Notification and Risk Reduction

1. Public Notification Required? X Yes ____ No
   a. If 'Yes', estimated population exposed to risks > 10 in a million for a 30-year exposure, or an HI >1
   0
2. Risk Reduction Required? X Yes ____ No

# APPENDIX C -
# SCAQMD LETTER TO PREPARE REVISED HEALTH RISK ASSESSMENT

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

***Via Email and Certified Mail, return receipt requested***

March 3, 2023

Jim Inhoff
Pac Rancho, Inc.
11000 Jersey Blvd.
Rancho Cucamonga, CA 91730

Subject: Approval of Modified AB 2588 Health Risk Assessment (HRA) for **Pac Rancho, Inc.** (South Coast AQMD Facility ID No. **140871**)

Dear Mr. Inhoff:

This letter provides approval of the Health Risk Assessment (HRA) submitted by Pac Rancho, Inc. (Pac Rancho) and modified by South Coast Air Quality Management District (South Coast AQMD). The HRA was submitted pursuant to the Air Toxics "Hot Spots" Act (AB 2588) and South Coast AQMD's Rule 1402. As noted in the modified HRA Summary Form (Attachment A), the risks posed by Pac Rancho are above the Notification Risk Level and the Action Risk Level specified in Rule 1402.

Pac Rancho received a rejection letter for the facility HRA and the associated approved ATIR on September 15, 2021. As required by the rejection letter, Pac Rancho submitted a revised ATIR on October 15, 2021 and a revised HRA on November 15, 2021. South Coast AQMD approved the revised ATIR on November 16, 2021. South Coast AQMD submitted the HRA to OEHHA for review on February 24, 2022 and received comments from OEHHA on April 12, 2022. Based on the comments from OEHHA, South Coast AQMD became aware of further required revisions to ensure the HRA was consistent with OEHHA HRA guidelines. Since Pac Rancho previously received an HRA rejection, South Coast AQMD elected to modify and approve the HRA in accordance with Rule 1402(e)(2)(D).

**Next Step**: ***Public Notification***

As summarized in Attachment A, the cancer risk at the Maximum Exposed Individual Worker (MEIW) receptor is estimated to be 38.76 in-a-million. The cancer risk is due to hexavalent chromium, nickel, and beryllium. The chronic hazard index at the MEIW is estimated to be 4.48 and is due to nickel emissions. Additionally, the 8-hour chronic and acute hazard indices were also found to be above the Rule 1402 Notification Risk Level due to nickel emissions; these hazard indices were 2.87 and 21.26, respectively.

As stated in South Coast AQMD's Public Notification Procedures[1], public notification typically consists of three components: distribution of the approved HRA, distribution of public notification materials, and a public meeting. Pac Rancho must distribute facility's approved HRA and public notification materials pursuant to South Coast AQMD Public Notification Procedures within **30** days of the approval date on this letter, or **April 4, 2023**. A map showing the area with health risk levels exceeding the Notification Risk Level is also attached to this letter (Attachment B). Please note that although there are additional health scenarios that exceed the Notification Risk Levels, those isopleths fall within the bounds of the isopleths shown in Attachment B. The public notification materials must be approved by South Coast AQMD and sent to all addresses within the notification area contour (cancer risk of 10 in a million or greater and non-cancer hazard index of 1.0 or greater) found in Attachment B. The public meeting must take place within **30** days of the distribution of public notification materials.

**Future Plans: *Risk Reduction***

Because the Rule 1402 Action Risk Level was exceeded in the approved HRA, Pac Rancho shall submit a Risk Reduction Plan (RRP) within 120 days of this letter pursuant to Rule 1402(f)(1) to reduce the impact of total facility emissions below the Rule 1402 Action Risk Level. Once the RRP is demonstrated to have reduced health risks below the Action Risk Level, the warning signs and written notices may be removed.

South Coast AQMD will post the approved HRA on our website. South Coast AQMD staff did not find any information marked confidential in the submitted HRA. If there is any business confidential information contained within the submitted HRA, please let us know and provide us with a redacted version of the HRA, both in electronic format and hardcopy, within two weeks, or no later than **March 17, 2023.**

In addition, given the short timeframe for conducting public notification, please schedule a meeting with us within one week to discuss the next steps for public notification. If you have any questions regarding this letter, please contact either Alberto Jasso, Air Quality Engineer II, at (909) 396-3581, or Victoria Moaveni, Program Supervisor, at (909) 396-2455.

Sincerely,

Eugene Kang
Planning & Rules Manager
Planning, Rule Development & Implementation

Attachment:
A. HRA Summary Form
B. Public Notification Area Map

EK:VM:TT:AJ

[1] http://www.aqmd.gov/docs/default-source/planning/risk-assessment/pn_procedures.pdf

# APPENDIX D -
# AIR TOXICS INVENTORY REPORT 2018

# AIR TOXICS INVENTORY REPORT

## 2018 REPORTING PERIOD

## PAC RANCHO, INC. – RANCHO CUCAMONGA

### OCTOBER 2023

SUBMITTED BY:

**Pac Rancho, Inc.**
Rancho Cucamonga, CA
11000 Jersey Boulevard
Rancho Cucamonga, CA

SUBMITTED TO:

**South Coast Air Quality Mngt District**
AB2588
21865 Copley Drive
Diamond Bar, CA

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# 1. INTRODUCTION

This air toxics emission inventory report (ATIR) for the 2018 reporting period has been prepared at the request of South Coast Air Quality Management District (SCAQMD). This inventory was prepared with the objective of meeting the requirements, standards, and guidelines established by the State of California Toxic Hot Spots Emissions Inventory criteria and guidelines to quantify emissions of listed substances from devices present on site.

Pac Rancho, Inc. utilizes molds to manufacture precision steel and aluminum castings used in the aircraft and aerospace industries.

The emissions calculated in this report have been entered into the "Hot Spots" Analysis and Reporting Program (HARP) software. The HARP reporting forms are provided in **Appendix B.** A signed copy of the AB2588 Air Toxic Document Certification and Application Form is included in **Appendix C.**

The numbering conventions presented in Table 1 for emission points and devices are used to distinguish emissions from different types of sources and devices. The site detail including the buildings and emission sources are contained in (see **Appendix A** – Source Location Map).

This Inventory has limitations based in part on the reliance of information supplied by others or due to using various proxies to calculate emissions. ALL4 relies in part on the accuracy and completeness of safety data sheets to provide a basis for calculating the content of listed substances in raw materials. Some manufacturers choose not to disclose certain ingredients if below certain regulatory *de minimis* thresholds. In addition, certain calculations may use generic emission factors from governmental or other sources which may not be completely representative of actual operating conditions or site equipment configurations.

**Table 1-1**
**Device Numbering Convention**

| Number Convention | Source/Device Type | Description |
|---|---|---|
| 5000X | Area Source | A diffuse source of emissions that is not enclosed or controlled and is assumed to be emitted at an equal rate for each point in a defined area. Examples include storage yards, fields, etc. |
| 6000X | Volume Source | An enclosed source of emissions, which may be controlled but typically is uncontrolled, such as a building, from which emissions may escape with no weighting in particular direction or velocity. An example is a manufacturing building with process equipment that vents directly into the building. |
| 9000X | Point Source | A source of emissions with definable emission rates and emission parameters that is located in a fixed area. Examples include a spray booth stack and an oven exhaust stack. |
| 7000X | Device Number | Specific emission producing devices or a collection of equipment. |

# 2. STEEL WAX BURNOUT OVEN (A/N 430512), DN70001, EPN 60001

The steel wax burnout oven was not in operation during the 2018 calendar year; therefore, emissions are reported as zero.

# 3. ALUMINUM PUSHER FURNACE 4 AND AFTERBURNER (A/N 430514), DN 70002, EPN 60002

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the aluminum pusher furnace 4 and afterburner,1.96 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk\text{-}1$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = maximum heat rating of the aluminum pusher furnace 4 and afterburner, 2.80 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.96 | 8.42E-03 | 1.17E-05 | See note 1 |
| Acrolein | 2.70E-03 | 1.96 | 5.29E-03 | 7.35E-06 | See note 1 |
| Ammonia | 3.20 | 1.96 | 6.27 | 8.72E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.96 | 4.70E-06 | 6.54E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benz(a)anthracene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Benzene | 8.00E-03 | 1.96 | 1.57E-02 | 2.18E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.96 | 2.35E-06 | 3.27E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.96 | 2.35E-06 | 3.27E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.96 | 68.55 | 9.53E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.96 | 2.35E-06 | 3.27E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.96 | 2.35E-03 | 3.27E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.96 | 3.13E-05 | 4.36E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.96 | 1.86E-02 | 2.59E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.96 | 5.88E-06 | 8.17E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.96 | 5.48E-06 | 7.63E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.96 | 3.33E-02 | 4.63E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.96 | 1.23E-02 | 1.72E-05 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.96 | 4.70E-05 | 6.54E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.96 | 5.88E-04 | 8.17E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.96 | 2.31E-05 | 3.21E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.96 | 3.33E-05 | 4.63E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.96 | 9.79E-06 | 1.36E-08 | See note 2 |
| Toluene | 3.66E-02 | 1.96 | 7.17E-02 | 9.97E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.96 | 5.33E-02 | 7.41E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 4. ALUMINUM PUSHER FURNACE 2 AND AFTERBURNER (A/N 430515), DN 70003, EPN 60003

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the aluminum pusher furnace 2 and afterburner, 1.96 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk\text{-}1$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = maximum heat rating of the aluminum pusher furnace 2 and afterburner, 2.80 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.96 | 8.42E-03 | 1.17E-05 | See note 1 |
| Acrolein | 2.70E-03 | 1.96 | 5.29E-03 | 7.35E-06 | See note 1 |
| Ammonia | 3.20 | 1.96 | 6.27 | 8.72E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.96 | 4.70E-06 | 6.54E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benz(a)anthracene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Benzene | 8.00E-03 | 1.96 | 1.57E-02 | 2.18E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.96 | 2.35E-06 | 3.27E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.96 | 2.35E-06 | 3.27E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.96 | 68.55 | 9.53E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.96 | 2.35E-06 | 3.27E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.96 | 2.35E-03 | 3.27E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.96 | 3.13E-05 | 4.36E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.96 | 1.86E-02 | 2.59E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.96 | 5.88E-06 | 8.17E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.96 | 5.48E-06 | 7.63E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.96 | 3.33E-02 | 4.63E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.96 | 1.23E-02 | 1.72E-05 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.96 | 3.53E-06 | 4.90E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.96 | 4.70E-05 | 6.54E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.96 | 5.88E-04 | 8.17E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.96 | 2.31E-05 | 3.21E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.96 | 3.33E-05 | 4.63E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.96 | 9.79E-06 | 1.36E-08 | See note 2 |
| Toluene | 3.66E-02 | 1.96 | 7.17E-02 | 9.97E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.96 | 5.33E-02 | 7.41E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 5. ALUMINUM BOX OVEN AND AFTERBURNER (A/N 430516), DN 70004, EPN 60004

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the aluminum box oven and afterburner, 1.01 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk\text{-}1$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = maximum heat rating of the aluminum box oven and afterburner, 1.441 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.01 | 1.81E-06 | 2.52E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.01 | 1.81E-06 | 2.52E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.01 | 4.33E-03 | 6.03E-06 | See note 1 |
| Acrolein | 2.70E-03 | 1.01 | 2.72E-03 | 3.78E-06 | See note 1 |
| Ammonia | 3.20 | 1.01 | 3.23 | 4.49E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.01 | 2.42E-06 | 3.36E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benz(a)anthracene | 1.80E-06 | 1.01 | 1.81E-06 | 2.52E-09 | See note 2 |
| Benzene | 8.00E-03 | 1.01 | 8.06E-03 | 1.12E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.01 | 1.21E-06 | 1.68E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.01 | 1.81E-06 | 2.52E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.01 | 1.21E-06 | 1.68E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.01 | 1.81E-06 | 2.52E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.01 | 35.28 | 4.91E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.01 | 1.81E-06 | 2.52E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.01 | 1.21E-06 | 1.68E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.01 | 1.21E-03 | 1.68E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.01 | 1.61E-05 | 2.24E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.01 | 9.58E-03 | 1.33E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.01 | 3.02E-06 | 4.21E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.01 | 2.82E-06 | 3.92E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.01 | 1.71E-02 | 2.38E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.01 | 6.35E-03 | 8.83E-06 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.01 | 1.81E-06 | 2.52E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.01 | 1.81E-06 | 2.52E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.01 | 2.42E-05 | 3.36E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.01 | 3.02E-04 | 4.21E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.01 | 1.19E-05 | 1.65E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.01 | 1.71E-05 | 2.38E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.01 | 5.04E-06 | 7.01E-09 | See note 2 |
| Toluene | 3.66E-02 | 1.01 | 3.69E-02 | 5.13E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.01 | 2.74E-02 | 3.81E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 6. STEEL WAX BURNOUT OVEN 4 AND AFTERBURNER (A/N 430518), DN 70005, EPN 60005

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the steel wax burnout oven 4 and afterburner, 1.19 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk\text{-}1$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = maximum heat rating of the steel wax burnout oven 4 and afterburner, 1.707 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.19 | 5.13E-03 | 7.14E-06 | See note 1 |
| Acrolein | 2.70E-03 | 1.19 | 3.22E-03 | 4.48E-06 | See note 1 |
| Ammonia | 3.20 | 1.19 | 3.82 | 5.31E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.19 | 2.87E-06 | 3.99E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benz(a)anthracene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Benzene | 8.00E-03 | 1.19 | 9.55E-03 | 1.33E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.19 | 1.43E-06 | 1.99E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.19 | 1.43E-06 | 1.99E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.19 | 41.79 | 5.81E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.19 | 1.43E-06 | 1.99E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.19 | 1.43E-03 | 1.99E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.19 | 1.91E-05 | 2.66E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.19 | 1.13E-02 | 1.58E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.19 | 3.58E-06 | 4.98E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.19 | 3.34E-06 | 4.65E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.19 | 2.03E-02 | 2.82E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.19 | 7.52E-03 | 1.05E-05 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.19 | 2.87E-05 | 3.99E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.19 | 3.58E-04 | 4.98E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.19 | 1.41E-05 | 1.96E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.19 | 2.03E-05 | 2.82E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.19 | 5.97E-06 | 8.30E-09 | See note 2 |
| Toluene | 3.66E-02 | 1.19 | 4.37E-02 | 6.08E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.19 | 3.25E-02 | 4.52E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 7. STEEL WAX BURNOUT OVEN 3 AND AFTERBURNER (A/N 430519), DN 70006, EPN 60006

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the steel wax burnout oven 3 and afterburner, 1.19 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk\text{-}1$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = maximum heat rating of the steel wax burnout oven 3 and afterburner, 1.707 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.19 | 5.13E-03 | 7.14E-06 | See note 1 |
| Acrolein | 2.70E-03 | 1.19 | 3.22E-03 | 4.48E-06 | See note 1 |
| Ammonia | 3.20 | 1.19 | 3.82 | 5.31E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.19 | 2.87E-06 | 3.99E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benz(a)anthracene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Benzene | 8.00E-03 | 1.19 | 9.55E-03 | 1.33E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.19 | 1.43E-06 | 1.99E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.19 | 1.43E-06 | 1.99E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.19 | 41.79 | 5.81E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.19 | 1.43E-06 | 1.99E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.19 | 1.43E-03 | 1.99E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.19 | 1.91E-05 | 2.66E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.19 | 1.13E-02 | 1.58E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.19 | 3.58E-06 | 4.98E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.19 | 3.34E-06 | 4.65E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.19 | 2.03E-02 | 2.82E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.19 | 7.52E-03 | 1.05E-05 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.19 | 2.15E-06 | 2.99E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.19 | 2.87E-05 | 3.99E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.19 | 3.58E-04 | 4.98E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.19 | 1.41E-05 | 1.96E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.19 | 2.03E-05 | 2.82E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.19 | 5.97E-06 | 8.30E-09 | See note 2 |
| Toluene | 3.66E-02 | 1.19 | 4.37E-02 | 6.08E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.19 | 3.25E-02 | 4.52E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 8. FLASH FIRE OVEN 5 AND AFTERBURNER (A/N 430520), DN 70007, EPN 90001

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the flash fire oven 5 and afterburner, 1.55 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk\text{-}1$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = maximum heat rating of the flash fire oven 5 and afterburner, 2.215 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.55 | 2.79E-06 | 3.88E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.55 | 2.79E-06 | 3.88E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.55 | 6.66E-03 | 9.27E-06 | See note 1 |
| Acrolein | 2.70E-03 | 1.55 | 4.18E-03 | 5.82E-06 | See note 1 |
| Ammonia | 3.20 | 1.55 | 4.96 | 6.89E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.55 | 3.72E-06 | 5.17E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benz(a)anthracene | 1.80E-06 | 1.55 | 2.79E-06 | 3.88E-09 | See note 2 |
| Benzene | 8.00E-03 | 1.55 | 1.24E-02 | 1.72E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.55 | 1.86E-06 | 2.59E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.55 | 2.79E-06 | 3.88E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.55 | 1.86E-06 | 2.59E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.55 | 2.79E-06 | 3.88E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.55 | 54.23 | 7.54E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.55 | 2.79E-06 | 3.88E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.55 | 1.86E-06 | 2.59E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.55 | 1.86E-03 | 2.59E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.55 | 2.48E-05 | 3.45E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.55 | 1.47E-02 | 2.05E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.55 | 4.65E-06 | 6.46E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.55 | 4.34E-06 | 6.03E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.55 | 2.63E-02 | 3.66E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.55 | 9.76E-03 | 1.36E-05 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.55 | 2.79E-06 | 3.88E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.55 | 2.79E-06 | 3.88E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.55 | 3.72E-05 | 5.17E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.55 | 4.65E-04 | 6.46E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.55 | 1.83E-05 | 2.54E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.55 | 2.63E-05 | 3.66E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.55 | 7.75E-06 | 1.08E-08 | See note 2 |
| Toluene | 3.66E-02 | 1.55 | 5.67E-02 | 7.89E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.55 | 4.21E-02 | 5.86E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 9. ALUMINUM PUSHER FURNACE 3 (A/N 430533), DN 70008, EPN 60007

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the aluminum pusher furnace 3, 1.79 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk\text{-}1$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = maximum heat rating of the aluminum pusher furnace 3, 2.552 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.79 | 3.21E-06 | 4.47E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.79 | 3.21E-06 | 4.47E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.79 | 7.68E-03 | 1.07E-05 | See note 1 |
| Acrolein | 2.70E-03 | 1.79 | 4.82E-03 | 6.70E-06 | See note 1 |
| Ammonia | 3.20 | 1.79 | 5.71 | 7.94E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.79 | 4.28E-06 | 5.96E-09 | See note 2 |
| Benz(a)anthracene | 1.80E-06 | 1.79 | 3.21E-06 | 4.47E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benzene | 8.00E-03 | 1.79 | 1.43E-02 | 1.99E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.79 | 2.14E-06 | 2.98E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.79 | 3.21E-06 | 4.47E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.79 | 2.14E-06 | 2.98E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.79 | 3.21E-06 | 4.47E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.79 | 62.48 | 8.69E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.79 | 3.21E-06 | 4.47E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.79 | 2.14E-06 | 2.98E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.79 | 2.14E-03 | 2.98E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.79 | 2.86E-05 | 3.97E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.79 | 1.70E-02 | 2.36E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.79 | 5.36E-06 | 7.45E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.79 | 5.00E-06 | 6.95E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.79 | 3.03E-02 | 4.22E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.79 | 1.12E-02 | 1.56E-05 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.79 | 3.21E-06 | 4.47E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.79 | 3.21E-06 | 4.47E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.79 | 4.28E-05 | 5.96E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.79 | 5.36E-04 | 7.45E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.79 | 2.11E-05 | 2.93E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.79 | 3.03E-05 | 4.22E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.79 | 8.93E-06 | 1.24E-08 | See note 2 |
| Toluene | 3.66E-02 | 1.79 | 6.53E-02 | 9.09E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.79 | 4.86E-02 | 6.75E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 10. STEEL WAX BURNOUT OVEN 2 (A/N 553329), DN 70009, EPN 60008

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the steel wax burnout oven 2, 1.05 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk\text{-}1$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = maximum heat rating of the steel wax burnout oven 2, 1.50 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.05 | 4.51E-03 | 6.27E-06 | See note 1 |
| Acrolein | 2.70E-03 | 1.05 | 2.83E-03 | 3.94E-06 | See note 1 |
| Ammonia | 3.20 | 1.05 | 3.36 | 4.67E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.05 | 2.52E-06 | 3.50E-09 | See note 2 |
| Benz(a)anthracene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benzene | 8.00E-03 | 1.05 | 8.39E-03 | 1.17E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.05 | 36.73 | 5.11E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.05 | 1.26E-03 | 1.75E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.05 | 1.68E-05 | 2.33E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.05 | 9.97E-03 | 1.39E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.05 | 3.15E-06 | 4.38E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.05 | 2.94E-06 | 4.09E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.05 | 1.78E-02 | 2.48E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.05 | 6.61E-03 | 9.19E-06 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.05 | 2.52E-05 | 3.50E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.05 | 3.15E-04 | 4.38E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.05 | 1.24E-05 | 1.72E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.05 | 1.78E-05 | 2.48E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.05 | 5.25E-06 | 7.30E-09 | See note 2 |
| Toluene | 3.66E-02 | 1.05 | 3.84E-02 | 5.34E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.05 | 2.85E-02 | 3.97E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 11. THERMTRONIX ALUMINUM MELTING 1, DN 70010, EPN 60009

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the thermtronix aluminum melting 1, 1.05 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk\text{-}1$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = maximum heat rating of the thermtronix aluminum melting 1, 1.50 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.05 | 4.51E-03 | 6.27E-06 | See note 1 |
| Acrolein | 2.70E-03 | 1.05 | 2.83E-03 | 3.94E-06 | See note 1 |
| Ammonia | 3.20 | 1.05 | 3.36 | 4.67E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.05 | 2.52E-06 | 3.50E-09 | See note 2 |
| Benz(a)anthracene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benzene | 8.00E-03 | 1.05 | 8.39E-03 | 1.17E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.05 | 36.73 | 5.11E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.05 | 1.26E-03 | 1.75E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.05 | 1.68E-05 | 2.33E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.05 | 9.97E-03 | 1.39E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.05 | 3.15E-06 | 4.38E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.05 | 2.94E-06 | 4.09E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.05 | 1.78E-02 | 2.48E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.05 | 6.61E-03 | 9.19E-06 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.05 | 2.52E-05 | 3.50E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.05 | 3.15E-04 | 4.38E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.05 | 1.24E-05 | 1.72E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.05 | 1.78E-05 | 2.48E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.05 | 5.25E-06 | 7.30E-09 | See note 2 |
| Toluene | 3.66E-02 | 1.05 | 3.84E-02 | 5.34E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.05 | 2.85E-02 | 3.97E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 12. THERMTRONIX ALUMINUM MELTING 2, DN 70011, EPN 60010

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the thermtronix aluminum melting 1, 1.05 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk\text{-}1$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = maximum heat rating of the thermtronix aluminum melting 2, 1.50 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.05 | 4.51E-03 | 6.27E-06 | See note 1 |
| Acrolein | 2.70E-03 | 1.05 | 2.83E-03 | 3.94E-06 | See note 1 |
| Ammonia | 3.20 | 1.05 | 3.36 | 4.67E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.05 | 2.52E-06 | 3.50E-09 | See note 2 |
| Benz(a)anthracene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benzene | 8.00E-03 | 1.05 | 8.39E-03 | 1.17E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.05 | 36.73 | 5.11E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.05 | 1.26E-03 | 1.75E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.05 | 1.68E-05 | 2.33E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.05 | 9.97E-03 | 1.39E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.05 | 3.15E-06 | 4.38E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.05 | 2.94E-06 | 4.09E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.05 | 1.78E-02 | 2.48E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.05 | 6.61E-03 | 9.19E-06 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.05 | 2.52E-05 | 3.50E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.05 | 3.15E-04 | 4.38E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.05 | 1.24E-05 | 1.72E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.05 | 1.78E-05 | 2.48E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.05 | 5.25E-06 | 7.30E-09 | See note 2 |
| Toluene | 3.66E-02 | 1.05 | 3.84E-02 | 5.34E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.05 | 2.85E-02 | 3.97E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

## 13. HEAT TREAT OVEN, DN 70012, EPN 90002

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the heat treat oven, 1.05 mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk^{-1}$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = estimated maximum heat rating of the heat treat oven, 1.50 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.05 | 4.51E-03 | 6.27E-06 | See note 1 |
| Acrolein | 2.70E-03 | 1.05 | 2.83E-03 | 3.94E-06 | See note 1 |
| Ammonia | 3.20 | 1.05 | 3.36 | 4.67E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.05 | 2.52E-06 | 3.50E-09 | See note 2 |
| Benz(a)anthracene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benzene | 8.00E-03 | 1.05 | 8.39E-03 | 1.17E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.05 | 36.73 | 5.11E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.05 | 1.26E-03 | 1.75E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.05 | 1.68E-05 | 2.33E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.05 | 9.97E-03 | 1.39E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.05 | 3.15E-06 | 4.38E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.05 | 2.94E-06 | 4.09E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.05 | 1.78E-02 | 2.48E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.05 | 6.61E-03 | 9.19E-06 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.05 | 2.52E-05 | 3.50E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.05 | 3.15E-04 | 4.38E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.05 | 1.24E-05 | 1.72E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.05 | 1.78E-05 | 2.48E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.05 | 5.25E-06 | 7.30E-09 | See note 2 |
| Toluene | 3.66E-02 | 1.05 | 3.84E-02 | 5.34E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.05 | 2.85E-02 | 3.97E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 14. HOT STRAIGHT OVEN, DN 70013, EPN 60011

Emissions of listed substances due to combustion of natural gas are calculated using AB 2588 emission factors for natural gas combustion provided by South Coast Air Quality Management District (SCAQMD) and USEPA AP-42 Table 1.4-3. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, 1.05 lbs/mmcf (SCAQMD and USEPA AP-42).

Q = quantity of natural gas combusted in the hot straight oven, mmcf/yr.

Maximum Hourly Emissions

$$H = Fqk^{-1}$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

q = estimated maximum heat rating of the hot straight oven, 1.50 mmBTU/hr.

k = conversion factor, 1,028 mmBTU/mmcf.

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Acenaphthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Acenaphthylene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Acetaldehyde | 4.30E-03 | 1.05 | 4.51E-03 | 6.27E-06 | See note 1 |
| Acrolein | 2.70E-03 | 1.05 | 2.83E-03 | 3.94E-06 | See note 1 |
| Ammonia | 3.20 | 1.05 | 3.36 | 4.67E-03 | See note 1 |
| Anthracene | 2.40E-06 | 1.05 | 2.52E-06 | 3.50E-09 | See note 2 |
| Benz(a)anthracene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |

| Listed Substance | F, lbs/mmscf | Q, mmcf/yr | Y, lbs/yr | H, lbs/hr | Source |
|---|---|---|---|---|---|
| Benzene | 8.00E-03 | 1.05 | 8.39E-03 | 1.17E-05 | See note 1 |
| Benzo(a)pyrene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Benzo(b)fluoranthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Benzo(g,h,i)perylene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Benzo(k)fluoranthene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Carbon monoxide | 35.00 | 1.05 | 36.73 | 5.11E-02 | See note 1 |
| Chrysene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Dibenz(a,h)anthracene | 1.20E-06 | 1.05 | 1.26E-06 | 1.75E-09 | See note 2 |
| Dichlorobenzene | 1.20E-03 | 1.05 | 1.26E-03 | 1.75E-06 | See note 2 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 | 1.05 | 1.68E-05 | 2.33E-08 | See note 2 |
| Ethylbenzene | 9.50E-03 | 1.05 | 9.97E-03 | 1.39E-05 | See note 1 |
| Fluoranthene | 3.00E-06 | 1.05 | 3.15E-06 | 4.38E-09 | See note 2 |
| Fluorene | 2.80E-06 | 1.05 | 2.94E-06 | 4.09E-09 | See note 2 |
| Formaldehyde | 1.70E-02 | 1.05 | 1.78E-02 | 2.48E-05 | See note 1 |
| Hexane, n- | 6.30E-03 | 1.05 | 6.61E-03 | 9.19E-06 | See note 1 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Methylcholanthrene, 3- | 1.80E-06 | 1.05 | 1.89E-06 | 2.63E-09 | See note 2 |
| Methylnaphthalene, 2- | 2.40E-05 | 1.05 | 2.52E-05 | 3.50E-08 | See note 2 |
| Naphthalene | 3.00E-04 | 1.05 | 3.15E-04 | 4.38E-07 | See note 1 |
| PAH (unspeciated) | 1.18E-05 | 1.05 | 1.24E-05 | 1.72E-08 | See note 3 |
| Phenanthrene | 1.70E-05 | 1.05 | 1.78E-05 | 2.48E-08 | See note 2 |
| Pyrene | 5.00E-06 | 1.05 | 5.25E-06 | 7.30E-09 | See note 2 |
| Toluene | 3.66E-02 | 1.05 | 3.84E-02 | 5.34E-05 | See note 1 |
| Xylenes | 2.72E-02 | 1.05 | 2.85E-02 | 3.97E-05 | See note 1 |

1. SCAQMD Web Based Tool and Reporting Procedures for AB2588 Facilities for Reporting their Quadrennial Air Toxics Emissions Inventory, December 2016.

2. USEPA AP-42, Fifth Edition, Chapter 1.4 Natural Gas Combustion, Table 1.4-3, October 1998.

3. Emission factors for PAH were adjusted by excluding the emission factor of speciated organic compounds (see **Appendix D**).

# 15. PROPANE HANDHELD TORCH, DN 70014, EPN 60012

Emissions of listed substances due to combustion of propane are calculated using AB 2588 emission factors for propane combustion provided by South Coast Air Quality Management District (SCAQMD) Supplemental Reporting Procedures for AB2588 Facilities Reporting their Quadrennial Air Toxic Emissions Report Program December 2016. The quantity of listed substances from the combustion of natural gas is calculated using the following equation:

Annual Emissions

$$Y = FQ$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/mmcf (SCAQMD Table B-1).

Q = quantity of propane combusted during the 2018 calendar year, 9.19E-03 Mgal/yr.

Maximum Hourly Emissions

$$H = Fqk^{-1}$$

where,

H = maximum hourly emissions of the given listed substances, lbs/hr.

h = operating hours of the propane handheld torch, 2,808 hrs/yr.

| Listed Substance | F, lbs/Mgal | Q, Mgal/yr | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|
| Acetaldehyde | 3.80E-04 | 9.19E-03 | 3.49E-06 | 1.24E-09 |
| Acrolein | 2.40E-04 | 9.19E-03 | 2.21E-06 | 7.85E-10 |
| Ammonia | 0.30 | 9.19E-03 | 2.76E-03 | 9.82E-07 |
| Benzene | 7.10E-04 | 9.19E-03 | 6.52E-06 | 2.32E-09 |
| Carbon monoxide | 3.20 | 9.19E-03 | 2.94E-02 | 1.05E-05 |
| Ethylbenzene | 8.40E-04 | 9.19E-03 | 7.72E-06 | 2.75E-09 |
| Formaldehyde | 1.51E-03 | 9.19E-03 | 1.39E-05 | 4.94E-09 |

| Listed Substance | F, lbs/Mgal | Q, Mgal/yr | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|
| Hexane, n- | 5.60E-04 | 9.19E-03 | 5.15E-06 | 1.83E-09 |
| Naphthalene | 3.00E-05 | 9.19E-03 | 2.76E-07 | 9.82E-11 |
| PAH (unspeciated) | 1.00E-05 | 9.19E-03 | 9.19E-08 | 3.27E-11 |
| Toluene | 3.25E-03 | 9.19E-03 | 2.99E-05 | 1.06E-08 |
| Xylenes | 2.41E-03 | 9.19E-03 | 2.21E-05 | 7.89E-09 |

# 16. SCRUBBER (A/N 530525), DN 70015, EPN 90003

The scrubber is associated with the aluminum parts bright drip line; therefore, emissions from the scrubber are reported as zero.

# 17. ALUMINUM PARTS BRIGHT DRIP LINE (A/N 430526), DN 70016, EPN 90004

## *17.1 VOLATILE LISTED SUBSTANCES FROM ALUMINUM PARTS BRIGHT DRIP LINE*

Emissions of volatile listed substances in the use of raw materials are calculated using the following equation:

Annual Emissions

$$Y = QP$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

Q = quantity of raw materials used during the reporting period, lbs/yr.

P = weight proportion of volatile listed substances in the material, lbs/lbs.

Maximum Hourly Emissions

$$H = Fqk^{-1}$$

where,

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of the aluminum parts bright drip line, 8,760 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | P, lbs/lbs | Y, lbs/yr | H, lbs/yr |
|---|---|---|---|---|---|
| Ammonia | DW 62M | 100 | 0.18 | 17.91 | 2.04E-03 |

## *17.2 EVAPORATIVE EMISSIONS FROM OPEN PROCESS TANKS*

Evaporative emissions from open process tanks are calculated using the following equation:

$$Y = Rh$$

where,

Y = emissions from the open process tank.

R = emissions rate for particulate matter, lbs/hr (see Emissions from Open Process Tank).

h = operating hours of the tank, 8,760 hrs/yr.

| Listed Substance | Material | R, lbs/hr | h, hrs/yr | Y, lbs/yr | H, lbs/yr |
|---|---|---|---|---|---|
| Sulfuric acid | DW 61 | 3.27E-20 | 8,760 | 2.86E-16 | 3.27E-20 |
| Nitric acid | DW 61 | 3.51E-03 | 8,760 | 30.70 | 3.51E-03 |
| Phosphoric acid | DW 61 | 2.98E-04 | 8,760 | 2.61 | 2.98E-04 |

## *17.3 NITRIC ACID FROM OPEN PROCESS TANK*

Emissions of nitric acid are calculated using SCAQMD emission factors; however, emissions of nitric acid are not expected to occur. Based on the vapor pressure of nitric acid at the temperature that the open process tank is operated, the absence of mechanisms to promote atmospheric emissions (e.g. sparging), and because nitric acid is expected to dissociate when in solution and be converted to oxides of nitrogen, it is unlikely that nitric acid would be emitted.

## *17.4 NON-VOLATILE LISTED SUBSTANCES*

Emissions of sodium hydroxide are not expected; therefore, emissions of sodium hydroxide are reported as zero.

# 18. BAGHOUSE (A/N 430534), DN 70017, EPN 60013

The baghouse is associated with the abrasive blasting cabinet; therefore, emissions from the baghouse are reported as zero.

# 19. ABRASIVE BLASTING CABINET (A/N 430535), DN 70018, EPN 90005

As a result of the operation of the abrasive blasting cabinet, listed substances in the form of particulate matter may be emitted into the atmosphere. Emissions will be estimated using the emission factor provided by the SCAQMD document "AER Reporting Tool Help and Support Manual: Abrasive Blasting Operations." Emissions will be calculated using the following equation:

Annual Emissions

$$Y = QFPk$$

where,

Y = annual emissions of alumimum oxide, lbs/yr.

Q = quantity of abrasive blasting material used, 16,050 lbs/yr.

F = emission factor for abrasive blasting of unspecified material, controlled with a baghouse, 0.20 lbs/ton (SCAQMD, AER Reporting Tool Help and Support Manual: Abrasive Blasting Operations).

P = weight proportion of aluminum oxide in the material, 0.90 lbs/lbs.

k = conversion factor, 5.00E-04 tons/lb.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the aluminum oxide, lbs/hr.

h = operating hours of the abrasive blasting cabinet, 2,808 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | F, lbs/ton | P, lbs/lbs | k, tons/lb | Y, lbs/yr | H, lbs/yr |
|---|---|---|---|---|---|---|---|
| Aluminum oxide | Aluminum Oxide Brown 60 | 16,050 | 0.20 | 0.90 | 5.00E-04 | 1.44 | 5.14E-04 |

# 20. STEEL MELTING, POURING AND CASTING 75 LB CRUCIBLE, DN 70019, EPN 60014

## *20.1 EMISSIONS OF METAL FROM SOURCE TEST*

Emissions of listed substances from steel melting using electric induction furnaces are calculated using a source test completed by Alliance Source Testing on January 17-20, 2022 and approved for use in emission calculations on December 28, 2022. Emissions are calculated using the following equation:

Annual Emissions

$$Y = QF$$

where,

Y = annual emissions of listed substances from steel melting, lbs/yr.

Q = quantity of steel alloy used during the reporting period, lbs/yr.

F = emission factor for listed substances resulting from steel melting using electric induction furnaces, lbs/lbs (Alliance Source Testing on January 17-20, 2022).

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of steel melting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, lbs/yr | F, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| 17-4 Steel | Chromium | 2,818 | 7.29E-07 | 2.06E-03 | 6.59E-07 |
| 304 Steel | Chromium | 157 | 8.34E-07 | 1.30E-04 | 4.18E-08 |
| 15-5 Steel | Chromium | 27,280 | 6.46E-07 | 1.76E-02 | 5.65E-06 |
| | | | **Total chromium** | **1.98E-02** | **6.35E-06** |
| 17-4 Steel | Hexavalent chromium | 2,818 | 4.60E-09 | 1.30E-05 | 4.15E-09 |
| 304 Steel | Hexavalent chromium | 157 | 5.25E-09 | 8.22E-07 | 2.64E-10 |

| Alloy | Listed Substance | Q, lbs/yr | F, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| 15-5 Steel | Hexavalent chromium | 27,280 | 4.07E-09 | 1.11E-04 | 3.56E-08 |
| | | | **Total hexavalent chromium** | **1.25E-04** | **4.00E-08** |
| 17-4 Steel | Copper | 2,818 | 3.72E-05 | 1.05E-01 | 3.36E-05 |
| 15-5 Steel | Copper | 27,280 | 3.40E-05 | 9.27E-01 | 2.97E-04 |
| | | | **Total copper** | **1.03E+00** | **3.31E-04** |
| 17-4 Steel | Manganese | 2,818 | 6.04E-05 | 1.70E-01 | 5.45E-05 |
| 304 Steel | Manganese | 157 | 1.72E-04 | 2.70E-02 | 8.65E-06 |
| 15-5 Steel | Manganese | 27,280 | 5.17E-05 | 1.41E+00 | 4.52E-04 |
| | | | **Total manganese** | **1.61E+00** | **5.16E-04** |
| 17-4 Steel | Nickel | 2,818 | 2.79E-07 | 7.86E-04 | 2.52E-07 |
| 304 Steel | Nickel | 157 | 5.86E-07 | 9.17E-05 | 2.94E-08 |
| 15-5 Steel | Nickel | 27,280 | 3.07E-07 | 8.37E-03 | 2.68E-06 |
| | | | **Total nickel** | **9.25E-03** | **2.96E-06** |

## *20.2 METAL FROM PARTICULATE MATTER EMISSION FACTOR FROM SOURCE TEST*

Emissions of listed substances from steel melting using electric induction furnaces are calculated using a particulate matter emission factor from a source test completed by Alliance Source Testing on January 17-20, 2022 and approved for use in emission calculations on December 28, 2022 and listed substance concentration in alloy used. Emissions are calculated using the following equation:

Annual Emissions

$$Y = QFP$$

where,

Y = annual emissions of listed substances from steel melting, lbs/yr.

Q = quantity of steel alloy used during the reporting period, lbs/yr.

F = emission factor for listed substances resulting from steel melting using electric induction furnaces, lbs/lbs (Alliance Source Testing on January 17-20, 2022).

P = weight proportion of listed substances present in steel alloy, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of steel melting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|
| 17-4 Steel | Phosphorus | 2,818 | 4.00E-04 | 3.19E-04 | 3.60E-04 | 1.15E-07 |
| 304 Steel | Phosphorus | 157 | 4.50E-04 | 3.19E-04 | 2.25E-05 | 7.20E-09 |
| 15-5 Steel | Phosphorus | 27,280 | 3.50E-04 | 3.19E-04 | 3.05E-03 | 9.76E-07 |
| | | | | **Total phosphorus** | **3.43E-03** | **1.10E-06** |

# 21. STEEL MELTING, POURING AND CASTING 65 LB CRUCIBLE, DN 70020, EPN 60015

## *21.1 EMISSIONS OF METAL FROM SOURCE TEST*

Emissions of listed substances from steel melting using electric induction furnaces are calculated using a source test completed by Alliance Source Testing on January 17-20, 2022 and approved for use in emission calculations on December 28, 2022. Emissions are calculated using the following equation:

Annual Emissions

$$Y = QF$$

where,

Y = annual emissions of listed substances from steel melting, lbs/yr.

Q = quantity of steel alloy used during the reporting period, lbs/yr.

F = emission factor for listed substances resulting from steel melting using electric induction furnaces, lbs/lbs (Alliance Source Testing on January 17-20, 2022).

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of steel melting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, lbs/yr | F, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| 17-4 Steel | Chromium | 2,442 | 7.29E-07 | 1.78E-03 | 5.71E-07 |
| 304 Steel | Chromium | 136 | 8.34E-07 | 1.13E-04 | 3.62E-08 |
| 15-5 Steel | Chromium | 23,643 | 6.46E-07 | 1.53E-02 | 4.90E-06 |
| | | | **Total chromium** | **1.72E-02** | **5.50E-06** |
| 17-4 Steel | Hexavalent chromium | 2,442 | 4.60E-09 | 1.12E-05 | 3.60E-09 |
| 304 Steel | Hexavalent chromium | 136 | 5.25E-09 | 7.13E-07 | 2.28E-10 |

| Alloy | Listed Substance | Q, lbs/yr | F, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| 15-5 Steel | Hexavalent chromium | 23,643 | 4.07E-09 | 9.62E-05 | 3.08E-08 |
| | | | **Total hexavalent chromium** | **1.08E-04** | **3.47E-08** |
| 17-4 Steel | Copper | 2,442 | 3.72E-05 | 9.08E-02 | 2.91E-05 |
| 15-5 Steel | Copper | 23,643 | 3.40E-05 | 8.03E-01 | 2.57E-04 |
| | | | **Total copper** | **8.94E-01** | **2.87E-04** |
| 17-4 Steel | Manganese | 2,442 | 6.04E-05 | 1.47E-01 | 4.73E-05 |
| 304 Steel | Manganese | 136 | 1.72E-04 | 2.34E-02 | 7.50E-06 |
| 15-5 Steel | Manganese | 23,643 | 5.17E-05 | 1.22E+00 | 3.92E-04 |
| | | | **Total manganese** | **1.39E+00** | **4.47E-04** |
| 17-4 Steel | Nickel | 2,442 | 2.79E-07 | 6.81E-04 | 2.18E-07 |
| 304 Steel | Nickel | 136 | 5.86E-07 | 7.95E-05 | 2.55E-08 |
| 15-5 Steel | Nickel | 23,643 | 3.07E-07 | 7.25E-03 | 2.33E-06 |
| | | | **Total nickel** | **8.02E-03** | **2.57E-06** |

## *21.2 METAL FROM PARTICULATE MATTER EMISSION FACTOR FROM SOURCE TEST*

Emissions of listed substances from steel melting using electric induction furnaces are calculated using a particulate matter emission factor from a source test completed by Alliance Source Testing on January 17-20, 2022 and approved for use in emission calculations on December 28, 2022 and listed substance concentration in alloy used. Emissions are calculated using the following equation:

Annual Emissions

$$Y = QFP$$

where,

Y = annual emissions of listed substances from steel melting, lbs/yr.

Q = quantity of steel alloy used during the reporting period, lbs/yr.

F = emission factor for listed substances resulting from steel melting using electric induction furnaces, lbs/lbs (Alliance Source Testing on January 17-20, 2022).

P = weight proportion of listed substances present in steel alloy, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of steel melting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|
| 17-4 Steel | Phosphorus | 2,442 | 4.00E-04 | 3.19E-04 | 3.12E-04 | 9.99E-08 |
| 304 Steel | Phosphorus | 136 | 4.50E-04 | 3.19E-04 | 1.95E-05 | 6.24E-09 |
| 15-5 Steel | Phosphorus | 23,643 | 3.50E-04 | 3.19E-04 | 2.64E-03 | 8.46E-07 |
| | | | | **Total phosphorus** | **2.97E-03** | **9.52E-07** |

# 22. STEEL MELTING, POURING AND CASTING 300/650 LB CRUCIBLE, DN 70021, EPN 60016

## *22.1 EMISSIONS OF METAL FROM SOURCE TEST*

Emissions of listed substances from steel melting using electric induction furnaces are calculated using a source test completed by Alliance Source Testing on January 17-20, 2022 and approved for use in emission calculations on December 28, 2022. Emissions are calculated using the following equation:

Annual Emissions

$$Y = QF$$

where,

Y = annual emissions of listed substances from steel melting, lbs/yr.

Q = quantity of steel alloy used during the reporting period, lbs/yr.

F = emission factor for listed substances resulting from steel melting using electric induction furnaces, lbs/lbs (Alliance Source Testing on January 17-20, 2022).

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of steel melting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, lbs/yr | F, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| 17-4 Steel | Chromium | 35,696 | 7.29E-07 | 2.60E-02 | 8.35E-06 |
| 304 Steel | Chromium | 1,983 | 8.34E-07 | 1.65E-03 | 5.30E-07 |
| 15-5 Steel | Chromium | 345,552 | 6.46E-07 | 2.23E-01 | 7.16E-05 |
| | | | **Total chromium** | **0.25** | **8.04E-05** |
| 17-4 Steel | Hexavalent Chromium | 35,696 | 4.60E-09 | 1.64E-04 | 5.26E-08 |
| 304 Steel | Hexavalent Chromium | 1,983 | 5.25E-09 | 1.04E-05 | 3.34E-09 |

| Alloy | Listed Substance | Q, lbs/yr | F, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| 15-5 Steel | Hexavalent Chromium | 345,552 | 4.07E-09 | 1.41E-03 | 4.51E-07 |
| | | | **Total hexavalent chromium** | **1.58E-03** | **5.07E-07** |
| 17-4 Steel | Copper | 35,696 | 3.72E-05 | 1.33E+00 | 4.25E-04 |
| 15-5 Steel | Copper | 345,552 | 3.40E-05 | 1.17E+01 | 3.76E-03 |
| | | | **Total copper** | **13.07** | **4.19E-03** |
| 17-4 Steel | Manganese | 35,696 | 6.04E-05 | 2.15E+00 | 6.91E-04 |
| 304 Steel | Manganese | 1,983 | 1.72E-04 | 3.42E-01 | 1.10E-04 |
| 15-5 Steel | Manganese | 345,552 | 5.17E-05 | 17.88 | 5.73E-03 |
| | | | **Total manganese** | **20.38** | **6.53E-03** |
| 17-4 Steel | Nickel | 35,696 | 2.79E-07 | 9.96E-03 | 3.19E-06 |
| 304 Steel | Nickel | 1,983 | 5.86E-07 | 1.16E-03 | 3.72E-07 |
| 15-5 Steel | Nickel | 345,552 | 3.07E-07 | 1.06E-01 | 3.40E-05 |
| | | | **Total nickel** | **0.12** | **3.75E-05** |

## *22.2 METAL FROM PARTICULATE MATTER EMISSION FACTOR FROM SOURCE TEST*

Emissions of listed substances from steel melting using electric induction furnaces are calculated using a particulate matter emission factor from a source test completed by Alliance Source Testing on January 17-20, 2022 and approved for use in emission calculations on December 28, 2022 and listed substance concentration in alloy used. Emissions are calculated using the following equation:

Annual Emissions

$$Y = QFP$$

where,

Y = annual emissions of listed substances from steel melting, lbs/yr.

Q = quantity of steel alloy used during the reporting period, lbs/yr.

F = emission factor for listed substances resulting from steel melting using electric induction furnaces, lbs/lbs (Alliance Source Testing on January 17-20, 2022).

P = weight proportion of listed substances present in steel alloy, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of steel melting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|
| 17-4 Steel | Phosphorus | 35,696 | 4.00E-04 | 3.19E-04 | 4.55E-03 | 1.46E-06 |
| 304 Steel | Phosphorus | 1,983 | 4.50E-04 | 3.19E-04 | 2.85E-04 | 9.12E-08 |
| 15-5 Steel | Phosphorus | 345,552 | 3.50E-04 | 3.19E-04 | 3.86E-02 | 1.24E-05 |
| | | | | **Total phosphorus** | **4.34E-02** | **1.39E-05** |

# 23. ALUMINUM MELTING, POURING AND CASTING THERMTRONIX 1, DN 70022, EPN 60017

## *23.1 METAL FROM MELTING*

Emissions of listed substances from aluminum melting using crucible furnaces are estimated using the emission factor provided by the USEPA AP-42 Section 12.8. Emissions are calculated using the following equation.

Annual Emissions

$$Y = QPFk$$

where,

Y = annual emissions of listed substances from aluminum melting, lbs/yr.

Q = quantity of aluminum alloy used during the reporting period, lbs/yr.

P = maximum weight proportion of listed substances present in aluminum alloy, lbs/lbs.

F = emission factor for particulate matter resulting from aluminum alloy melting operations, 1.90 lbs/ton (USEPA, AP-42 Table 12.8-2).

k = conversion factor, 5.00E-04 tons/lb.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of the aluminum pouring and casting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/ton | k, lbs/ton | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| A356 Alloy | Aluminum | 24,034 | 0.93 | 1.90 | 5.00E-04 | 21.29 | 6.82E-03 |
| B356 Alloy | Aluminum | 30,538 | 0.93 | 1.90 | 5.00E-04 | 27.04 | 8.67E-03 |
| C355 Alloy | Aluminum | 1,260 | 0.94 | 1.90 | 5.00E-04 | 1.13 | 3.61E-04 |

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/ton | k, lbs/ton | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| A357 Alloy | Aluminum | 53,919 | 0.93 | 1.90 | 5.00E-04 | 47.65 | 1.53E-02 |
| E357 Alloy | Aluminum | 6,911 | 0.86 | 1.90 | 5.00E-04 | 5.65 | 1.81E-03 |
| F357 Alloy | Aluminum | 1,310 | 0.86 | 1.90 | 5.00E-04 | 1.07 | 3.43E-04 |
| 356 Alloy | Aluminum | 5,501 | 0.93 | 1.90 | 5.00E-04 | 4.88 | 1.56E-03 |
| | | | | | **Total aluminum** | **108.70** | **3.48E-02** |
| A357 Alloy | Beryllium | 53,919 | 7.00E-04 | 1.90 | 5.00E-04 | 3.59E-02 | 1.15E-05 |
| E357 Alloy | Beryllium | 6,911 | 2.00E-05 | 1.90 | 5.00E-04 | 1.31E-04 | 4.21E-08 |
| F357 Alloy | Beryllium | 1,310 | 2.00E-05 | 1.90 | 5.00E-04 | 2.49E-05 | 7.98E-09 |
| | | | | | **Total beryllium** | **3.60E-02** | **1.15E-05** |
| E357 Alloy | Chromium | 6,911 | 3.00E-03 | 1.90 | 5.00E-04 | 1.97E-02 | 6.31E-06 |
| F357 Alloy | Chromium | 1,310 | 3.00E-03 | 1.90 | 5.00E-04 | 3.73E-03 | 1.20E-06 |
| | | | | | **Total chromium** | **2.34E-02** | **7.51E-06** |
| A356 Alloy | Copper | 24,034 | 2.00E-03 | 1.90 | 5.00E-04 | 4.57E-02 | 1.46E-05 |
| B356 Alloy | Copper | 30,538 | 5.00E-04 | 1.90 | 5.00E-04 | 1.45E-02 | 4.65E-06 |
| C355 Alloy | Copper | 1,260 | 1.50E-02 | 1.90 | 5.00E-04 | 1.80E-02 | 5.75E-06 |
| A357 Alloy | Copper | 53,919 | 2.00E-03 | 1.90 | 5.00E-04 | 0.10 | 3.28E-05 |
| E357 Alloy | Copper | 6,911 | 5.00E-02 | 1.90 | 5.00E-04 | 0.33 | 1.05E-04 |
| F357 Alloy | Copper | 1,310 | 5.00E-02 | 1.90 | 5.00E-04 | 0.06 | 1.99E-05 |
| 356 Alloy | Copper | 5,501 | 2.50E-03 | 1.90 | 5.00E-04 | 1.31E-02 | 4.19E-06 |
| | | | | | **Total copper** | **0.58** | **1.87E-04** |
| E357 Alloy | Lead | 6,911 | 3.00E-04 | 1.90 | 5.00E-04 | 1.97E-03 | 6.31E-07 |
| F357 Alloy | Lead | 1,310 | 3.00E-04 | 1.90 | 5.00E-04 | 3.73E-04 | 1.20E-07 |
| | | | | | **Total lead** | **2.34E-03** | **7.51E-07** |
| A356 Alloy | Manganese | 24,034 | 1.00E-03 | 1.90 | 5.00E-04 | 2.28E-02 | 7.32E-06 |
| B356 Alloy | Manganese | 30,538 | 5.00E-04 | 1.90 | 5.00E-04 | 1.45E-02 | 4.65E-06 |
| C355 Alloy | Manganese | 1,260 | 1.00E-03 | 1.90 | 5.00E-04 | 1.20E-03 | 3.84E-07 |
| A357 Alloy | Manganese | 53,919 | 1.00E-03 | 1.90 | 5.00E-04 | 0.05 | 1.64E-05 |
| E357 Alloy | Manganese | 6,911 | 1.00E-02 | 1.90 | 5.00E-04 | 0.07 | 2.10E-05 |
| F357 Alloy | Manganese | 1,310 | 1.00E-02 | 1.90 | 5.00E-04 | 1.24E-02 | 3.99E-06 |
| 356 Alloy | Manganese | 5,501 | 3.50E-03 | 1.90 | 5.00E-04 | 1.83E-02 | 5.86E-06 |
| | | | | | **Total manganese** | **0.19** | **5.97E-05** |
| E357 Alloy | Nickel | 6,911 | 6.00E-04 | 1.90 | 5.00E-04 | 3.94E-03 | 1.26E-06 |
| F357 Alloy | Nickel | 1,310 | 6.00E-04 | 1.90 | 5.00E-04 | 7.47E-04 | 2.39E-07 |
| | | | | | **Total nickel** | **4.69E-03** | **1.50E-06** |
| A356 Alloy | Zinc | 24,034 | 1.00E-03 | 1.90 | 5.00E-04 | 2.28E-02 | 7.32E-06 |
| B356 Alloy | Zinc | 30,538 | 5.00E-04 | 1.90 | 5.00E-04 | 1.45E-02 | 4.65E-06 |
| C355 Alloy | Zinc | 1,260 | 1.00E-03 | 1.90 | 5.00E-04 | 1.20E-03 | 3.84E-07 |
| A357 Alloy | Zinc | 53,919 | 1.00E-03 | 1.90 | 5.00E-04 | 0.05 | 1.64E-05 |
| E357 Alloy | Zinc | 6,911 | 0.11 | 1.90 | 5.00E-04 | 0.70 | 2.23E-04 |
| F357 Alloy | Zinc | 1,310 | 0.11 | 1.90 | 5.00E-04 | 0.13 | 4.23E-05 |
| 356 Alloy | Zinc | 5,501 | 3.50E-03 | 1.90 | 5.00E-04 | 1.83E-02 | 5.86E-06 |
| | | | | | **Total zinc** | **0.94** | **3.00E-04** |

## *23.2 METAL FROM POURING AND CASTING*

Emissions of listed substances from aluminum pouring and casting are estimated using the emission factor provided by the USEPA AP-42 Section 12.11. Emissions are calculated using the following equation.

Annual Emissions

$$Y = QPFk$$

where,

Y = annual emissions of listed substances from aluminum pouring and casting, lbs/yr.

Q = quantity of aluminum alloy used during the reporting period, lbs/yr.

P = maximum weight proportion of listed substances present in aluminum alloy, lbs/lbs.

F = emission factor for particulate matter resulting from pouring and casting operations, 0.04 lbs/ton (USEPA, AP-42 Table 12.11-2).

k = conversion factor, 5.00E-04 tons/lb.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of the aluminum pouring and casting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/ton | k, lbs/ton | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| A356 Alloy | Aluminum | 24,034 | 0.93 | 0.04 | 5.00E-04 | 0.45 | 1.44E-04 |
| B356 Alloy | Aluminum | 30,538 | 0.93 | 0.04 | 5.00E-04 | 0.57 | 1.82E-04 |
| C355 Alloy | Aluminum | 1,260 | 0.94 | 0.04 | 5.00E-04 | 0.02 | 7.60E-06 |
| A357 Alloy | Aluminum | 53,919 | 0.93 | 0.04 | 5.00E-04 | 1.00 | 3.22E-04 |
| E357 Alloy | Aluminum | 6,911 | 0.86 | 0.04 | 5.00E-04 | 0.12 | 3.81E-05 |
| F357 Alloy | Aluminum | 1,310 | 0.86 | 0.04 | 5.00E-04 | 0.02 | 7.22E-06 |
| 356 Alloy | Aluminum | 5,501 | 0.93 | 0.04 | 5.00E-04 | 0.10 | 3.29E-05 |
| | | | | | **Total aluminum** | **2.29** | **7.33E-04** |
| A357 Alloy | Beryllium | 53,919 | 7.00E-04 | 0.04 | 5.00E-04 | 7.55E-04 | 2.42E-07 |

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/ton | k, lbs/ton | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| E357 Alloy | Beryllium | 6,911 | 2.00E-05 | 0.04 | 5.00E-04 | 2.76E-06 | 8.86E-10 |
| F357 Alloy | Beryllium | 1,310 | 2.00E-05 | 0.04 | 5.00E-04 | 5.24E-07 | 1.68E-10 |
| | | | | | **Total beryllium** | **7.58E-04** | **2.43E-07** |
| E357 Alloy | Chromium | 6,911 | 3.00E-03 | 0.04 | 5.00E-04 | 4.15E-04 | 1.33E-07 |
| F357 Alloy | Chromium | 1,310 | 3.00E-03 | 0.04 | 5.00E-04 | 7.86E-05 | 2.52E-08 |
| | | | | | **Total chromium** | **4.93E-04** | **1.58E-07** |
| A356 Alloy | Copper | 24,034 | 2.00E-03 | 0.04 | 5.00E-04 | 9.61E-04 | 3.08E-07 |
| B356 Alloy | Copper | 30,538 | 5.00E-04 | 0.04 | 5.00E-04 | 3.05E-04 | 9.79E-08 |
| C355 Alloy | Copper | 1,260 | 1.50E-02 | 0.04 | 5.00E-04 | 3.78E-04 | 1.21E-07 |
| A357 Alloy | Copper | 53,919 | 2.00E-03 | 0.04 | 5.00E-04 | 2.16E-03 | 6.91E-07 |
| E357 Alloy | Copper | 6,911 | 5.00E-02 | 0.04 | 5.00E-04 | 6.91E-03 | 2.22E-06 |
| F357 Alloy | Copper | 1,310 | 5.00E-02 | 0.04 | 5.00E-04 | 1.31E-03 | 4.20E-07 |
| 356 Alloy | Copper | 5,501 | 2.50E-03 | 0.04 | 5.00E-04 | 2.75E-04 | 8.81E-08 |
| | | | | | **Total copper** | **1.23E-02** | **3.94E-06** |
| E357 Alloy | Lead | 6,911 | 3.00E-04 | 0.04 | 5.00E-04 | 4.15E-05 | 1.33E-08 |
| F357 Alloy | Lead | 1,310 | 3.00E-04 | 0.04 | 5.00E-04 | 7.86E-06 | 2.52E-09 |
| | | | | | **Total lead** | **4.93E-05** | **1.58E-08** |
| A356 Alloy | Manganese | 24,034 | 1.00E-03 | 0.04 | 5.00E-04 | 4.81E-04 | 1.54E-07 |
| B356 Alloy | Manganese | 30,538 | 5.00E-04 | 0.04 | 5.00E-04 | 3.05E-04 | 9.79E-08 |
| C355 Alloy | Manganese | 1,260 | 1.00E-03 | 0.04 | 5.00E-04 | 2.52E-05 | 8.08E-09 |
| A357 Alloy | Manganese | 53,919 | 1.00E-03 | 0.04 | 5.00E-04 | 1.08E-03 | 3.46E-07 |
| E357 Alloy | Manganese | 6,911 | 1.00E-02 | 0.04 | 5.00E-04 | 1.38E-03 | 4.43E-07 |
| F357 Alloy | Manganese | 1,310 | 1.00E-02 | 0.04 | 5.00E-04 | 2.62E-04 | 8.40E-08 |
| 356 Alloy | Manganese | 5,501 | 3.50E-03 | 0.04 | 5.00E-04 | 3.85E-04 | 1.23E-07 |
| | | | | | **Total manganese** | **3.92E-03** | **1.26E-06** |
| E357 Alloy | Nickel | 6,911 | 6.00E-04 | 0.04 | 5.00E-04 | 8.29E-05 | 2.66E-08 |
| F357 Alloy | Nickel | 1,310 | 6.00E-04 | 0.04 | 5.00E-04 | 1.57E-05 | 5.04E-09 |
| | | | | | **Total nickel** | **9.87E-05** | **3.16E-08** |
| A356 Alloy | Zinc | 24,034 | 1.00E-03 | 0.04 | 5.00E-04 | 4.81E-04 | 1.54E-07 |
| B356 Alloy | Zinc | 30,538 | 5.00E-04 | 0.04 | 5.00E-04 | 3.05E-04 | 9.79E-08 |
| C355 Alloy | Zinc | 1,260 | 1.00E-03 | 0.04 | 5.00E-04 | 2.52E-05 | 8.08E-09 |
| A357 Alloy | Zinc | 53,919 | 1.00E-03 | 0.04 | 5.00E-04 | 1.08E-03 | 3.46E-07 |
| E357 Alloy | Zinc | 6,911 | 0.11 | 0.04 | 5.00E-04 | 1.47E-02 | 4.70E-06 |
| F357 Alloy | Zinc | 1,310 | 0.11 | 0.04 | 5.00E-04 | 2.78E-03 | 8.90E-07 |
| 356 Alloy | Zinc | 5,501 | 3.50E-03 | 0.04 | 5.00E-04 | 3.85E-04 | 1.23E-07 |
| | | | | | **Total zinc** | **1.97E-02** | **6.32E-06** |

## *23.3 HEXAVALENT CHROMIUM*

Emissions of hexavalent chromium from the furnace are calculated using California Air Toxics Emission Factors (CATEF). Emissions are calculated using the following equation.

Annual Emissions

$$Y = QEF$$

where,

Y = annual emissions of hexavalent chromium from aluminum, lbs/yr.

Q = quantity of aluminum alloy used during the reporting period, tons/yr.

EF = emission factor for hexavalent chromium, 5.28E-05 lbs/ton (CATEF).

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of aluminum melting, pouring, and casting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, tons/yr | P, lbs/ton | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| E357 Alloy | Hexavalent chromium | 3.46 | 5.28E-05 | 1.82E-04 | 5.85E-08 |
| F357 Alloy | Hexavalent chromium | 0.66 | 5.28E-05 | 3.46E-05 | 1.11E-08 |
| | | | **Total hexavalent chromium** | 2.17E-04 | 6.96E-08 |

# 24. ALUMINUM MELTING, POURING AND CASTING THERMTRONIX 2, DN 70023, EPN 60018

## *24.1 METAL FROM MELTING*

Emissions of listed substances from aluminum melting using crucible furnaces are estimated using the emission factor provided by the USEPA AP-42 Section 12.8. Emissions are calculated using the following equation.

Annual Emissions

$$Y = QPFk$$

where,

Y = annual emissions of listed substances from aluminum melting, lbs/yr.

Q = quantity of aluminum alloy used during the reporting period, lbs/yr.

P = maximum weight proportion of listed substances present in aluminum alloy, lbs/lbs.

F = emission factor for particulate matter resulting from aluminum alloy melting operations, 1.90 lbs/ton (USEPA, AP-42 Table 12.8-2).

k = conversion factor, 5.00E-04 tons/lb.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of the aluminum pouring and casting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/ton | k, lbs/ton | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| A356 Alloy | Aluminum | 24,034 | 0.93 | 1.90 | 5.00E-04 | 21.29 | 6.82E-03 |
| B356 Alloy | Aluminum | 30,538 | 0.93 | 1.90 | 5.00E-04 | 27.04 | 8.67E-03 |
| C355 Alloy | Aluminum | 1,260 | 0.94 | 1.90 | 5.00E-04 | 1.13 | 3.61E-04 |

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/ton | k, lbs/ton | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| A357 Alloy | Aluminum | 53,919 | 0.93 | 1.90 | 5.00E-04 | 47.65 | 1.53E-02 |
| E357 Alloy | Aluminum | 6,911 | 0.86 | 1.90 | 5.00E-04 | 5.65 | 1.81E-03 |
| F357 Alloy | Aluminum | 1,310 | 0.86 | 1.90 | 5.00E-04 | 1.07 | 3.43E-04 |
| 356 Alloy | Aluminum | 5,501 | 0.93 | 1.90 | 5.00E-04 | 4.88 | 1.56E-03 |
| | | | | | **Total aluminum** | **108.70** | **3.48E-02** |
| A357 Alloy | Beryllium | 53,919 | 7.00E-04 | 1.90 | 5.00E-04 | 3.59E-02 | 1.15E-05 |
| E357 Alloy | Beryllium | 6,911 | 2.00E-05 | 1.90 | 5.00E-04 | 1.31E-04 | 4.21E-08 |
| F357 Alloy | Beryllium | 1,310 | 2.00E-05 | 1.90 | 5.00E-04 | 2.49E-05 | 7.98E-09 |
| | | | | | **Total beryllium** | **3.60E-02** | **1.15E-05** |
| E357 Alloy | Chromium | 6,911 | 3.00E-03 | 1.90 | 5.00E-04 | 1.97E-02 | 6.31E-06 |
| F357 Alloy | Chromium | 1,310 | 3.00E-03 | 1.90 | 5.00E-04 | 3.73E-03 | 1.20E-06 |
| | | | | | **Total chromium** | **2.34E-02** | **7.51E-06** |
| A356 Alloy | Copper | 24,034 | 2.00E-03 | 1.90 | 5.00E-04 | 4.57E-02 | 1.46E-05 |
| B356 Alloy | Copper | 30,538 | 5.00E-04 | 1.90 | 5.00E-04 | 1.45E-02 | 4.65E-06 |
| C355 Alloy | Copper | 1,260 | 1.50E-02 | 1.90 | 5.00E-04 | 1.80E-02 | 5.75E-06 |
| A357 Alloy | Copper | 53,919 | 2.00E-03 | 1.90 | 5.00E-04 | 0.10 | 3.28E-05 |
| E357 Alloy | Copper | 6,911 | 5.00E-02 | 1.90 | 5.00E-04 | 0.33 | 1.05E-04 |
| F357 Alloy | Copper | 1,310 | 5.00E-02 | 1.90 | 5.00E-04 | 0.06 | 1.99E-05 |
| 356 Alloy | Copper | 5,501 | 2.50E-03 | 1.90 | 5.00E-04 | 1.31E-02 | 4.19E-06 |
| | | | | | **Total copper** | **0.58** | **1.87E-04** |
| E357 Alloy | Lead | 6,911 | 3.00E-04 | 1.90 | 5.00E-04 | 1.97E-03 | 6.31E-07 |
| F357 Alloy | Lead | 1,310 | 3.00E-04 | 1.90 | 5.00E-04 | 3.73E-04 | 1.20E-07 |
| | | | | | **Total lead** | **2.34E-03** | **7.51E-07** |
| A356 Alloy | Manganese | 24,034 | 1.00E-03 | 1.90 | 5.00E-04 | 2.28E-02 | 7.32E-06 |
| B356 Alloy | Manganese | 30,538 | 5.00E-04 | 1.90 | 5.00E-04 | 1.45E-02 | 4.65E-06 |
| C355 Alloy | Manganese | 1,260 | 1.00E-03 | 1.90 | 5.00E-04 | 1.20E-03 | 3.84E-07 |
| A357 Alloy | Manganese | 53,919 | 1.00E-03 | 1.90 | 5.00E-04 | 0.05 | 1.64E-05 |
| E357 Alloy | Manganese | 6,911 | 1.00E-02 | 1.90 | 5.00E-04 | 0.07 | 2.10E-05 |
| F357 Alloy | Manganese | 1,310 | 1.00E-02 | 1.90 | 5.00E-04 | 1.24E-02 | 3.99E-06 |
| 356 Alloy | Manganese | 5,501 | 3.50E-03 | 1.90 | 5.00E-04 | 1.83E-02 | 5.86E-06 |
| | | | | | **Total manganese** | **0.19** | **5.97E-05** |
| E357 Alloy | Nickel | 6,911 | 6.00E-04 | 1.90 | 5.00E-04 | 3.94E-03 | 1.26E-06 |
| F357 Alloy | Nickel | 1,310 | 6.00E-04 | 1.90 | 5.00E-04 | 7.47E-04 | 2.39E-07 |
| | | | | | **Total nickel** | **4.69E-03** | **1.50E-06** |
| A356 Alloy | Zinc | 24,034 | 1.00E-03 | 1.90 | 5.00E-04 | 2.28E-02 | 7.32E-06 |
| B356 Alloy | Zinc | 30,538 | 5.00E-04 | 1.90 | 5.00E-04 | 1.45E-02 | 4.65E-06 |
| C355 Alloy | Zinc | 1,260 | 1.00E-03 | 1.90 | 5.00E-04 | 1.20E-03 | 3.84E-07 |
| A357 Alloy | Zinc | 53,919 | 1.00E-03 | 1.90 | 5.00E-04 | 0.05 | 1.64E-05 |
| E357 Alloy | Zinc | 6,911 | 0.11 | 1.90 | 5.00E-04 | 0.70 | 2.23E-04 |
| F357 Alloy | Zinc | 1,310 | 0.11 | 1.90 | 5.00E-04 | 0.13 | 4.23E-05 |
| 356 Alloy | Zinc | 5,501 | 3.50E-03 | 1.90 | 5.00E-04 | 1.83E-02 | 5.86E-06 |
| | | | | | **Total zinc** | **0.94** | **3.00E-04** |

## *24.2 METAL FROM POURING AND CASTING*

Emissions of listed substances from aluminum pouring and casting are estimated using the emission factor provided by the USEPA AP-42 Section 12.11. Emissions are calculated using the following equation.

Annual Emissions

$$Y = QPFk$$

where,

Y = annual emissions of listed substances from aluminum pouring and casting, lbs/yr.

Q = quantity of aluminum alloy used during the reporting period, lbs/yr.

P = maximum weight proportion of listed substances present in aluminum alloy, lbs/lbs.

F = emission factor for particulate matter resulting from pouring and casting operations, 0.04 lbs/ton (USEPA, AP-42 Table 12.11-2).

k = conversion factor, 5.00E-04 tons/lb.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of the aluminum pouring and casting, 3,120 hrs/yr.

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/ton | k, lbs/ton | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| A356 Alloy | Aluminum | 24,034 | 0.93 | 0.04 | 5.00E-04 | 0.45 | 1.44E-04 |
| B356 Alloy | Aluminum | 30,538 | 0.93 | 0.04 | 5.00E-04 | 0.57 | 1.82E-04 |
| C355 Alloy | Aluminum | 1,260 | 0.94 | 0.04 | 5.00E-04 | 0.02 | 7.60E-06 |
| A357 Alloy | Aluminum | 53,919 | 0.93 | 0.04 | 5.00E-04 | 1.00 | 3.22E-04 |
| E357 Alloy | Aluminum | 6,911 | 0.86 | 0.04 | 5.00E-04 | 0.12 | 3.81E-05 |
| F357 Alloy | Aluminum | 1,310 | 0.86 | 0.04 | 5.00E-04 | 0.02 | 7.22E-06 |
| 356 Alloy | Aluminum | 5,501 | 0.93 | 0.04 | 5.00E-04 | 0.10 | 3.29E-05 |
| | | | | | **Total aluminum** | **2.29** | **7.33E-04** |
| A357 Alloy | Beryllium | 53,919 | 7.00E-04 | 0.04 | 5.00E-04 | 7.55E-04 | 2.42E-07 |

| Alloy | Listed Substance | Q, lbs/yr | P, lbs/lbs | F, lbs/ton | k, lbs/ton | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| E357 Alloy | Beryllium | 6,911 | 2.00E-05 | 0.04 | 5.00E-04 | 2.76E-06 | 8.86E-10 |
| F357 Alloy | Beryllium | 1,310 | 2.00E-05 | 0.04 | 5.00E-04 | 5.24E-07 | 1.68E-10 |
| | | | | | **Total beryllium** | **7.58E-04** | **2.43E-07** |
| E357 Alloy | Chromium | 6,911 | 3.00E-03 | 0.04 | 5.00E-04 | 4.15E-04 | 1.33E-07 |
| F357 Alloy | Chromium | 1,310 | 3.00E-03 | 0.04 | 5.00E-04 | 7.86E-05 | 2.52E-08 |
| | | | | | **Total chromium** | **4.93E-04** | **1.58E-07** |
| A356 Alloy | Copper | 24,034 | 2.00E-03 | 0.04 | 5.00E-04 | 9.61E-04 | 3.08E-07 |
| B356 Alloy | Copper | 30,538 | 5.00E-04 | 0.04 | 5.00E-04 | 3.05E-04 | 9.79E-08 |
| C355 Alloy | Copper | 1,260 | 1.50E-02 | 0.04 | 5.00E-04 | 3.78E-04 | 1.21E-07 |
| A357 Alloy | Copper | 53,919 | 2.00E-03 | 0.04 | 5.00E-04 | 2.16E-03 | 6.91E-07 |
| E357 Alloy | Copper | 6,911 | 5.00E-02 | 0.04 | 5.00E-04 | 6.91E-03 | 2.22E-06 |
| F357 Alloy | Copper | 1,310 | 5.00E-02 | 0.04 | 5.00E-04 | 1.31E-03 | 4.20E-07 |
| 356 Alloy | Copper | 5,501 | 2.50E-03 | 0.04 | 5.00E-04 | 2.75E-04 | 8.81E-08 |
| | | | | | **Total copper** | **1.23E-02** | **3.94E-06** |
| E357 Alloy | Lead | 6,911 | 3.00E-04 | 0.04 | 5.00E-04 | 4.15E-05 | 1.33E-08 |
| F357 Alloy | Lead | 1,310 | 3.00E-04 | 0.04 | 5.00E-04 | 7.86E-06 | 2.52E-09 |
| | | | | | **Total lead** | **4.93E-05** | **1.58E-08** |
| A356 Alloy | Manganese | 24,034 | 1.00E-03 | 0.04 | 5.00E-04 | 4.81E-04 | 1.54E-07 |
| B356 Alloy | Manganese | 30,538 | 5.00E-04 | 0.04 | 5.00E-04 | 3.05E-04 | 9.79E-08 |
| C355 Alloy | Manganese | 1,260 | 1.00E-03 | 0.04 | 5.00E-04 | 2.52E-05 | 8.08E-09 |
| A357 Alloy | Manganese | 53,919 | 1.00E-03 | 0.04 | 5.00E-04 | 1.08E-03 | 3.46E-07 |
| E357 Alloy | Manganese | 6,911 | 1.00E-02 | 0.04 | 5.00E-04 | 1.38E-03 | 4.43E-07 |
| F357 Alloy | Manganese | 1,310 | 1.00E-02 | 0.04 | 5.00E-04 | 2.62E-04 | 8.40E-08 |
| 356 Alloy | Manganese | 5,501 | 3.50E-03 | 0.04 | 5.00E-04 | 3.85E-04 | 1.23E-07 |
| | | | | | **Total manganese** | **3.92E-03** | **1.26E-06** |
| E357 Alloy | Nickel | 6,911 | 6.00E-04 | 0.04 | 5.00E-04 | 8.29E-05 | 2.66E-08 |
| F357 Alloy | Nickel | 1,310 | 6.00E-04 | 0.04 | 5.00E-04 | 1.57E-05 | 5.04E-09 |
| | | | | | **Total nickel** | **9.87E-05** | **3.16E-08** |
| A356 Alloy | Zinc | 24,034 | 1.00E-03 | 0.04 | 5.00E-04 | 4.81E-04 | 1.54E-07 |
| B356 Alloy | Zinc | 30,538 | 5.00E-04 | 0.04 | 5.00E-04 | 3.05E-04 | 9.79E-08 |
| C355 Alloy | Zinc | 1,260 | 1.00E-03 | 0.04 | 5.00E-04 | 2.52E-05 | 8.08E-09 |
| A357 Alloy | Zinc | 53,919 | 1.00E-03 | 0.04 | 5.00E-04 | 1.08E-03 | 3.46E-07 |
| E357 Alloy | Zinc | 6,911 | 0.11 | 0.04 | 5.00E-04 | 1.47E-02 | 4.70E-06 |
| F357 Alloy | Zinc | 1,310 | 0.11 | 0.04 | 5.00E-04 | 2.78E-03 | 8.90E-07 |
| 356 Alloy | Zinc | 5,501 | 3.50E-03 | 0.04 | 5.00E-04 | 3.85E-04 | 1.23E-07 |
| | | | | | **Total zinc** | **1.97E-02** | **6.32E-06** |

## *24.3 HEXAVALENT CHROMIUM*

Emissions of hexavalent chromium from the furnace are calculated using California Air Toxics Emission Factors (CATEF). Emissions are calculated using the following equation.

Annual Emissions

$$Y = QEF$$

where,

Y = annual emissions of hexavalent chromium from aluminum, lbs/yr.

Q = quantity of aluminum alloy used during the reporting period, tons/yr.

EF = emission factor for hexavalent chromium, 5.28E-05 lbs/ton (CATEF).

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = operating hours of aluminum melting, pouring, and casting, 3,120 hrs/yr

| Alloy | Listed Substance | Q, tons/yr | P, lbs/ton | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| E357 Alloy | Hexavalent chromium | 3.46 | 5.28E-05 | 1.82E-04 | 5.85E-08 |
| F357 Alloy | Hexavalent chromium | 0.66 | 5.28E-05 | 3.46E-05 | 1.11E-08 |
| **Total hexavalent chromium** | | | | 2.17E-04 | 6.96E-08 |

# 25. PRODUCTION, DN 70024, EPN 60019

Emissions of listed substances from activities in the production area are generated from use of binders, cleaners, lubricants, adhesives and solvents, non-destructive testing, and foam packing.

## *25.1 VOLATILE LISTED SUBSTANCES FROM BINDERS*

Emissions from binders are estimated using the following equation:

Annual Emissions

$$Y = QPF$$

where,

Y = annual emissions of listed substances from binders, lbs/yr.

Q = quantity of binders used during the reporting period, lbs/yr.

P = average weight proportion of listed substances present in binders, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = production hours of operation, 3,120 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | P, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| Ammonia | Primcote Binding Agent | 7,800 | 4.86E-05 | 0.38 | 1.22E-04 |
| | | | **Total ammonia** | **0.38** | **1.22E-04** |
| Formaldehyde | Primcote Binding Agent | 7,800 | 1.00E-04 | 0.78 | 2.50E-04 |
| | | | **Total formaldehyde** | **0.78** | **2.50E-04** |

## *25.2 VOLATILE LISTED SUBSTANCES FROM CLEANERS*

Emissions from cleaners are estimated using the following equation:

Annual Emissions

$$Y = QPF$$

where,

Y = annual emissions of listed substances from cleaners, lbs/yr.

Q = quantity of cleaners used during the reporting period, lbs/yr.

P = average weight proportion of listed substances present in cleaners, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = production hours of operation, 3,120 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | P, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| Dioxane, 1,4- | PC-205 Cleaner | 5,525 | 1.00E-05 | 5.53E-02 | 1.77E-05 |
| | | | **Total dioxane, 1,4-** | **5.53E-02** | **1.77E-05** |
| Ethylene oxide | PC-205 Cleaner | 5,525 | 1.00E-05 | 5.53E-02 | 1.77E-05 |
| | | | **Total ethylene oxide** | **5.53E-02** | **1.77E-05** |

## *25.3 VOLATILE LISTED SUBSTANCES FROM LUBRICANTS*

Emissions from lubricants are estimated using the following equation:

Annual Emissions

$$Y = QPF$$

where,

Y = annual emissions of listed substances from lubricants, lbs/yr.

Q = quantity of lubricants used during the reporting period, lbs/yr.

P = average weight proportion of listed substances present in lubricants, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = production hours of operation, 3,120 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | P, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| Ethyl acrylate | Air Tool Oil | 7.59 | 1.00E-03 | 7.59E-03 | 2.43E-06 |
| | | | **Total ethyl acrylate** | **7.59E-03** | **2.43E-06** |

## *25.4 VOLATILE LISTED SUBSTANCES FROM ADHESIVES AND SOLVENTS*

Emissions from adhesives and solvents are estimated using the following equation:

Annual Emissions

$$Y = QPF$$

where,

Y = annual emissions of listed substances from adhesives and solvents, lbs/yr.

Q = quantity of adhesives and solvents used during the reporting period, lbs/yr.

P = average weight proportion of listed substances present in adhesives and solvents, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = production hours of operation, 3,120 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | P, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| Cyclohexane | 3M(TM) High Strength Spray Adhesive 90 | 686.56 | 0.10 | 68.66 | 2.20E-02 |
| | | | **Total cyclohexane** | **68.66** | **2.20E-02** |
| Isopropyl alcohol | Isopropyl alcohol | 831.46 | 0.99 | 823.14 | 2.64E-01 |
| | | | **Total isopropyl alcohol** | **823.14** | **2.64E-01** |

## *25.5 VOLATILE LISTED SUBSTANCES FROM NON-DESTRUCTIVE TESTING AND MOLD RELEASE*

Emissions from non-destructive testing and mold release products are estimated using the following equation:

Annual Emissions

$$Y = QPF$$

where,

Y = annual emissions of listed substances from non-destructive testing and mold release products, lbs/yr.

Q = quantity of non-destructive testing and mold release products used during the reporting period, lbs/yr.

P = average weight proportion of listed substances present in non-destructive testing and mold release products, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = production hours of operation, 3,120 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | P, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| Ammonia | Aufix T/M | 9,456.10 | 2.30E-02 | 217.32 | 6.97E-02 |
| | | | **Total ammonia** | **217.32** | **6.97E-02** |
| Diethylene glycol | Audel T/M | 7,852.94 | 3.00E-02 | 235.59 | 7.55E-02 |
| | | | **Total diethylene glycol** | **235.59** | **7.55E-02** |
| Isopropyl alcohol | D-70 Penetrant | 392.65 | 0.38 | 147.24 | 4.72E-02 |
| | | | **Total isopropyl alcohol** | **147.24** | **4.72E-02** |

## *25.6 NON-VOLATILE LISTED SUBSTANCES FROM NON-DESTRUCTIVE TESTING AND MOLD RELEASE*

Emissions from non-destructive testing and mold release products are estimated using the following equation:

Annual Emissions

$$Y = QPF(1-A)$$

where,

Y = annual emissions of listed substances from non-destructive testing and mold release products, lbs/yr.

Q = quantity of non-destructive testing and mold release products used during the reporting period, lbs/yr.

P = average weight proportion of listed substances present in non-destructive testing and mold release products, lbs/lbs.

A = transfer efficiency of HVLP spray guns on table leg surfaces, 0.65 lbs/lbs (SCAQMD).

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = production hours of operation, 3,120 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | P, lbs/lbs | (1-A), lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|
| Crystalline silica | D-70 Penetrant | 392.65 | 1.00E-05 | 0.35 | 1.37E-03 | 4.40E-07 |
| | | | | **Total crystalline silica** | **1.37E-03** | **4.40E-07** |
| Lead | D-70 Penetrant | 392.65 | 7.32E-08 | 0.35 | 1.01E-05 | 3.22E-09 |
| | | | | **Total lead** | **1.01E-05** | **3.22E-09** |

## *25.7 VOLATILE LISTED SUBSTANCES FROM FOAM PACKING*

Emissions of listed substances from the Instapack A G Flex used in the foam packaging are calculated using the following equation on pages 5-44 in MDI Emissions Reporting Guidelines for the Polyurethane Industry from the American Chemistry Council May 2012.

Annual Emissions

$$Y = (Q/D)(1/359\ ft^3/lb\text{-}mole)(273.15K/T_{proc})(Vp/760\ mmHg)(Mw)(K)$$

where,

Y = annual emissions of methylene diphenyl diisocyanate from the raw material, lbs/yr.

Q = quantity of Instapack A G Flex and Instapack B G Flex used, 3,530.00 lbs/yr.

D = estimated foam density, 1.5 lbs/$ft^3$.

$T_{proc}$ = estimated process temperature, 298.15K.

Vp = vapor pressure of MDI at process temperature, 1.023E-05 mm Hg.

Mw = molecular weight of MDI, 250.26 lb/lb-mole.

K = MDI/PMDI adjustment factor, 0.65 (American Chemistry Council, May 2012)

$$Y = [(3{,}530.00\ lbs/yr)/(1.50\ lbs/ft3)](1/359\ ft^3/ln\text{-}mole)[(273.15\ K)/(298.15\ K)][(1.023E\text{-}05\ mmHg)/(760\ mmHg)](250.26\ lb/lb\text{-}mole)(0.65) = 1.31E\text{-}05\ lbs/yr$$

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = production hours of operation, hrs/yr.

$$H = (1.13E\text{-}05\ lbs/yr)(3{,}120\ hrs/yr)^{-1} = 4.21E\text{-}09\ lbs/yr$$

## *25.8 NON-VOLATILE LISTED SUBSTANCES*

Emissions of mineral oils, lead, and sodium hydroxide are not expected; therefore, emissions of mineral oils, lead, and sodium hydroxide are reported as zero.

# 26. WELDING, DN 70025, EPN 60020

## *26.1 METALS FROM WELDING*

Emissions of listed substances from welding operations are estimated using the following equation.

Annual Emissions

$$Y = QEFP$$

where,

Y = annual emissions of listed substances from welding operations, lbs/yr.

Q = quantity of weld wire used during the reporting period, lbs/yr.

E = fume emission factor, 0.01 lbs fume/lb rod consumed (ARB - www.SDAPCD.org, 2009).

F = fume correction factor, 0.5464 lbs metal/lb fume consumed (NASSCO - www.SDAPCD.org, 2009).

P = weight proportion of the listed substance in weld rods, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = hours of operation, 2,808 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | E, lbs fume/lb rod | F, lbs metal/ lb fume | P, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| Aluminum | 356 Weld wire | 55 | 0.01 | 0.5464 | 0.93 | 0.28 | 9.99E-05 |
| Aluminum | 357 weld wire | 80 | 0.01 | 0.5464 | 0.93 | 0.41 | 1.45E-04 |
| | | | | | **Total aluminum** | **0.69** | **2.45E-04** |
| Chromium | 15-5 Weld wire | 188 | 0.01 | 0.5464 | 0.16 | 0.16 | 5.67E-05 |
| Chromium | 17-4 Weld wire | 230 | 0.01 | 0.5464 | 0.18 | 0.22 | 7.83E-05 |
| | | | | | **Total chromium** | **0.38** | **1.35E-04** |
| Copper | 15-5 Weld wire | 188 | 0.01 | 0.5464 | 3.20E-02 | 3.29E-02 | 1.17E-05 |

| Listed Substance | Material | Q, lbs/yr | E, lbs fume/lb rod | F, lbs metal/ lb fume | P, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| Copper | 356 Weld wire | 55 | 0.01 | 0.5464 | 2.50E-03 | 7.51E-04 | 2.68E-07 |
| Copper | 357 weld wire | 80 | 0.01 | 0.5464 | 5.00E-04 | 2.19E-04 | 7.78E-08 |
| Copper | 17-4 Weld wire | 230 | 0.01 | 0.5464 | 5.00E-02 | 6.28E-02 | 2.24E-05 |
| | | | | | **Total copper** | **9.67E-02** | **3.44E-05** |
| Manganese | 15-5 Weld wire | 188 | 0.01 | 0.5464 | 7.00E-03 | 7.19E-03 | 2.56E-06 |
| Manganese | 356 Weld wire | 55 | 0.01 | 0.5464 | 3.50E-03 | 1.05E-03 | 3.75E-07 |
| Manganese | 357 weld wire | 80 | 0.01 | 0.5464 | 3.00E-04 | 1.31E-04 | 4.67E-08 |
| Manganese | 17-4 Weld wire | 230 | 0.01 | 0.5464 | 1.00E-02 | 1.26E-02 | 4.48E-06 |
| | | | | | **Total manganese** | **2.09E-02** | **7.46E-06** |
| Nickel | 15-5 Weld wire | 188 | 0.01 | 0.5464 | 5.50E-02 | 5.65E-02 | 2.01E-05 |
| Nickel | 17-4 Weld wire | 230 | 0.01 | 0.5464 | 5.00E-02 | 6.28E-02 | 2.24E-05 |
| | | | | | **Total nickel** | **0.12** | **4.25E-05** |
| Phosphorus | 15-5 Weld wire | 188 | 0.01 | 0.5464 | 3.50E-04 | 3.60E-04 | 1.28E-07 |
| Phosphorus | 17-4 Weld wire | 230 | 0.01 | 0.5464 | 4.00E-04 | 5.03E-04 | 1.79E-07 |
| | | | | | **Total phosphorus** | **8.62E-04** | **3.07E-07** |
| Zinc | 356 Weld wire | 55 | 0.01 | 0.5464 | 3.50E-03 | 1.05E-03 | 3.75E-07 |
| Zinc | 357 weld wire | 80 | 0.01 | 0.5464 | 5.00E-04 | 2.19E-04 | 7.78E-08 |
| | | | | | **Total zinc** | **1.27E-03** | **4.52E-07** |

## *26.2 HEXAVALENT CHROMIUM FROM WELDING*

Emissions of hexavalent chromium from welding operations are estimated using the following equation:

Annual Emissions

$$Y = QEFP1P2$$

where,

Y = annual emissions of hexavalent chromium from welding operations, lbs/yr.

Q = quantity of weld wire used during the reporting period, lbs/yr.

E = fume emission factor, 0.01 lbs fume/lb rod consumed (ARB - www.SDAPCD.org, 2009).

F = fume correction factor, 0.5464 lbs metal/lb fume consumed (NASSCO - www.SDAPCD.org, 2009).

P1 = weight proportion of the chromium in weld rods, lbs/lbs.

P2 = chromium to hexavalent chromium conversion factor in weld rod, 0.05 lbs/lbs (ARB – www.SDAPCD.org, 2009).

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the hexavalent chromium, lbs/hr.

h = hours of operation, 2,808 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | E, lbs fume/lb rod | F, lbs metal/lb fume | P1, lbs/lbs | P2, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|---|
| Hexavalent chromium | 15-5 Weld wire | 188 | 0.01 | 0.5464 | 0.16 | 5.00E-02 | 7.96E-03 | 2.84E-06 |
| Hexavalent chromium | 17-4 Weld wire | 230 | 0.01 | 0.5464 | 0.18 | 5.00E-02 | 1.10E-02 | 3.92E-06 |
| | | | | | | **Total hexavalent chromium** | **0.02** | **6.75E-06** |

# 27. METAL GRINDING, DN 70026, EPN 90006

## *27.1 ALUMINUM METAL GRINDING*

Emissions of listed substances from welding operations are estimated using the following equation.

Annual Emissions

$$Y = Q(1-C)PC^{-1}$$

where,

Y = annual emissions of listed substances from aluminum metal grinding, lbs/yr.

Q = quantity of alumimum metal grinding dust produced during the reporting period, lbs/yr.

C = control efficiency of dust collector, 0.9997 lbs/yr (HEPA).

P = weight proportion of listed substances in metal grinding dust, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = hours of operation, 3,120 hrs/yr.

| Listed Substance | Q, lbs/yr | P, lbs/lbs | C, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| Aluminum, see note 1 | 7,912 | 9.27E-01 | 0.9997 | 2.20 | 7.05E-04 |
| | | | **Total aluminum** | **2.20** | **7.05E-04** |
| Beryllium, see note 2 | 7,912 | 8.51E-05 | 0.9997 | 2.02E-04 | 6.48E-08 |
| | | | **Total beryllium** | **2.02E-04** | **6.48E-08** |
| Chromium, see note 2 | 7,912 | 1.76E-02 | 0.9997 | 0.04 | 1.34E-05 |
| | | | **Total chromium** | **0.04** | **1.34E-05** |
| Cobalt, see note 2 | 7,912 | 4.07E-05 | 0.9997 | 9.66E-05 | 3.10E-08 |
| | | | **Total cobalt** | **9.66E-05** | **3.10E-08** |
| Copper, see note 2 | 7,912 | 5.78E-03 | 0.9997 | 0.01 | 4.40E-06 |
| | | | **Total copper** | **0.01** | **4.40E-06** |
| Manganese, see note 1 | 7,912 | 1.59E-03 | 0.9997 | 3.77E-03 | 1.21E-06 |
| | | | **Total manganese** | **3.77E-03** | **1.21E-06** |

| Listed Substance | Q, lbs/yr | P, lbs/lbs | C, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| Nickel, see note 2 | 7,912 | 5.29E-03 | 0.9997 | 0.01 | 4.03E-06 |
| | | | **Total nickel** | **0.01** | **4.03E-06** |
| Vanadium, see note 2 | 7,912 | 4.44E-05 | 0.9997 | 1.05E-04 | 3.38E-08 |
| | | | **Total vanadium** | **1.05E-04** | **3.38E-08** |
| Zinc, see note 2 | 7,912 | 8.52E-05 | 0.9997 | 2.02E-04 | 6.48E-08 |
| | | | **Total zinc** | **2.02E-04** | **6.48E-08** |

1. Calculated weight proportion of listed substance in metal grinding dust.
2. Envirochem analysis, 4 June 2020.

## *27.2 STEEL METAL GRINDING*

Emissions of listed substances from welding operations are estimated using the following equation.

Annual Emissions

$$Y = Q(1-C)PC^{-1}$$

where,

Y = annual emissions of listed substances from steel metal grinding, lbs/yr.

Q = quantity of steel metal grinding dust produced during the reporting period, lbs/yr.

C = control efficiency of dust collector, 0.99 lbs/yr (SCAQMD default).

P = weight proportion of listed substances in metal grinding dust, lbs/lbs.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = hours of operation, 3,120 hrs/yr.

| Listed Substance | Q, lbs/yr | P, lbs/lbs | C, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| Chromium, see note 2 | 14,088 | 0.12 | 0.9997 | 0.49 | 1.57E-04 |
| | | | **Total chromium** | **0.49** | **1.57E-04** |
| Copper, see note 2 | 14,088 | 2.28E-02 | 0.9997 | 0.10 | 3.09E-05 |
| | | | **Total copper** | **0.10** | **3.09E-05** |

| Listed Substance | Q, lbs/yr | P, lbs/lbs | C, lbs/lbs | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|
| Cobalt, see note 2 | 14,088 | 2.62E-04 | 0.9997 | 1.11E-03 | 3.55E-07 |
| | | | **Total cobalt** | **1.11E-03** | **3.55E-07** |
| Lead, see note 2 | 14,088 | 4.11E-05 | 0.9997 | 1.74E-04 | 5.57E-08 |
| | | | **Total lead** | **1.74E-04** | **5.57E-08** |
| Manganese, see note 1 | 14,088 | 7.35E-03 | 0.9997 | 3.11E-02 | 9.95E-06 |
| | | | **Total manganese** | **3.11E-02** | **9.95E-06** |
| Nickel, see note 2 | 14,088 | 3.46E-02 | 0.9997 | 0.15 | 4.69E-05 |
| | | | **Total nickel** | **0.15** | **4.69E-05** |
| Phosphorus, see note 1 | 14,088 | 3.55E-04 | 0.9997 | 1.50E-03 | 4.81E-07 |
| | | | **Total phosphorus** | **1.50E-03** | **4.81E-07** |
| Zinc, see note 2 | 14,088 | 3.00E-04 | 0.9997 | 1.27E-03 | 4.07E-07 |
| | | | **Total zinc** | **1.27E-03** | **4.07E-07** |

1. Calculated weight proportion of listed substance in metal grinding dust.
2. Envirochem analysis, 4 June 2020.

## *27.3 HEXAVALENT CHROMIUM FROM METAL GRINDING*

Based on analysis of grinding dust conducted by Envirochem on 4 June 2020 no hexavalent chromium was detected in grinding dust, therefore; emissions of hexavalent chromium from grinding dust are reported as zero.

## 28. SHELL MAKING, DN 70027, EPN 60021

Emissions of listed substances from the use of sand in shell making are estimated using the following equation.

Annual Emissions

$$Y = QFPk$$

where,

Y = annual emissions of listed substances from sand, lbs/yr.

Q = Quantity of sand used during the reporting period, lbs/yr.

F = emission factor for particulate matter resulting from sand handling and core making, 0.54 lbs/ton (USEPA, AP-42 Section 12.13-2)

P = proportion of listed substance in sand, lbs/lbs.

k = conversion factor, 5.00E-04 tons/lb.

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = hours of operation, 3,120 hrs/yr.

| Listed Substance | Material | Q, lbs/yr | F, lbs/ton | P, lbs/lbs | k, tons/lb | Y, lbs/yr | H, lbs/hr |
|---|---|---|---|---|---|---|---|
| Crystalline silica | Mulcoa 47/Mulgrain 47 | 64,800 | 0.54 | 0.19 | 5.00E-04 | 3.24 | 1.04E-03 |
| Crystalline silica | Silica Sand | 124,300 | 0.54 | 1.00E-04 | 5.00E-04 | 3.36E-03 | 1.08E-06 |
| | | | | | **Total crystalline silica** | **3.24** | **1.04E-03** |

## 29. ABRASIVE BLASTING, DN 70028, EPN 60022

As a result of the operation of the abrasive blasting cabinet, listed substances in the form of particulate matter may be emitted into the atmosphere. Emissions will be estimated using the emission factor provided by the SCAQMD document "AER Reporting Tool Help and Support Manual: Abrasive Blasting Operations." Emissions will be calculated using the following equation.

Annual Emissions

$$Y = QFPk$$

where,

Y = annual emissions of listed substances from abrasive blasting operations, lbs/yr.

Q = quantity of abrasive blasting material used during the reporting period, 6,620 lbs/yr.

F = emission factor for abrasive blasting of unspecified material, controlled with a baghouse, 2.95 lbs/ton (SCAQMD, AER Reporting Tool Help and Support Manual: Abrasive Blasting Operations).

P = proportion of aluminum oxide in abrasive blasting material, 0.90 lbs/lbs.

k = conversion factor, 5.00E-04 tons/lb.

$$Y = (6{,}620 \text{ lbs/yr})(2.95 \text{ lbs/ton})(0.90 \text{ lbs/lbs})(5.00\text{E-}04 \text{ tons/lb}) = 8.79 \text{ lbs/yr}$$

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = hours of operation, 2,808 hrs/yr.

$$H = (8.79 \text{ lbs/yr})(2{,}808 \text{ hrs/hr})^{-1} = 3.13\text{E-}03 \text{ lbs/yr}$$

# 30. STEEL AND ALUMINUM TESTING, DN 70029, EPN 60023

Use of material used in steel and aluminum testing are reported in Production operations and Aluminum Parts Brite Dip Line.

## 31. WAX BURNOUT, DN 70030, EPN 60024

Emissions of listed substances due to wax burnout are calculated using SCAQMD Flash Fire Oven A/N 312486 evaluation. The quantity of listed substances from the combustion of wax calculated using the following equation:

Annual Emissions

$$Y = FQ(P/100)(1-C)$$

where,

Y = annual emissions of the given listed substance, lbs/yr.

F = emission factor of the given listed substances, lbs/lbs (SCAQMD Flash Fire Oven A/N 312486 evaluation).

Q = quantity of wax used during the 2018 calendar year, 25,300 lbs/yr.

P = estimated total wax combusted, 20%.

C = afterburner control efficiency, 0.99 lbs/lbs (SCAQMD Flash Fire Oven A/N 312486 evaluation).

| Device | Q, lbs/yr | P, % | C, lbs/lbs | F, lbs/lbs | | | | Y, lbs/yr | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Acetaldehyde | Dioxane, 1,4- | Ethylene oxide | Formaldehyde | Acetaldehyde | Dioxane, 1,4- | Ethylene oxide | Formaldehyde |
| Aluminum pusher furnace 4 and afterburner (A/N 430514) | 4,999.29 | 20.00 | 0.99 | 3.50E-06 | 3.00E-06 | 3.00E-06 | 2.60E-06 | 3.50E-05 | 3.00E-05 | 3.00E-05 | 2.60E-05 |
| Aluminum pusher furnace 2 and afterburner (A/N 430515) | 4,999.29 | 20.00 | 0.99 | 3.50E-06 | 3.00E-06 | 3.00E-06 | 2.60E-06 | 3.50E-05 | 3.00E-05 | 3.00E-05 | 2.60E-05 |
| Aluminum box oven 1 and afterburner (A/N 430516) | 2,572.85 | 20.00 | 0.99 | 3.50E-06 | 3.00E-06 | 3.00E-06 | 2.60E-06 | 1.80E-05 | 1.54E-05 | 1.54E-05 | 1.34E-05 |
| Steel wax burnout oven 4 and afterburner (A/N 430518) | 3,047.78 | 20.00 | 0.99 | 3.50E-06 | 3.00E-06 | 3.00E-06 | 2.60E-06 | 2.13E-05 | 1.83E-05 | 1.83E-05 | 1.58E-05 |

| Device | Q, lbs/yr | P, % | C, lbs/lbs | F, lbs/lbs | | | | Y, lbs/yr | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Acetaldehyde | Dioxane, 1,4- | Ethylene oxide | Formaldehyde | Acetaldehyde | Dioxane, 1,4- | Ethylene oxide | Formaldehyde |
| Steel wax burnout oven 3 and afterburner (A/N 430519) | 3,047.78 | 20.00 | 0.99 | 3.50E-06 | 3.00E-06 | 3.00E-06 | 2.60E-06 | 2.13E-05 | 1.83E-05 | 1.83E-05 | 1.58E-05 |
| Flash fire oven 5 and afterburner (A/N 430520) | 3,954.80 | 20.00 | 0.99 | 3.50E-06 | 3.00E-06 | 3.00E-06 | 2.60E-06 | 2.77E-05 | 2.37E-05 | 2.37E-05 | 2.06E-05 |
| Steel wax burnout oven 2 (A/N 553329) | 2,678.19 | 20.00 | 0.00 | 3.50E-06 | 3.00E-06 | 3.00E-06 | 2.60E-06 | 1.87E-03 | 1.61E-03 | 1.61E-03 | 1.39E-03 |
| | | | | | | | **Total** | **2.03E-03** | **1.74E-03** | **1.74E-03** | **1.51E-03** |

Maximum Hourly Emissions

$$H = Yh^{-1}$$

H = maximum hourly emissions of the given listed substance, lbs/hr.

h = hours of operation, 3,120 hrs/yr.

| Device | H, lbs/hr | | | |
|---|---|---|---|---|
| | Acetaldehyde | Dioxane, 1,4- | Ethylene oxide | Formaldehyde |
| Aluminum pusher furnace 4 and afterburner (A/N 430514) | 1.12E-08 | 9.61E-09 | 9.61E-09 | 8.33E-09 |
| Aluminum pusher furnace 2 and afterburner (A/N 430515) | 1.12E-08 | 9.61E-09 | 9.61E-09 | 8.33E-09 |
| Aluminum box oven 1 and afterburner (A/N 430516) | 5.77E-09 | 4.95E-09 | 4.95E-09 | 4.29E-09 |
| Steel wax burnout oven 4 and afterburner (A/N 430518) | 6.84E-09 | 5.86E-09 | 5.86E-09 | 5.08E-09 |
| Steel wax burnout oven 3 and afterburner (A/N 430519) | 6.84E-09 | 5.86E-09 | 5.86E-09 | 5.08E-09 |
| Flash fire oven 5 and afterburner (A/N 430520) | 8.87E-09 | 7.61E-09 | 7.61E-09 | 6.59E-09 |
| Steel wax burnout oven 2 (A/N 553329) | 6.01E-07 | 5.15E-07 | 5.15E-07 | 4.46E-07 |
| **Total** | **6.52E-07** | **5.59E-07** | **5.59E-07** | **4.84E-07** |

## 32. SUMMARY OF TOTAL DEVICE EMISSIONS

| Listed substance | CAS/CARB Number | 70001 Steel Wax Burnout Oven 1 | | 70002 Aluminum Pusher Furnace 4 and Afterburner | | 70003 Aluminum Pusher Furnace 2 and Afterburner | | 70004 Aluminum Box Oven and Afterburner | | 70005 Steel Wax Burnout Oven 4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Acenaphthene | 83329 | 0 | 0 | 3.53E-06 | 4.90E-09 | 3.53E-06 | 4.90E-09 | 1.81E-06 | 2.52E-09 | 2.15E-06 | 2.99E-09 |
| Acenaphthylene | 208968 | 0 | 0 | 3.53E-06 | 4.90E-09 | 3.53E-06 | 4.90E-09 | 1.81E-06 | 2.52E-09 | 2.15E-06 | 2.99E-09 |
| Acetaldehyde | 75070 | 0 | 0 | 8.42E-03 | 1.17E-05 | 8.42E-03 | 1.17E-05 | 4.33E-03 | 6.03E-06 | 5.13E-03 | 7.14E-06 |
| Acrolein | 107028 | 0 | 0 | 5.29E-03 | 7.35E-06 | 5.29E-03 | 7.35E-06 | 2.72E-03 | 3.78E-06 | 3.22E-03 | 4.48E-06 |
| Aluminum | 7429905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aluminum oxide | 1344281 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ammonia | 7664417 | 0 | 0 | 6.27 | 8.72E-03 | 6.27 | 8.72E-03 | 3.23 | 4.49E-03 | 3.82 | 5.31E-03 |
| Anthracene | 120127 | 0 | 0 | 4.70E-06 | 6.54E-09 | 4.70E-06 | 6.54E-09 | 2.42E-06 | 3.36E-09 | 2.87E-06 | 3.99E-09 |
| Benz(a)anthracene | 56553 | 0 | 0 | 3.53E-06 | 4.90E-09 | 3.53E-06 | 4.90E-09 | 1.81E-06 | 2.52E-09 | 2.15E-06 | 2.99E-09 |
| Benzene | 71432 | 0 | 0 | 1.57E-02 | 2.18E-05 | 1.57E-02 | 2.18E-05 | 8.06E-03 | 1.12E-05 | 9.55E-03 | 1.33E-05 |
| Benzo(a)pyrene | 50328 | 0 | 0 | 2.35E-06 | 3.27E-09 | 2.35E-06 | 3.27E-09 | 1.21E-06 | 1.68E-09 | 1.43E-06 | 1.99E-09 |
| Benzo(b)fluoranthene | 205992 | 0 | 0 | 3.53E-06 | 4.90E-09 | 3.53E-06 | 4.90E-09 | 1.81E-06 | 2.52E-09 | 2.15E-06 | 2.99E-09 |
| Benzo(g,h,i)perylene | 191242 | 0 | 0 | 2.35E-06 | 3.27E-09 | 2.35E-06 | 3.27E-09 | 1.21E-06 | 1.68E-09 | 1.43E-06 | 1.99E-09 |
| Benzo(k)fluoranthene | 207089 | 0 | 0 | 3.53E-06 | 4.90E-09 | 3.53E-06 | 4.90E-09 | 1.81E-06 | 2.52E-09 | 2.15E-06 | 2.99E-09 |
| Beryllium | 7440417 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Carbon monoxide | 630080 | 0 | 0 | 68.55 | 9.53E-02 | 68.55 | 9.53E-02 | 35.28 | 4.91E-02 | 41.79 | 5.81E-02 |
| Chromium | 7440473 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chrysene | 218019 | 0 | 0 | 3.53E-06 | 4.90E-09 | 3.53E-06 | 4.90E-09 | 1.81E-06 | 2.52E-09 | 2.15E-06 | 2.99E-09 |
| Cobalt | 7440484 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Copper | 7440508 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Crystalline silica | 1175 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70001 Steel Wax Burnout Oven 1 | | 70002 Aluminum Pusher Furnace 4 and Afterburner | | 70003 Aluminum Pusher Furnace 2 and Afterburner | | 70004 Aluminum Box Oven and Afterburner | | 70005 Steel Wax Burnout Oven 4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Cyclohexane | 110827 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dibenz(a,h)anthracene | 53703 | 0 | 0 | 2.35E-06 | 3.27E-09 | 2.35E-06 | 3.27E-09 | 1.21E-06 | 1.68E-09 | 1.43E-06 | 1.99E-09 |
| Dichlorobenzene | 106467 | 0 | 0 | 2.35E-03 | 3.27E-06 | 2.35E-03 | 3.27E-06 | 1.21E-03 | 1.68E-06 | 1.43E-03 | 1.99E-06 |
| Diethylene glycol | 111466 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dimethylbenz(a)anthracene, 7,12- | 57976 | 0 | 0 | 3.13E-05 | 4.36E-08 | 3.13E-05 | 4.36E-08 | 1.61E-05 | 2.24E-08 | 1.91E-05 | 2.66E-08 |
| Dioxane, 1,4- | 123911 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethyl acrylate | 140885 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethylbenzene | 100414 | 0 | 0 | 1.86E-02 | 2.59E-05 | 1.86E-02 | 2.59E-05 | 9.58E-03 | 1.33E-05 | 1.13E-02 | 1.58E-05 |
| Ethylene oxide | 75218 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fluoranthene | 206440 | 0 | 0 | 5.88E-06 | 8.17E-09 | 5.88E-06 | 8.17E-09 | 3.02E-06 | 4.21E-09 | 3.58E-06 | 4.98E-09 |
| Fluorene | 86737 | 0 | 0 | 5.48E-06 | 7.63E-09 | 5.48E-06 | 7.63E-09 | 2.82E-06 | 3.92E-09 | 3.34E-06 | 4.65E-09 |
| Formaldehyde | 50000 | 0 | 0 | 3.33E-02 | 4.63E-05 | 3.33E-02 | 4.63E-05 | 1.71E-02 | 2.38E-05 | 2.03E-02 | 2.82E-05 |
| Hexane, n- | 110543 | 0 | 0 | 1.23E-02 | 1.72E-05 | 1.23E-02 | 1.72E-05 | 6.35E-03 | 8.83E-06 | 7.52E-03 | 1.05E-05 |
| Hexavalent chromium | 18540299 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Indeno(1,2,3-cd)pyrene | 193395 | 0 | 0 | 3.53E-06 | 4.90E-09 | 3.53E-06 | 4.90E-09 | 1.81E-06 | 2.52E-09 | 2.15E-06 | 2.99E-09 |
| Isopropyl alcohol | 67630 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead | 7439921 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Manganese | 7439965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylcholanthrene, 3- | 56495 | 0 | 0 | 3.53E-06 | 4.90E-09 | 3.53E-06 | 4.90E-09 | 1.81E-06 | 2.52E-09 | 2.15E-06 | 2.99E-09 |
| Methylene diphenyl diisocyanate | 101688 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylnaphthalene, 2- | 91576 | 0 | 0 | 4.70E-05 | 6.54E-08 | 4.70E-05 | 6.54E-08 | 2.42E-05 | 3.36E-08 | 2.87E-05 | 3.99E-08 |
| Naphthalene | 91203 | 0 | 0 | 5.88E-04 | 8.17E-07 | 5.88E-04 | 8.17E-07 | 3.02E-04 | 4.21E-07 | 3.58E-04 | 4.98E-07 |
| Nickel | 7440020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nitric acid | 7697372 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70001 Steel Wax Burnout Oven 1 | | 70002 Aluminum Pusher Furnace 4 and Afterburner | | 70003 Aluminum Pusher Furnace 2 and Afterburner | | 70004 Aluminum Box Oven and Afterburner | | 70005 Steel Wax Burnout Oven 4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| PAH (unspeciated) | 1151 | 0 | 0 | 2.31E-05 | 3.21E-08 | 2.31E-05 | 3.21E-08 | 1.19E-05 | 1.65E-08 | 1.41E-05 | 1.96E-08 |
| Phenanthrene | 85018 | 0 | 0 | 3.33E-05 | 4.63E-08 | 3.33E-05 | 4.63E-08 | 1.71E-05 | 2.38E-08 | 2.03E-05 | 2.82E-08 |
| Phosphoric acid | 7664382 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phosphorus | 7723140 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pyrene | 129000 | 0 | 0 | 9.79E-06 | 1.36E-08 | 9.79E-06 | 1.36E-08 | 5.04E-06 | 7.01E-09 | 5.97E-06 | 8.30E-09 |
| Sulfuric acid | 7664939 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Toluene | 108883 | 0 | 0 | 7.17E-02 | 9.97E-05 | 7.17E-02 | 9.97E-05 | 3.69E-02 | 5.13E-05 | 4.37E-02 | 6.08E-05 |
| Vanadium | 7440622 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Xylenes | 1330207 | 0 | 0 | 5.33E-02 | 7.41E-05 | 5.33E-02 | 7.41E-05 | 2.74E-02 | 3.81E-05 | 3.25E-02 | 4.52E-05 |
| Zinc | 7440666 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70006 Steel Wax Burnout Oven 3 | | 70007 Flash Fire Oven | | 70008 Aluminum Pusher Furnace 3 | | 70009 Steel Wax Burnout Oven 2 | | 70010 Thermronix Aluminum Melting 1 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Acenaphthene | 83329 | 2.15E-06 | 2.99E-09 | 2.79E-06 | 3.88E-09 | 3.21E-06 | 4.47E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 |
| Acenaphthylene | 208968 | 2.15E-06 | 2.99E-09 | 2.79E-06 | 3.88E-09 | 3.21E-06 | 4.47E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 |
| Acetaldehyde | 75070 | 5.13E-03 | 7.14E-06 | 6.66E-03 | 9.27E-06 | 7.68E-03 | 1.07E-05 | 4.51E-03 | 6.27E-06 | 4.51E-03 | 6.27E-06 |
| Acrolein | 107028 | 3.22E-03 | 4.48E-06 | 4.18E-03 | 5.82E-06 | 4.82E-03 | 6.70E-06 | 2.83E-03 | 3.94E-06 | 2.83E-03 | 3.94E-06 |
| Aluminum | 7429905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aluminum oxide | 1344281 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ammonia | 7664417 | 3.82 | 5.31E-03 | 4.96 | 6.89E-03 | 5.71 | 7.94E-03 | 3.36 | 4.67E-03 | 3.36 | 4.67E-03 |
| Anthracene | 120127 | 2.87E-06 | 3.99E-09 | 3.72E-06 | 5.17E-09 | 4.28E-06 | 5.96E-09 | 2.52E-06 | 3.50E-09 | 2.52E-06 | 3.50E-09 |
| Benz(a)anthracene | 56553 | 2.15E-06 | 2.99E-09 | 2.79E-06 | 3.88E-09 | 3.21E-06 | 4.47E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 |
| Benzene | 71432 | 9.55E-03 | 1.33E-05 | 1.24E-02 | 1.72E-05 | 1.43E-02 | 1.99E-05 | 8.39E-03 | 1.17E-05 | 8.39E-03 | 1.17E-05 |
| Benzo(a)pyrene | 50328 | 1.43E-06 | 1.99E-09 | 1.86E-06 | 2.59E-09 | 2.14E-06 | 2.98E-09 | 1.26E-06 | 1.75E-09 | 1.26E-06 | 1.75E-09 |
| Benzo(b)fluoranthene | 205992 | 2.15E-06 | 2.99E-09 | 2.79E-06 | 3.88E-09 | 3.21E-06 | 4.47E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 |
| Benzo(g,h,i)perylene | 191242 | 1.43E-06 | 1.99E-09 | 1.86E-06 | 2.59E-09 | 2.14E-06 | 2.98E-09 | 1.26E-06 | 1.75E-09 | 1.26E-06 | 1.75E-09 |
| Benzo(k)fluoranthene | 207089 | 2.15E-06 | 2.99E-09 | 2.79E-06 | 3.88E-09 | 3.21E-06 | 4.47E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 |
| Beryllium | 7440417 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Carbon monoxide | 630080 | 41.79 | 5.81E-02 | 54.23 | 7.54E-02 | 62.48 | 8.69E-02 | 36.73 | 5.11E-02 | 36.73 | 5.11E-02 |
| Chromium | 7440473 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chrysene | 218019 | 2.15E-06 | 2.99E-09 | 2.79E-06 | 3.88E-09 | 3.21E-06 | 4.47E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 |
| Cobalt | 7440484 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Copper | 7440508 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Crystalline silica | 1175 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cyclohexane | 110827 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dibenz(a,h)anthracene | 53703 | 1.43E-06 | 1.99E-09 | 1.86E-06 | 2.59E-09 | 2.14E-06 | 2.98E-09 | 1.26E-06 | 1.75E-09 | 1.26E-06 | 1.75E-09 |
| Dichlorobenzene | 106467 | 1.43E-03 | 1.99E-06 | 1.86E-03 | 2.59E-06 | 2.14E-03 | 2.98E-06 | 1.26E-03 | 1.75E-06 | 1.26E-03 | 1.75E-06 |
| Diethylene glycol | 111466 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70006 Steel Wax Burnout Oven 3 | | 70007 Flash Fire Oven | | 70008 Aluminum Pusher Furnace 3 | | 70009 Steel Wax Burnout Oven 2 | | 70010 Thermronix Aluminum Melting 1 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Dimethylbenz(a)anthracene, 7,12- | 57976 | 1.91E-05 | 2.66E-08 | 2.48E-05 | 3.45E-08 | 2.86E-05 | 3.97E-08 | 1.68E-05 | 2.33E-08 | 1.68E-05 | 2.33E-08 |
| Dioxane, 1,4- | 123911 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethyl acrylate | 140885 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethylbenzene | 100414 | 1.13E-02 | 1.58E-05 | 1.47E-02 | 2.05E-05 | 1.70E-02 | 2.36E-05 | 9.97E-03 | 1.39E-05 | 9.97E-03 | 1.39E-05 |
| Ethylene oxide | 75218 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fluoranthene | 206440 | 3.58E-06 | 4.98E-09 | 4.65E-06 | 6.46E-09 | 5.36E-06 | 7.45E-09 | 3.15E-06 | 4.38E-09 | 3.15E-06 | 4.38E-09 |
| Fluorene | 86737 | 3.34E-06 | 4.65E-09 | 4.34E-06 | 6.03E-09 | 5.00E-06 | 6.95E-09 | 2.94E-06 | 4.09E-09 | 2.94E-06 | 4.09E-09 |
| Formaldehyde | 50000 | 2.03E-02 | 2.82E-05 | 2.63E-02 | 3.66E-05 | 3.03E-02 | 4.22E-05 | 1.78E-02 | 2.48E-05 | 1.78E-02 | 2.48E-05 |
| Hexane, n- | 110543 | 7.52E-03 | 1.05E-05 | 9.76E-03 | 1.36E-05 | 1.12E-02 | 1.56E-05 | 6.61E-03 | 9.19E-06 | 6.61E-03 | 9.19E-06 |
| Hexavalent chromium | 18540299 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Indeno(1,2,3-cd)pyrene | 193395 | 2.15E-06 | 2.99E-09 | 2.79E-06 | 3.88E-09 | 3.21E-06 | 4.47E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 |
| Isopropyl alcohol | 67630 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead | 7439921 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Manganese | 7439965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylcholanthrene, 3- | 56495 | 2.15E-06 | 2.99E-09 | 2.79E-06 | 3.88E-09 | 3.21E-06 | 4.47E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 |
| Methylene diphenyl diisocyanate | 101688 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylnaphthalene, 2- | 91576 | 2.87E-05 | 3.99E-08 | 3.72E-05 | 5.17E-08 | 4.28E-05 | 5.96E-08 | 2.52E-05 | 3.50E-08 | 2.52E-05 | 3.50E-08 |
| Naphthalene | 91203 | 3.58E-04 | 4.98E-07 | 4.65E-04 | 6.46E-07 | 5.36E-04 | 7.45E-07 | 3.15E-04 | 4.38E-07 | 3.15E-04 | 4.38E-07 |
| Nickel | 7440020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nitric acid | 7697372 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PAH (unspeciated) | 1151 | 1.41E-05 | 1.96E-08 | 1.83E-05 | 2.54E-08 | 2.11E-05 | 2.93E-08 | 1.24E-05 | 1.72E-08 | 1.24E-05 | 1.72E-08 |
| Phenanthrene | 85018 | 2.03E-05 | 2.82E-08 | 2.63E-05 | 3.66E-08 | 3.03E-05 | 4.22E-08 | 1.78E-05 | 2.48E-08 | 1.78E-05 | 2.48E-08 |
| Phosphoric acid | 7664382 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phosphorus | 7723140 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70006 Steel Wax Burnout Oven 3 | | 70007 Flash Fire Oven | | 70008 Aluminum Pusher Furnace 3 | | 70009 Steel Wax Burnout Oven 2 | | 70010 Thermronix Aluminum Melting 1 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Pyrene | 129000 | 5.97E-06 | 8.30E-09 | 7.75E-06 | 1.08E-08 | 8.93E-06 | 1.24E-08 | 5.25E-06 | 7.30E-09 | 5.25E-06 | 7.30E-09 |
| Sulfuric acid | 7664939 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Toluene | 108883 | 4.37E-02 | 6.08E-05 | 5.67E-02 | 7.89E-05 | 6.53E-02 | 9.09E-05 | 3.84E-02 | 5.34E-05 | 3.84E-02 | 5.34E-05 |
| Vanadium | 7440622 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Xylenes | 1330207 | 3.25E-02 | 4.52E-05 | 4.21E-02 | 5.86E-05 | 4.86E-02 | 6.75E-05 | 2.85E-02 | 3.97E-05 | 2.85E-02 | 3.97E-05 |
| Zinc | 7440666 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70011 Thermtronix Aluminum Melting 2 | | 70012 Heat Treat Oven | | 70013 Hot Straight Oven | | 70014 Propane Handheld Torch | | 70015 Scrubber | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Acenaphthene | 83329 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 0 | 0 | 0 | 0 |
| Acenaphthylene | 208968 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 0 | 0 | 0 | 0 |
| Acetaldehyde | 75070 | 4.51E-03 | 6.27E-06 | 4.51E-03 | 6.27E-06 | 4.51E-03 | 6.27E-06 | 3.49E-06 | 1.24E-09 | 0 | 0 |
| Acrolein | 107028 | 2.83E-03 | 3.94E-06 | 2.83E-03 | 3.94E-06 | 2.83E-03 | 3.94E-06 | 2.21E-06 | 7.85E-10 | 0 | 0 |
| Aluminum | 7429905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aluminum oxide | 1344281 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ammonia | 7664417 | 3.36 | 4.67E-03 | 3.36 | 4.67E-03 | 3.36 | 4.67E-03 | 2.76E-03 | 9.82E-07 | 0 | 0 |
| Anthracene | 120127 | 2.52E-06 | 3.50E-09 | 2.52E-06 | 3.50E-09 | 2.52E-06 | 3.50E-09 | 0 | 0 | 0 | 0 |
| Benz(a)anthracene | 56553 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 0 | 0 | 0 | 0 |
| Benzene | 71432 | 8.39E-03 | 1.17E-05 | 8.39E-03 | 1.17E-05 | 8.39E-03 | 1.17E-05 | 6.52E-06 | 2.32E-09 | 0 | 0 |
| Benzo(a)pyrene | 50328 | 1.26E-06 | 1.75E-09 | 1.26E-06 | 1.75E-09 | 1.26E-06 | 1.75E-09 | 0 | 0 | 0 | 0 |
| Benzo(b)fluoranthene | 205992 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 0 | 0 | 0 | 0 |
| Benzo(g,h,i)perylene | 191242 | 1.26E-06 | 1.75E-09 | 1.26E-06 | 1.75E-09 | 1.26E-06 | 1.75E-09 | 0 | 0 | 0 | 0 |
| Benzo(k)fluoranthene | 207089 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 0 | 0 | 0 | 0 |
| Beryllium | 7440417 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Carbon monoxide | 630080 | 36.73 | 5.11E-02 | 36.73 | 0.05 | 36.73 | 0.05 | 2.94E-02 | 1.05E-05 | 0 | 0 |
| Chromium | 7440473 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chrysene | 218019 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 0 | 0 | 0 | 0 |
| Cobalt | 7440484 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Copper | 7440508 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Crystalline silica | 1175 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cyclohexane | 110827 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dibenz(a,h)anthracene | 53703 | 1.26E-06 | 1.75E-09 | 1.26E-06 | 1.75E-09 | 1.26E-06 | 1.75E-09 | 0 | 0 | 0 | 0 |
| Dichlorobenzene | 106467 | 1.26E-03 | 1.75E-06 | 1.26E-03 | 1.75E-06 | 1.26E-03 | 1.75E-06 | 0 | 0 | 0 | 0 |
| Diethylene glycol | 111466 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70011 Thermtronix Aluminum Melting 2 | | 70012 Heat Treat Oven | | 70013 Hot Straight Oven | | 70014 Propane Handheld Torch | | 70015 Scrubber | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Dimethylbenz(a)anthracene, 7,12- | 57976 | 1.68E-05 | 2.33E-08 | 1.68E-05 | 2.33E-08 | 1.68E-05 | 2.33E-08 | 0 | 0 | 0 | 0 |
| Dioxane, 1,4- | 123911 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethyl acrylate | 140885 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethylbenzene | 100414 | 9.97E-03 | 1.39E-05 | 9.97E-03 | 1.39E-05 | 9.97E-03 | 1.39E-05 | 7.72E-06 | 2.75E-09 | 0 | 0 |
| Ethylene oxide | 75218 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fluoranthene | 206440 | 3.15E-06 | 4.38E-09 | 3.15E-06 | 4.38E-09 | 3.15E-06 | 4.38E-09 | 0 | 0 | 0 | 0 |
| Fluorene | 86737 | 2.94E-06 | 4.09E-09 | 2.94E-06 | 4.09E-09 | 2.94E-06 | 4.09E-09 | 0 | 0 | 0 | 0 |
| Formaldehyde | 50000 | 1.78E-02 | 2.48E-05 | 1.78E-02 | 2.48E-05 | 1.78E-02 | 2.48E-05 | 1.39E-05 | 4.94E-09 | 0 | 0 |
| Hexane, n- | 110543 | 6.61E-03 | 9.19E-06 | 6.61E-03 | 9.19E-06 | 6.61E-03 | 9.19E-06 | 5.15E-06 | 1.83E-09 | 0 | 0 |
| Hexavalent chromium | 18540299 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Indeno(1,2,3-cd)pyrene | 193395 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 0 | 0 | 0 | 0 |
| Isopropyl alcohol | 67630 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead | 7439921 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Manganese | 7439965 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylcholanthrene, 3- | 56495 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 1.89E-06 | 2.63E-09 | 0 | 0 | 0 | 0 |
| Methylene diphenyl diisocyanate | 101688 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylnaphthalene, 2- | 91576 | 2.52E-05 | 3.50E-08 | 2.52E-05 | 3.50E-08 | 2.52E-05 | 3.50E-08 | 0 | 0 | 0 | 0 |
| Naphthalene | 91203 | 3.15E-04 | 4.38E-07 | 3.15E-04 | 4.38E-07 | 3.15E-04 | 4.38E-07 | 2.76E-07 | 9.82E-11 | 0 | 0 |
| Nickel | 7440020 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nitric acid | 7697372 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PAH (unspeciated) | 1151 | 1.24E-05 | 1.72E-08 | 1.24E-05 | 1.72E-08 | 1.24E-05 | 1.72E-08 | 9.19E-08 | 3.27E-11 | 0 | 0 |
| Phenanthrene | 85018 | 1.78E-05 | 2.48E-08 | 1.78E-05 | 2.48E-08 | 1.78E-05 | 2.48E-08 | 0 | 0 | 0 | 0 |
| Phosphoric acid | 7664382 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70011 Thermtronix Aluminum Melting 2 | | 70012 Heat Treat Oven | | 70013 Hot Straight Oven | | 70014 Propane Handheld Torch | | 70015 Scrubber | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Phosphorus | 7723140 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pyrene | 129000 | 5.25E-06 | 7.30E-09 | 5.25E-06 | 7.30E-09 | 5.25E-06 | 7.30E-09 | 0 | 0 | 0 | 0 |
| Sulfuric acid | 7664939 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Toluene | 108883 | 3.84E-02 | 5.34E-05 | 3.84E-02 | 5.34E-05 | 3.84E-02 | 5.34E-05 | 2.99E-05 | 1.06E-08 | 0 | 0 |
| Vanadium | 7440622 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Xylenes | 1330207 | 2.85E-02 | 3.97E-05 | 2.85E-02 | 3.97E-05 | 2.85E-02 | 3.97E-05 | 2.21E-05 | 7.89E-09 | 0 | 0 |
| Zinc | 7440666 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70016 Aluminum Parts Bright Drip Line | | 70017 Baghouse | | 70018 Abrasive Blasting Cabinet | | 70019 Steel Melting 75 lb Crucible | | 70020 Steel Melting 65 lb Crucible | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Acenaphthene | 83329 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Acenaphthylene | 208968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Acetaldehyde | 75070 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Acrolein | 107028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aluminum | 7429905 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aluminum oxide | 1344281 | 0 | 0 | 0 | 0 | 1.44 | 5.14E-04 | 0 | 0 | 0 | 0 |
| Ammonia | 7664417 | 17.91 | 2.04E-03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Anthracene | 120127 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benz(a)anthracene | 56553 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzene | 71432 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(a)pyrene | 50328 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(b)fluoranthene | 205992 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(g,h,i)perylene | 191242 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(k)fluoranthene | 207089 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beryllium | 7440417 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Carbon monoxide | 630080 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chromium | 7440473 | 0 | 0 | 0 | 0 | 0 | 0 | 1.98E-02 | 6.35E-06 | 1.72E-02 | 5.50E-06 |
| Chrysene | 218019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cobalt | 7440484 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Copper | 7440508 | 0 | 0 | 0 | 0 | 0 | 0 | 1.03 | 3.31E-04 | 0.89 | 2.87E-04 |
| Crystalline silica | 1175 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cyclohexane | 110827 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dibenz(a,h)anthracene | 53703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dichlorobenzene | 106467 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diethylene glycol | 111466 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70016 Aluminum Parts Bright Drip Line | | 70017 Baghouse | | 70018 Abrasive Blasting Cabinet | | 70019 Steel Melting 75 lb Crucible | | 70020 Steel Melting 65 lb Crucible | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Dimethylbenz(a)anthracene, 7,12- | 57976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dioxane, 1,4- | 123911 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethyl acrylate | 140885 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethylbenzene | 100414 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethylene oxide | 75218 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fluoranthene | 206440 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fluorene | 86737 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Formaldehyde | 50000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hexane, n- | 110543 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hexavalent chromium | 18540299 | 0 | 0 | 0 | 0 | 0 | 0 | 1.25E-04 | 4.00E-08 | 1.08E-04 | 3.47E-08 |
| Indeno(1,2,3-cd)pyrene | 193395 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Isopropyl alcohol | 67630 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead | 7439921 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Manganese | 7439965 | 0 | 0 | 0 | 0 | 0 | 0 | 1.61 | 5.16E-04 | 1.39 | 4.47E-04 |
| Methylcholanthrene, 3- | 56495 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylene diphenyl diisocyanate | 101688 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylnaphthalene, 2- | 91576 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Naphthalene | 91203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nickel | 7440020 | 0 | 0 | 0 | 0 | 0 | 0 | 9.25E-03 | 2.96E-06 | 8.02E-03 | 2.57E-06 |
| Nitric acid | 7697372 | 30.70 | 3.51E-03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PAH (unspeciated) | 1151 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phenanthrene | 85018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phosphoric acid | 7664382 | 2.61 | 2.98E-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70016 Aluminum Parts Bright Drip Line | | 70017 Baghouse | | 70018 Abrasive Blasting Cabinet | | 70019 Steel Melting 75 lb Crucible | | 70020 Steel Melting 65 lb Crucible | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Phosphorus | 7723140 | 0 | 0 | 0 | 0 | 0 | 0 | 3.43E-03 | 1.10E-06 | 2.97E-03 | 9.52E-07 |
| Pyrene | 129000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sulfuric acid | 7664939 | 2.86E-16 | 3.27E-20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Toluene | 108883 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vanadium | 7440622 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Xylenes | 1330207 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Zinc | 7440666 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70021 Steel Melting 300/650 lb Crucible | | 70022 Aluminum Melting Thermtronix 1 | | 70023 Aluminum Melting Thermtronix 2 | | 70024 Production | | 70025 Welding | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Acenaphthene | 83329 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Acenaphthylene | 208968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Acetaldehyde | 75070 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Acrolein | 107028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aluminum | 7429905 | 0 | 0 | 110.99 | 3.56E-02 | 110.99 | 3.56E-02 | 0 | 0 | 0.69 | 2.45E-04 |
| Aluminum oxide | 1344281 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ammonia | 7664417 | 0 | 0 | 0 | 0 | 0 | 0 | 217.70 | 6.98E-02 | 0 | 0 |
| Anthracene | 120127 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benz(a)anthracene | 56553 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzene | 71432 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(a)pyrene | 50328 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(b)fluoranthene | 205992 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(g,h,i)perylene | 191242 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(k)fluoranthene | 207089 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beryllium | 7440417 | 0 | 0 | 0.04 | 1.18E-05 | 0.04 | 1.18E-05 | 0 | 0 | 0 | 0 |
| Carbon monoxide | 630080 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chromium | 7440473 | 0.25 | 8.04E-05 | 2.39E-02 | 7.67E-06 | 2.39E-02 | 7.67E-06 | 0 | 0 | 0.38 | 1.35E-04 |
| Chrysene | 218019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cobalt | 7440484 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Copper | 7440508 | 13.07 | 4.19E-03 | 0.60 | 1.91E-04 | 0.60 | 1.91E-04 | 0 | 0 | 9.67E-02 | 3.44E-05 |
| Crystalline silica | 1175 | 0 | 0 | 0 | 0 | 0 | 0 | 1.37E-03 | 4.40E-07 | 0 | 0 |
| Cyclohexane | 110827 | 0 | 0 | 0 | 0 | 0 | 0 | 68.66 | 2.20E-02 | 0 | 0 |
| Dibenz(a,h)anthracene | 53703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dichlorobenzene | 106467 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diethylene glycol | 111466 | 0 | 0 | 0 | 0 | 0 | 0 | 235.59 | 7.55E-02 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70021 Steel Melting 300/650 lb Crucible | | 70022 Aluminum Melting Thermtronix 1 | | 70023 Aluminum Melting Thermtronix 2 | | 70024 Production | | 70025 Welding | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Dimethylbenz(a)anthracene, 7,12- | 57976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dioxane, 1,4- | 123911 | 0 | 0 | 0 | 0 | 0 | 0 | 5.53E-02 | 1.77E-05 | 0 | 0 |
| Ethyl acrylate | 140885 | 0 | 0 | 0 | 0 | 0 | 0 | 7.59E-03 | 2.43E-06 | 0 | 0 |
| Ethylbenzene | 100414 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethylene oxide | 75218 | 0 | 0 | 0 | 0 | 0 | 0 | 5.53E-02 | 1.77E-05 | 0 | 0 |
| Fluoranthene | 206440 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fluorene | 86737 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Formaldehyde | 50000 | 0 | 0 | 0 | 0 | 0 | 0 | 0.78 | 2.50E-04 | 0 | 0 |
| Hexane, n- | 110543 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hexavalent chromium | 18540299 | 1.58E-03 | 5.07E-07 | 2.17E-04 | 6.96E-08 | 2.17E-04 | 6.96E-08 | 0 | 0 | 1.90E-02 | 6.75E-06 |
| Indeno(1,2,3-cd)pyrene | 193395 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Isopropyl alcohol | 67630 | 0 | 0 | 0 | 0 | 0 | 0 | 970.38 | 3.11E-01 | 0 | 0 |
| Lead | 7439921 | 0 | 0 | 2.39E-03 | 7.67E-07 | 2.39E-03 | 7.67E-07 | 1.01E-05 | 3.22E-09 | 0 | 0 |
| Manganese | 7439965 | 20.38 | 6.53E-03 | 0.19 | 6.09E-05 | 0.19 | 6.09E-05 | 0 | 0 | 2.09E-02 | 7.46E-06 |
| Methylcholanthrene, 3- | 56495 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylene diphenyl diisocyanate | 101688 | 0 | 0 | 0 | 0 | 0 | 0 | 1.31E-05 | 4.21E-09 | 0 | 0 |
| Methylnaphthalene, 2- | 91576 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Naphthalene | 91203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nickel | 7440020 | 0.12 | 3.75E-05 | 4.78E-03 | 1.53E-06 | 4.78E-03 | 1.53E-06 | 0 | 0 | 0.12 | 4.25E-05 |
| Nitric acid | 7697372 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PAH (unspeciated) | 1151 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phenanthrene | 85018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phosphoric acid | 7664382 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phosphorus | 7723140 | 4.34E-02 | 1.39E-05 | 0 | 0 | 0 | 0 | 0 | 0 | 8.62E-04 | 3.07E-07 |

| Listed substance | CAS/CARB Number | 70021 Steel Melting 300/650 lb Crucible | | 70022 Aluminum Melting Thermtronix 1 | | 70023 Aluminum Melting Thermtronix 2 | | 70024 Production | | 70025 Welding | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Pyrene | 129000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sulfuric acid | 7664939 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Toluene | 108883 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vanadium | 7440622 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Xylenes | 1330207 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Zinc | 7440666 | 0 | 0 | 0.96 | 3.06E-04 | 0.96 | 3.06E-04 | 0 | 0 | 1.27E-03 | 4.52E-07 |

| Listed substance | CAS/CARB Number | 70026 Metal Grinding | | 70027 Shell Making | | 70028 Abrasive Blasting | | 70029 Steel and Aluminum Testing | | 70030 Wax Burnout | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Acenaphthene | 83329 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Acenaphthylene | 208968 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Acetaldehyde | 75070 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2.03E-03 | 6.52E-07 |
| Acrolein | 107028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aluminum | 7429905 | 2.20E+00 | 7.05E-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Aluminum oxide | 1344281 | 0 | 0 | 0 | 0 | 8.79 | 3.13E-03 | 0 | 0 | 0 | 0 |
| Ammonia | 7664417 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Anthracene | 120127 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benz(a)anthracene | 56553 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzene | 71432 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(a)pyrene | 50328 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(b)fluoranthene | 205992 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(g,h,i)perylene | 191242 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Benzo(k)fluoranthene | 207089 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Beryllium | 7440417 | 2.02E-04 | 6.48E-08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Carbon monoxide | 630080 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chromium | 7440473 | 0.53 | 1.71E-04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Chrysene | 218019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cobalt | 7440484 | 1.20E-03 | 3.86E-07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Copper | 7440508 | 0.11 | 3.53E-05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Crystalline silica | 1175 | 0 | 0 | 3.24 | 1.04E-03 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cyclohexane | 110827 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dibenz(a,h)anthracene | 53703 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dichlorobenzene | 106467 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Diethylene glycol | 111466 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70026 Metal Grinding | | 70027 Shell Making | | 70028 Abrasive Blasting | | 70029 Steel and Aluminum Testing | | 70030 Wax Burnout | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Dimethylbenz(a)anthracene, 7,12- | 57976 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dioxane, 1,4- | 123911 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.74E-03 | 5.59E-07 |
| Ethyl acrylate | 140885 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethylbenzene | 100414 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethylene oxide | 75218 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.74E-03 | 5.59E-07 |
| Fluoranthene | 206440 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fluorene | 86737 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Formaldehyde | 50000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.51E-03 | 4.84E-07 |
| Hexane, n- | 110543 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Hexavalent chromium | 18540299 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Indeno(1,2,3-cd)pyrene | 193395 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Isopropyl alcohol | 67630 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lead | 7439921 | 1.74E-04 | 5.57E-08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Manganese | 7439965 | 3.48E-02 | 1.12E-05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylcholanthrene, 3- | 56495 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylene diphenyl diisocyanate | 101688 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Methylnaphthalene, 2- | 91576 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Naphthalene | 91203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nickel | 7440020 | 0.16 | 5.09E-05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nitric acid | 7697372 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PAH (unspeciated) | 1151 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phenanthrene | 85018 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phosphoric acid | 7664382 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Phosphorus | 7723140 | 1.50E-03 | 4.81E-07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Listed substance | CAS/CARB Number | 70026 Metal Grinding | | 70027 Shell Making | | 70028 Abrasive Blasting | | 70029 Steel and Aluminum Testing | | 70030 Wax Burnout | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly | Average Annual | Maximum Hourly |
| Pyrene | 129000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sulfuric acid | 7664939 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Toluene | 108883 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vanadium | 7440622 | 1.05E-04 | 3.38E-08 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Xylenes | 1330207 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Zinc | 7440666 | 1.47E-03 | 4.71E-07 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

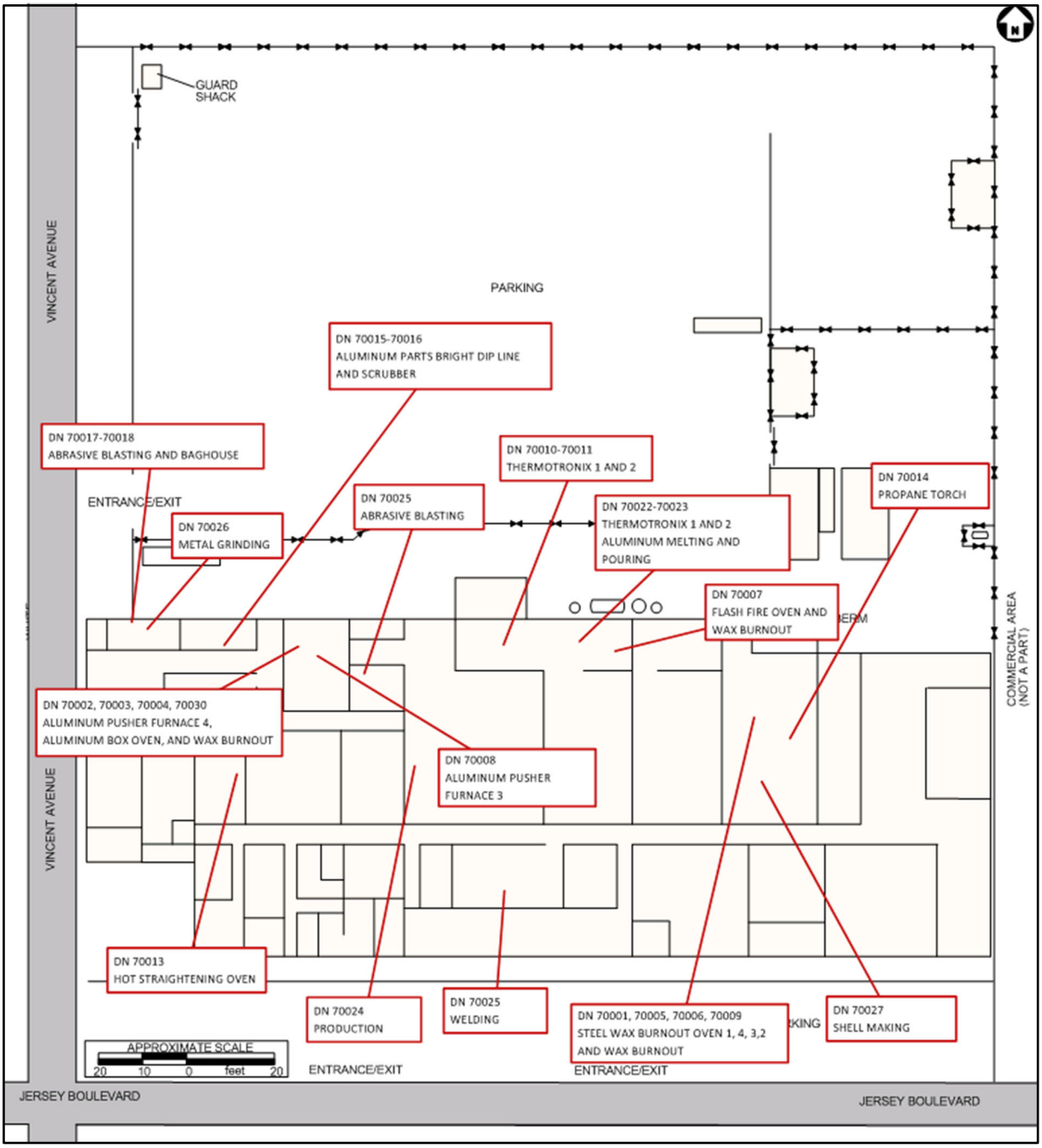
# 33. SITE EMISSIONS SUMMARY

| Company: Pac Rancho, Inc. | AQMD ID#: 140871 | | | | |
|---|---|---|---|---|---|
| Listed substance | CAS/CARB Number | Average Annual, lbs/yr | Maximum Hourly, lbs/hr | Average Annual, g/sec | Maximum Hourly, g/sec |
| Acenaphthene | 83329 | 2.86E-05 | 3.98E-08 | 4.12E-10 | 5.01E-09 |
| Acenaphthylene | 208968 | 2.86E-05 | 3.98E-08 | 4.12E-10 | 5.01E-09 |
| Acetaldehyde | 75070 | 0.07 | 9.57E-05 | 1.01E-06 | 1.21E-05 |
| Acrolein | 107028 | 0.04 | 5.97E-05 | 6.17E-07 | 7.52E-06 |
| Aluminum | 7429905 | 224.86 | 7.21E-02 | 3.23E-03 | 9.08E-03 |
| Aluminum oxide | 1344281 | 10.23 | 3.64E-03 | 1.47E-04 | 4.59E-04 |
| Ammonia | 7664417 | 286.48 | 0.14 | 4.12E-03 | 1.80E-02 |
| Anthracene | 120127 | 3.81E-05 | 5.30E-08 | 5.49E-10 | 6.68E-09 |
| Benz(a)anthracene | 56553 | 2.86E-05 | 3.98E-08 | 4.12E-10 | 5.01E-09 |
| Benzene | 71432 | 0.13 | 1.77E-04 | 1.83E-06 | 2.23E-05 |
| Benzo(a)pyrene | 50328 | 1.91E-05 | 2.65E-08 | 2.74E-10 | 3.34E-09 |
| Benzo(b)fluoranthene | 205992 | 2.86E-05 | 3.98E-08 | 4.12E-10 | 5.01E-09 |
| Benzo(g,h,i)perylene | 191242 | 1.91E-05 | 2.65E-08 | 2.74E-10 | 3.34E-09 |
| Benzo(k)fluoranthene | 207089 | 2.86E-05 | 3.98E-08 | 4.12E-10 | 5.01E-09 |
| Beryllium | 7440417 | 0.07 | 2.36E-05 | 1.06E-06 | 2.98E-06 |
| Carbon monoxide | 630080 | 556.35 | 0.77 | 8.00E-03 | 9.75E-02 |
| Chromium | 7440473 | 1.25 | 0.00 | 1.79E-05 | 5.21E-05 |
| Chrysene | 218019 | 2.86E-05 | 3.98E-08 | 4.12E-10 | 5.01E-09 |
| Cobalt | 7440484 | 1.20E-03 | 3.86E-07 | 1.73E-08 | 4.86E-08 |
| Copper | 7440508 | 16.39 | 0.01 | 2.36E-04 | 6.62E-04 |
| Crystalline silica | 1175 | 3.24 | 1.04E-03 | 4.66E-05 | 1.31E-04 |

| Company: Pac Rancho, Inc. | AQMD ID#: 140871 | | | | |
|---|---|---|---|---|---|
| Listed substance | CAS/CARB Number | Average Annual, lbs/yr | Maximum Hourly, lbs/hr | Average Annual, g/sec | Maximum Hourly, g/sec |
| Cyclohexane | 110827 | 68.66 | 0.02 | 9.88E-04 | 2.77E-03 |
| Dibenz(a,h)anthracene | 53703 | 1.91E-05 | 2.65E-08 | 2.74E-10 | 3.34E-09 |
| Dichlorobenzene | 106467 | 1.91E-02 | 2.65E-05 | 2.74E-07 | 3.34E-06 |
| Diethylene glycol | 111466 | 235.59 | 0.08 | 3.39E-03 | 9.51E-03 |
| Dimethylbenz(a)anthracene, 7,12- | 57976 | 2.54E-04 | 3.54E-07 | 3.66E-09 | 4.46E-08 |
| Dioxane, 1,4- | 123911 | 0.06 | 1.83E-05 | 8.20E-07 | 2.30E-06 |
| Ethyl acrylate | 140885 | 7.59E-03 | 2.43E-06 | 1.09E-07 | 3.06E-07 |
| Ethylbenzene | 100414 | 0.15 | 2.10E-04 | 2.17E-06 | 2.65E-05 |
| Ethylene oxide | 75218 | 0.06 | 1.83E-05 | 8.20E-07 | 2.30E-06 |
| Fluoranthene | 206440 | 4.77E-05 | 6.63E-08 | 6.86E-10 | 8.35E-09 |
| Fluorene | 86737 | 4.45E-05 | 6.19E-08 | 6.40E-10 | 7.80E-09 |
| Formaldehyde | 50000 | 1.05 | 6.26E-04 | 1.51E-05 | 7.89E-05 |
| Hexane, n- | 110543 | 0.10 | 1.39E-04 | 1.44E-06 | 1.75E-05 |
| Hexavalent chromium | 18540299 | 2.12E-02 | 7.47E-06 | 3.05E-07 | 9.41E-07 |
| Indeno(1,2,3-cd)pyrene | 193395 | 2.86E-05 | 3.98E-08 | 4.12E-10 | 5.01E-09 |
| Isopropyl alcohol | 67630 | 970.38 | 0.31 | 1.40E-02 | 3.92E-02 |
| Lead | 7439921 | 4.97E-03 | 1.59E-06 | 7.15E-08 | 2.01E-07 |
| Manganese | 7439965 | 23.82 | 7.63E-03 | 3.43E-04 | 9.62E-04 |
| Methylcholanthrene, 3- | 56495 | 2.86E-05 | 3.98E-08 | 4.12E-10 | 5.01E-09 |
| Methylene diphenyl diisocyanate | 101688 | 1.31E-05 | 4.21E-09 | 1.89E-10 | 5.31E-10 |
| Methylnaphthalene, 2- | 91576 | 3.81E-04 | 5.30E-07 | 5.49E-09 | 6.68E-08 |
| Naphthalene | 91203 | 4.77E-03 | 6.63E-06 | 6.86E-08 | 8.35E-07 |
| Nickel | 7440020 | 0.42 | 1.40E-04 | 6.07E-06 | 1.76E-05 |

| Company: Pac Rancho, Inc. | AQMD ID#: 140871 | | | | |
|---|---|---|---|---|---|
| Listed substance | CAS/CARB Number | Average Annual, lbs/yr | Maximum Hourly, lbs/hr | Average Annual, g/sec | Maximum Hourly, g/sec |
| Nitric acid | 7697372 | 30.70 | 3.51E-03 | 4.42E-04 | 4.42E-04 |
| PAH (unspeciated) | 1151 | 1.88E-04 | 2.61E-07 | 2.70E-09 | 3.29E-08 |
| Phenanthrene | 85018 | 2.70E-04 | 3.76E-07 | 3.89E-09 | 4.73E-08 |
| Phosphoric acid | 7664382 | 2.61E+00 | 2.98E-04 | 3.75E-05 | 3.75E-05 |
| Phosphorus | 7723140 | 5.22E-02 | 1.68E-05 | 7.51E-07 | 2.11E-06 |
| Pyrene | 129000 | 7.95E-05 | 1.11E-07 | 1.14E-09 | 1.39E-08 |
| Sulfuric acid | 7664939 | 2.86E-16 | 3.27E-20 | 4.11E-21 | 4.11E-21 |
| Toluene | 108883 | 0.58 | 8.09E-04 | 8.37E-06 | 1.02E-04 |
| Vanadium | 7440622 | 1.05E-04 | 3.38E-08 | 1.52E-09 | 4.26E-09 |
| Xylenes | 1330207 | 0.43 | 6.01E-04 | 6.22E-06 | 7.58E-05 |
| Zinc | 7440666 | 1.91 | 6.13E-04 | 2.75E-05 | 7.73E-05 |

# APPENDIX A -
# FACILITY MAP


GUARD SHACK
VINCENT AVENUE
PARKING
DN 70015-70016
ALUMINUM PARTS BRIGHT DIP LINE AND SCRUBBER
DN 70017-70018
ABRASIVE BLASTING AND BAGHOUSE
DN 70010-70011
THERMOTRONIX 1 AND 2
DN 70014
PROPANE TORCH
ENTRANCE/EXIT
DN 70026
METAL GRINDING
DN 70025
ABRASIVE BLASTING
DN 70022-70023
THERMOTRONIX 1 AND 2
ALUMINUM MELTING AND POURING
DN 70007
FLASH FIRE OVEN AND WAX BURNOUT
COMMERCIAL AREA (NOT A PART)
DN 70002, 70003, 70004, 70030
ALUMINUM PUSHER FURNACE 4, ALUMINUM BOX OVEN, AND WAX BURNOUT
DN 70008
ALUMINUM PUSHER FURNACE 3
VINCENT AVENUE
DN 70013
HOT STRAIGHTENING OVEN
DN 70024
PRODUCTION
DN 70025
WELDING
DN 70001, 70005, 70006, 70009
STEEL WAX BURNOUT OVEN 1, 4, 3,2 AND WAX BURNOUT
DN 70027
SHELL MAKING
APPROXIMATE SCALE
20 10 0 feet 20
ENTRANCE/EXIT
ENTRANCE/EXIT
JERSEY BOULEVARD
JERSEY BOULEVARD

# APPENDIX B -
# HARP REPORTING FORM

File name: C:\Users\abovat\Desktop\Pac Rancho ATIR Appendix C October 2023.rtf

# HARP Facility Emission Summary

HARP EIM Version: 2.1.6

Project Path: C:\Users\abovat\Desktop\PACR EIM 2023 updated\PACR EIM 2023
Project Database: C:\Users\abovat\Desktop\PACR EIM 2023 updated\PACR EIM 2023\PACREHS9942ATIR.mdb
CEIDARS Utility Database: C:\HARP2\Tables\CEIDARSTables042023.mdb
Facility List: N/A
Pollutant List: N/A
Sorting Order: FACID, CO, AB, DIS, YEAR, TOXAPPEN, POLABBREV
Date Created: 10/31/2023 9:36:50 AM
Operator: AMB

(Note: Emissions in LBS/YR for toxics, TONS/YR for criteria pollutants, CURRIES/YR for radio nuclides. * User defined pollutants are marked by an asterisk with the pollutant ID.)

| FACILITY | NAME / ADDRESS / CITY | ZIP | CO | AB | DIS | CATEGORY | HAP | POLLUTANT | POLLUTANT ID | EMISSIONS | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 140871 | PAC RANCHO INC<br>1100 JERSEY BOULEVARD<br>RANCHO CUCAMONGA | 91730 | 36 | SC | SC | A-I | | Alumin Oxide | 1344281 | 10.233 | 2018 |
| | | | | | | A-I | | Aluminum | 7429905 | 224.859 | 2018 |
| | | | | | | A-I | | Copper | 7440508 | 16.392 | 2018 |
| | | | | | | A-I | | Cyclohexane | 110827 | 68.656 | 2018 |
| | | | | | | A-I | | DEGlycol | 111466 | 235.588 | 2018 |
| | | | | | | A-I | | Isopropyl Alcoh | 67630 | 970.384 | 2018 |
| | | | | | | A-I | | NH3 | 7664417 | 286.482 | 2018 |
| | | | | | | A-I | | Nitric Acid | 7697372 | 30.704 | 2018 |
| | | | | | | A-I | | Phosphoric Acid | 7664382 | 2.609 | 2018 |
| | | | | | | A-I | | Silica, Crystln | 1175 | 3.241 | 2018 |
| | | | | | | A-I | | Sulfuric Acid | 7664939 | 2.861E-16 | 2018 |
| | | | | | | A-I | | Vanadium | 7440622 | 1.054E-04 | 2018 |
| | | | | | | A-I | | Zinc | 7440666 | 1.914 | 2018 |
| | | | | | | A-I | Y | 1,4-Dioxane | 123911 | 5.699E-02 | 2018 |
| | | | | | | A-I | Y | 2MeNaphthalene | 91576 | 3.815E-04 | 2018 |
| | | | | | | A-I | Y | 3-MeCholanthren | 56495 | 2.861E-05 | 2018 |
| | | | | | | A-I | Y | 7,12-DB[a]anthr | 57976 | 2.543E-04 | 2018 |
| | | | | | | A-I | Y | Acenaphthene | 83329 | 2.861E-05 | 2018 |
| | | | | | | A-I | Y | Acenaphthylene | 208968 | 2.861E-05 | 2018 |
| | | | | | | A-I | Y | Acetaldehyde | 75070 | 7.038E-02 | 2018 |
| | | | | | | A-I | Y | Acrolein | 107028 | 4.292E-02 | 2018 |
| | | | | | | A-I | Y | Anthracene | 120127 | 3.815E-05 | 2018 |
| | | | | | | A-I | Y | B[a]anthracene | 56553 | 2.861E-05 | 2018 |
| | | | | | | A-I | Y | B[a]P | 50328 | 1.907E-05 | 2018 |
| | | | | | | A-I | Y | B[b]fluoranthen | 205992 | 2.861E-05 | 2018 |
| | | | | | | A-I | Y | B[g,h,i]perylen | 191242 | 1.907E-05 | 2018 |
| | | | | | | A-I | Y | B[k]fluoranthen | 207089 | 2.861E-05 | 2018 |

| | | | | |
|---|---|---|---|---|
| | A-I | Y | Benzene | 71432 |
| 0.127 2018 | | | | |
| | A-I | Y | Beryllium | 7440417 |
| 7.374E-02 2018 | | | | |
| | A-I | Y | Chromium | 7440473 |
| 1.247 2018 | | | | |
| | A-I | Y | Chrysene | 218019 |
| 2.861E-05 2018 | | | | |
| | A-I | Y | Cobalt | 7440484 |
| 1.204E-03 2018 | | | | |
| | A-I | Y | Cr(VI) | 18540299 |
| 2.121E-02 2018 | | | | |
| | A-I | Y | D[a,h]anthracen | 53703 |
| 1.907E-05 2018 | | | | |
| | A-I | Y | Ethyl Acrylate | 140885 |
| 7.589E-03 2018 | | | | |
| | A-I | Y | Ethyl Benzene | 100414 |
| 0.151 2018 | | | | |
| | A-I | Y | EtO | 75218 |
| 5.699E-02 2018 | | | | |
| | A-I | Y | Fluoranthene | 206440 |
| 4.768E-05 2018 | | | | |
| | A-I | Y | Fluorene | 86737 |
| 4.451E-05 2018 | | | | |
| | A-I | Y | Formaldehyde | 50000 |
| 1.052 2018 | | | | |
| | A-I | Y | Hexane | 110543 |
| 0.100 2018 | | | | |
| | A-I | Y | In[1,2,3-cd]pyr | 193395 |
| 2.861E-05 2018 | | | | |
| | A-I | Y | Lead | 7439921 |
| 4.968E-03 2018 | | | | |
| | A-I | Y | Manganese | 7439965 |
| 23.817 2018 | | | | |
| | A-I | Y | MeDiPhDiisocyan | 101688 |
| 1.315E-05 2018 | | | | |
| | A-I | Y | Naphthalene | 91203 |
| 4.769E-03 2018 | | | | |
| | A-I | Y | Nickel | 7440020 |
| 0.422 2018 | | | | |
| | A-I | Y | PAHs-w/o | 1151 |
| 1.877E-04 2018 | | | | |
| | A-I | Y | p-DiClBenzene | 106467 |
| 1.907E-02 2018 | | | | |
| | A-I | Y | Phenanthrene | 85018 |
| 2.702E-04 2018 | | | | |
| | A-I | Y | Phosphorus | 7723140 |
| 5.218E-02 2018 | | | | |
| | A-I | Y | Pyrene | 129000 |
| 7.947E-05 2018 | | | | |
| | A-I | Y | Toluene | 108883 |
| 0.582 2018 | | | | |
| | A-I | Y | Xylenes | 1330207 |
| 0.432 2018 | | | | |
| | CRIT | | CO | 42101 |
| 0.278 2018 | | | | |

## APPENDIX C -
## AB2588 AIR TOXIC DOCUMENT CERTIFICATION AND APPLICATION FORM

| FORM A | SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT<br>AB 2588 Program, 21865 COPLEY DR., DIAMOND BAR CA 91765-0949 | INVENTORY YEAR<br>2018 |
|---|---|---|

# AB 2588 AIR TOXICS DOCUMENT CERTIFICATION & SUBMITTAL FORM

***Please check the appropriate boxes for purpose of submittal:***

- ☐ *INITIAL INFORMATION for ATIR*
- ☑ *AIR TOXICS INVENTORY REPORT (ATIR)*
- ☑ *HEALTH RISK ASSESSMENT (HRA)*
- ☑ *RISK REDUCTION PLAN (RRP)*
- ☐ *EARLY ACTION REDUCTION PLAN (EARP)*
- ☐ *VOLUNTARY RISK REDUCTION PLAN (VRRP)*
- ☐ *IMPLEMENTATION PROGRESS REPORT for VRRP/RRP*
- ☐ *OTHER:* _____
- ☑ *INITIAL*
- ☑ *REVISION*
- ☐ *FINAL*

***Does your facility participate or wish to participate in VRRP program pursuant to Rule 1402(h)?*** *YES* ☐ ☐

***Please provide the following information:***

**Facility name**: Pac Rancho, Inc.

**South Coast AQMD ID**: 140871

**Facility SIC/NAICS CODE**: 3365/331524

**Facility Location Address**: 11000 Jersey Boulevard, Rancho Cucamonga, CA 91730-5103

**Mailing Address**: 11000 Jersey Boulevard, Rancho Cucamonga, CA 91730-510.

**Contact Person (Company Official)**

**Name:** Marisol Gallegos **Title:** EHS

**Telephone:** 909.922.6431 **eMail:** Marisol.Gallegos@cppcorp.com

**Preparer (if different from above)**

**Name:** Aubree Bovat **Title:** Managing Consultant

**Company:** ALL4

**Telephone:** 909.477.7202 **eMail:** abovat@all4inc.com

**FAILURE TO SUBMIT REQUIRED INFORMATION OR KNOWINGLY SUPPLYING FALSE INFORMATION IS PUNISHABLE TO THE EXTENT DEFINED IN HEALTH AND SAFETY CODE SECTIONS 44381(a) AND 44381(b), WHICH INCLUDES MINIMUM FINES OF NOT LESS THAN FIVE HUNDRED DOLLARS.**

**Signature Of Responsible Company Official**: Marisol Gallegos

**Date**: 11.2.23

**Name Of Responsible Company Official**: Marisol Gallegos

**Title**: HR Manager

# APPENDIX D –
# UNSPECIATED PAH CALCULATION

## Derivation of Unspeciated PAH Factor

| Listed Substance | F, lbs/mmcf |
|---|---|
| Acenaphthene | 1.80E-06 |
| Acenaphthylene | 1.80E-06 |
| Anthracene | 2.40E-06 |
| Benzo (a) anthracene | 1.80E-06 |
| Benzo (a) pyrene | 1.20E-06 |
| Benzo (b) fluoranthene | 1.80E-06 |
| Benzo (g,h,i) perylene | 1.20E-06 |
| Benzo (k) fluoranthene | 1.80E-06 |
| Chrysene | 1.80E-06 |
| Dibenz (a,h) anthracene | 1.20E-06 |
| Dimethylbenz(a)anthracene, 7,12- | 1.60E-05 |
| Fluoranthene | 3.00E-06 |
| Fluorene | 2.80E-06 |
| Indeno(1,2,3-cd)pyrene | 1.80E-06 |
| Methylcholanthrene, 3- | 1.80E-06 |
| Methylnaphthalene,2- | 2.40E-05 |
| Phenanthrene | 1.70E-05 |
| Pyrene | 5.00E-06 |
| **Total** | **8.82E-05** |
| **SCAQMD aggregate PAH** | **1.00E-04** |
| **Unspeciated PAH** | **1.18E-05** |

Note: Unspeciated PAH is the difference between the SCAQMD PAH factor and the sum of the individual AP-42 factors.

# APPENDIX E -
# HARP2 ELECTRONIC FILES (ELECTRONIC SUBMISSION)