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Adopted June 15, 2005

2-5-100 GENERAL

2-5-101 Description: The purpose of this rule is to provide for the review of new and modified sources of toxic air contaminant (TAC) emissions in order to evaluate potential public exposure and health risk, to mitigate potentially significant health risks resulting from these exposures, and to provide net health risk benefits by improving the level of control when existing sources are modified or replaced. The rule applies to a new or modified source of toxic air contaminants that is required to have an authority to construct or permit to operate pursuant to Regulation 2, Rule 1. New and modified sources with Hazardous Air Pollutant emissions may also be subject to the Maximum Achievable Control Technology (MACT) requirement of Regulation 2, Rule 2, Section 317.

2-5-110 Exemption, Low Emission Levels: A source shall not be subject to the provisions of this rule if, for each toxic air contaminant, the increase in emissions from the project is below the trigger levels listed in Table 2-5-1. If a source is not located within a priority community and is not located within 500 feet of a K-12 School, the chronic trigger levels shall be doubled, as noted in Table 2-5-1.

2-5-111 Limited Exemption, Emergency Standby Engines: This rule shall not apply to toxic air contaminant emissions occurring from emergency use of emergency standby engines, as defined in Regulation 9, Rule 8, Section 231, or from emission testing of emergency standby engines required by the APCO.

2-5-112 Applicability and Circumvention: This rule applies to the following:

112.1 A new or modified source of toxic air contaminants for which an application is submitted on or after July 1, 2005; Sections 301.3, 301.4, 303, and 304 apply to new or modified source of toxic air contaminants for which an application is submitted on or after January 1, 2010;

112.2 A source of toxic air contaminants constructed or modified after January 1, 1987 for which no authority to construct or permit to operate has been issued by the District and for which the District Rules and Regulations and Risk Management Policy in effect at the time of construction or modification required an authority to construct or permit to operate.

2-5-113 Limited Exemption, Contemporaneous Risk Reduction: Section 2-5-303 shall not apply to projects mitigated by contemporaneous risk reduction as set forth in Section 2-5-304.

2-5-200 DEFINITIONS

2-5-201 Acute Hazard Index, or Acute HI: Acute hazard index is the sum of the individual acute hazard quotients for toxic air contaminants identified as affecting the same target organ or organ system.

2-5-202 Acute Hazard Quotient, or Acute HQ: Acute hazard quotient is the ratio of the estimated short-term average concentration of the toxic air contaminant to its acute reference exposure level (estimated for inhalation exposure).

2-5-203 Airborne Toxic Control Measure, or ATCM: A recommended method and, where appropriate, a range of methods, established by the California Air Resources Board (CARB) pursuant to the Tanner Act, California Health and Safety Code beginning at

Section 39650, that reduces, avoids, or eliminates the emissions of a toxic air contaminant.

2-5-204 **Air Toxics Hot Spots Program:** The Air Toxics "Hot Spots" Information and Assessment Act of 1987, California Health and Safety Code beginning at Section 44300.

2-5-205 **Best Available Control Technology for Toxics, or TBACT:** For any new or modified source of toxic air contaminants, except cargo carriers, the most stringent of the following emission controls, provided that under no circumstances shall the controls be less stringent than the emission control required by any applicable provision of federal, State or District laws, rules, regulations or requirements:

205.1 The most effective emission control device or technique which has been successfully utilized for the type of equipment comprising such a source; or

205.2 The most stringent emission limitation achieved by an emission control device or technique for the type of equipment comprising such a source; or

205.3 Any control device or technique or any emission limitation that the APCO has determined to be technologically feasible for the type of equipment comprising such a source, while taking into consideration the cost of achieving emission reductions, any non-air quality health and environmental impacts, and energy requirements; or

205.4 The most stringent emission control for a source type or category specified as MACT by U.S. EPA, or specified in an ATCM by CARB.

2-5-206 **Cancer Risk:** An estimate of the probability that an individual will develop cancer as a result of lifetime exposure to emitted carcinogens at a given receptor location.

2-5-207 **Carcinogen:** For the purpose of this rule, a carcinogen is any compound for which Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA) has established a cancer potency factor for use in the Air Toxics Hot Spots Program.

2-5-208 **Chronic Hazard Index, or Chronic HI:** Chronic hazard index is the sum of the individual chronic hazard quotients for toxic air contaminants identified as affecting the same target organ or organ system.

2-5-209 **Chronic Hazard Quotient, or Chronic HQ:** Chronic hazard quotient is the ratio of the estimated annual average exposure of the toxic air contaminant to its chronic reference exposure level (estimated for inhalation and non-inhalation exposures).

2-5-210 **Health Risk:** The potential for adverse human health effects resulting from exposure to emissions of toxic air contaminants and ranging from relatively mild temporary conditions, such as eye or throat irritation, shortness of breath, or headaches, to permanent and serious conditions, such as birth defects, cancer or damage to lungs, nerves, liver, heart, or other organs. Measures of health risk include cancer risk, chronic hazard index, and acute hazard index.

2-5-211 **Health Risk Screening Analysis, or HRSA:** An analysis that estimates the increased likelihood of health risk for individuals in the affected population that may be exposed to emissions of one or more toxic air contaminants, determined in accordance with Section 2-5-603.

2-5-212 **Maximally Exposed Individual, or MEI:** A person that may be located at the receptor location where the highest exposure to toxic air contaminants emitted from a given source or project is predicted, as shown by an APCO-approved HRSA. MEI locations are typically determined for the maximum cancer risk, chronic hazard index and acute hazard index based on exposure to residential, worker, and student receptors.

2-5-213 **Maximum Achievable Control Technology, or MACT:** An emission standard promulgated by U.S. EPA pursuant to Section 112(d) of the Clean Air Act.

2-5-214 **Modified Source of Toxic Air Contaminants:** An existing source that undergoes a physical change, change in method of operation, or increase in throughput or production that results or may result in any of the following:

214.1 An increase in the daily or annual emission level of any toxic air contaminant, or the production rate or capacity that is used to estimate toxic air contaminant emission levels, above emission or production levels approved by the District in any authority to construct.

214.2 An increase in the daily or annual emission level of any toxic air contaminant, or the production rate or capacity that is used to estimate toxic air contaminant emission levels, above levels contained in a permit condition in any current permit to operate or major facility review permit.

214.3 For a source that has never been issued a District authority to construct and that does not have conditions limiting daily or annual toxic air contaminant emissions, an increase in the daily or annual emission level of any toxic air contaminant, or the production rate or capacity that is used to estimate the emission level, above the lower of the authorized capacity as established pursuant to Section 2-5-214.3.1 or the functional capacity as established pursuant to 2-5-214.3.2:

3.1 The authorized capacity is the highest of the following:

3.1.1 The highest attainable design capacity, as shown in pre-construction design drawings, including process design drawings and vendor specifications.

3.1.2 The capacity listed in the District permit to operate.

3.1.3 The highest documented actual levels attained by the source prior to July 1, 2005.

3.2 The functional capacity is the capacity of the source as limited by the capacity of any upstream or downstream process that acts as a bottleneck (a grandfathered source with an emission increase due to debottlenecking is considered to be modified).

For the purposes of applying Section 2-5-214.3, only increases in annual emission levels shall be considered for storage vessels.

214.4 The emission of any toxic air contaminant not previously emitted in a quantity that would result in a cancer risk greater than 1.0 in a million (10^{-6}) or a chronic hazard index greater than 0.20.

For the purposes of applying this definition, a daily capacity may be converted to an annual capacity or limit by multiplication by 365 days/year.

2-5-215 New Source of Toxic Air Contaminants: A source of toxic air contaminant emissions, except a source that loses a permit exemption or exclusion in accordance with Regulations 2-1-424 or 2-1-425, that is one or more of the following:

215.1 A source constructed or proposed to be constructed that never had a valid District authority to construct or permit to operate.

215.2 A source that has not been in operation for a period of one year or more and that has not held a valid District permit to operate during this period of non-operation.

215.3 A relocation of an existing source, except for a portable source, to a non-contiguous property.

215.4 A replacement of a source, including an identical replacement of a source, regardless when the original source was constructed.

215.5 A replacement of an identifiable source within a group of sources permitted together under a single source number for the purpose of District permitting convenience.

215.6 A "rebricking" of a glass furnace where changes to the furnace design result in a change in heat generation or absorption.

2-5-216 Project: Any source, or group of sources, at a facility that: (a) is part of a proposed construction or modification, (b) is subject to the requirements of Regulation 2-1-301 or 302, and (c) emits one or more toxic air contaminants. All new or modified sources of TACs included in a single permit application will be considered as a project. In addition, in order to discourage circumvention that might be achieved by breaking a project into smaller pieces and submitting more than one permit application over a period of time, a project shall include those new or modified sources of TACs at a facility that have been permitted within the two-year period immediately preceding the date a complete application is received, unless the applicant demonstrates to the satisfaction of the APCO that construction or modification of the sources included in the current application was neither (1) a reasonably foreseeable consequence of the previous project, nor (2) a critical element or integral part of the previous project. For modified sources, any

consecutive modifications of a source (e.g., increasing a source's permitted throughput), occurring after January 1, 1987, shall be considered together as a project. Any contemporaneous risk reduction proposed for a modified source shall be considered as part of a project as set forth in Section 2-5-601.4.

2-5-217 **Project Risk:** The health risk resulting from the increase in emissions of toxic air contaminants from a given project, as indicated by an HRSA for the MEI.

2-5-218 **Receptor Location:** A location where an individual may live (residential receptor) or work (worker receptor) or otherwise reasonably be expected to be exposed to toxic air contaminants for the particular chronic or acute exposures being evaluated in an HRSA. Locations include (a) locations outside of the property boundary of the facility being evaluated and (b) locations inside the property boundary where a person may reside (e.g., at military base housing, prisons, or universities). The APCO shall consider the potential for public exposure in determining appropriate receptor locations.

2-5-220 **Residential Receptor:** Any receptor location where an individual may reside for a period of six months or more out of a year.

2-5-221 **Source Risk:** The health risk resulting from: (a) the emissions of all toxic air contaminants from a new source of toxic air contaminants, or (b) the increase in emissions of all toxic air contaminants from a modified source of toxic air contaminants, as indicated by an HRSA for the MEI.

2-5-224 **Worker Receptor:** Any receptor location that is an occupational setting or place where an individual may work and that is located outside of the boundary of the facility being evaluated.

2-5-225 **K-12 School**: Any public or private school used for purposes of the education of more than 12 children at the school in kindergarten or any of grades 1 to 12, inclusive, but does not include any private school in which education is primarily conducted in private homes. The term may include any building or structure, playground, athletic field, or other area of school property, but does not typically include unimproved school property.

2-5-226 **Student Receptor:** Any receptor location of a child that attends a K-12 school, primarily for educational purposes.

2-5-227 **Priority Community:** An area, designated by the APCO, where levels of toxic air contaminants are higher than other areas and where people may be particularly vulnerable and bear disproportionately higher adverse health effects.

2-5-228 **Contemporaneous Risk Reduction:** Implementation of one or more risk reduction measures that would result in a reduction in cancer risk and/or chronic noncancer risk from existing on-site operations and that would be used to mitigate an increase in risk from new sources or modification of existing sources. The reduction of risk must occur at the same time or before the operation of the new or modified sources within the project that would otherwise increase project risk. Contemporaneous risk reduction shall be calculated based on the procedures in Sections 2-5-601, 602, 603, and 604.

2-5-229 **Contemporaneous Risk Reduction Measures:** Equipment and operational changes that would result in a reduction in annual average emissions of toxic air contaminants (e.g., replacement of an older diesel engine with a newer engine with lower toxic emissions; installation of a new abatement device on existing source) and/or other actions that would reduce risk (e.g., relocation of a source within the facility; improvement of dispersion). Risk reduction measures shall be on-site, permanent, real, quantifiable and enforceable through District permit conditions.

2-5-230 **Net Risk:** The increase or decrease in health risk resulting from the increase in emissions of toxic air contaminants from a given project and contemporaneous risk reduction, as indicated by an HRSA, for the Maximally Exposed Individuals (includes net cancer risk and net chronic noncancer risk).

2-5-300 STANDARDS

2-5-301 Best Available Control Technology for Toxics (TBACT) Requirement: The applicant shall apply TBACT to any new or modified source of TACs where the source risk exceeds any of the following risk thresholds: ~~is a cancer risk greater than 1.0 in one million (10^{-6}), and/or a chronic hazard index greater than 0.20.~~

301.1 a cancer risk of 1.0 in one million (10^{-6});

301.2 a chronic hazard index of 0.20;

301.3 if the source is located in a priority community, a cancer risk of 0.50 in one million ($5.0x10^{-7}$) or a chronic hazard index of 0.10;

301.4 if the source is located within 500 feet of any K-12 school, a cancer risk of 0.50 in one million ($5.0x10^{-7}$) or a chronic hazard index of 0.10 for a student receptor.

2-5-302 Project Risk Requirement: The APCO shall deny an Authority to Construct or Permit to Operate for any new or modified source of TACs if the project risk exceeds any of the following project risk limits:

302.1 a cancer risk of 10.0 in one million (10^{-5});

302.2 a chronic hazard index of 1.0;

302.3 an acute hazard index of 1.0;

2-5-303 Project Risk for Sources that Impact Students and Priority Communities: The APCO shall deny an Authority to Construct or Permit to Operate for any new or modified source of TACs that is located in a priority community or within 500 feet of any K-12 school if the project risk exceeds any of the following limits for any receptor in the priority community or for any student receptor:

303.1 a cancer risk of 5.0 in one million ($5.0x10^{-6}$);

303.2 a chronic hazard index of 0.50;

303.3 an acute hazard index of 1.0.

2-5-304 Mitigated Project Risk for Sources that Impact Students and Priority Communities: The APCO shall deny an Authority to Construct or Permit to Operate for any new or modified source of TACs that is located in a priority community or within 500 feet of any K-12 school if the project risk exceeds any of the following limits for any receptor in the priority community or for any student receptor:

304.1 a cancer risk of 10.0 in one million (10×10^{-6}), providing that:

a. project risk is mitigated by contemporaneous risk reduction;

b. the proposed reduction in toxicity weighted carcinogenic emissions for existing operations is greater than 120% of the increase in the toxicity weighted carcinogenic emissions for new and modified sources in the project; and

c. net cancer risk does not exceed 0.5 in one million (5×10^{-7});

304.2 a chronic hazard index of 1.0, providing that:

a. project risk is mitigated by contemporaneous risk reduction;

b. the proposed reduction in toxicity weighted noncarcinogenic emissions for existing operations is greater than 120% of the increase in the toxicity weighted noncarcinogenic emissions for new and modified sources in the project; and

c. the net noncancer risk does not exceed a chronic hazard index of 0.10;

304.3 an acute hazard index of 1.0.

2-5-400 ADMINISTRATIVE REQUIREMENTS

2-5-401 **Health Risk Screening Analysis Requirement:** An application for an Authority to Construct or Permit to Operate for any project subject to this rule shall contain an HRSA conducted in accordance with Section 2-5-603 or the information necessary for the APCO to conduct an HRSA. The APCO shall prepare an HRSA where the applicant submits none. The APCO shall notify the applicant if the results of an HRSA completed by the APCO indicate that the project, as proposed, would not meet the requirements of this rule. The applicant shall be given the opportunity to perform a more refined HRSA, modify the project, or submit any required plans or information, as necessary to comply with the requirements of this rule.

2-5-402 **Health Risk Screening Analysis Guidelines:** The APCO shall publish Health Risk Screening Analysis Guidelines that specify the procedures to be followed for estimating health risks including acute hazard index, chronic hazard index, and cancer risk. These guidelines will generally conform to the Health Risk Assessment Guidelines adopted by Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA) for use in the Air Toxics Hot Spots Program. The Health Risk Screening Analysis Guidelines and Table 2-5-1 will be periodically updated, typically within one year of any significant revision to OEHHA's Health Risk Assessment Guidelines, including any new or revised health effects value (OEHHA HRA Guidelines effective on January 1, 2009 are included).

2-5-403 **BACT/TBACT Workbook:** The APCO shall publish and periodically update a BACT/TBACT Workbook specifying the requirements for commonly permitted sources. TBACT will be determined for a source by using the workbook as a guidance document or, on a case-by-case basis, using the most stringent definition of Section 2-5-205.

2-5-404 **Designation of Priority Communities:** The APCO shall publish and periodically update a list of the areas that have been designated as priority communities along with the selection criteria and analyses used in designating these communities.

2-5-405 **Cumulative Impact Summary for Priority Communities:** The APCO shall publish and periodically update a cumulative impact summary report that includes a list of the projects that were permitted after January 1, 2010 and located in a priority community, and a summary of the cumulative risk from these projects in each priority community.

2-5-500 MONITORING AND RECORDS

2-5-501 **Monitoring Requirements:** The APCO may impose any reasonable monitoring or record keeping requirements deemed necessary to ensure compliance with this rule.

2-5-600 MANUAL OF PROCEDURES

2-5-601 **Emission Calculation Procedures:** The APCO shall determine annual TAC emissions (expressed as pounds per year), to be used for comparison with chronic trigger levels and in estimating cancer risk and chronic hazard index, and one-hour TAC emissions (expressed as pounds per hour), to be used for comparison with acute trigger levels and in estimating acute hazard index as follows:

601.1 Emission calculations shall include emissions resulting from routine operation of a source or emissions that are reasonably predictable, including, but not limited to continuous and intermittent releases and predictable process upsets or leaks, subject to enforceable limiting conditions.

601.2 Emission calculations for a new source shall be based on the maximum emitting potential of the new source or the maximum permitted emission level of the new source, approved by the APCO, subject to enforceable limiting conditions.

601.3 Emission calculations for a modified source shall be based on:

3.1 For one-hour emissions, the maximum emitting potential of the modified source or the maximum permitted emission level of the modified source, approved by the APCO, subject to enforceable limiting conditions.

3.2 For annual emissions, by subtracting the adjusted baseline emission rate, as calculated using the methodology in Section 2-5-602, from the new

maximum permitted emission level of the modified source, approved by the APCO, subject to enforceable limiting conditions.

601.4 Emission calculations for a project shall be performed by summing the emission increases from all new and modified sources of TACs that are considered part of the project pursuant to Section 2-5-216. For a modified source within the project, the APCO may consider contemporaneous reductions of other emissions from the modified source when estimating the project risk (e.g., a modified source may have a decrease in benzene emissions that would mitigate an increase in toluene emissions). Contemporaneous risk reduction may also be considered in determining eligibility for the limited exemption set forth in Section 2-5-113.

2-5-602 Baseline Emission Calculation Procedures: The following methodology shall be used to calculate baseline emissions for modified sources of TACs and for sources at which contemporaneous risk reduction is proposed.

602.1 For a source that has, contained in a permit condition, an emission cap or emission rate limit, the baseline throughput and baseline emission rate (expressed in the units of mass of emissions per unit of throughput) shall be based on the levels allowed by the permit condition.

602.2 For sources without an emission cap or emission rate limit, baseline throughput and emission rate shall be determined as follows:

2.1 The baseline period consists of the 3-year period immediately preceding the date that the application is complete (or shorter period if the source is less than 3 years old or longer period if the applicant demonstrates to the District's satisfaction that a longer period is appropriate when considering such factors as operational problems and economic conditions). The applicant must have sufficient verifiable records of the source's operation or credible engineering analyses that substantiate to the District's satisfaction the emission rate and throughput during the entire baseline period.

2.2 Baseline throughput is either the:

2.2.1 Actual average throughput during the baseline period, if throughput is not limited by permit condition; or

2.2.2 Maximum throughput as allowed by permit conditions on the date the application is complete.

2.3 Baseline emission rate (expressed in the units of mass of emissions per unit of throughput) is the average actual emission rate during the baseline period. Periods where the actual emission rate exceeded regulatory or permitted limits shall be excluded from the average.

602.3 The adjusted baseline emission rate shall be determined by adjusting the baseline emission rate downward, if necessary, to comply with the most stringent emission rate or emission limit from a MACT, ATCM, or District rule or regulation that is applicable to the type of source being evaluated and that is in effect, has been adopted by U.S. EPA, CARB, or the District, or is contained in the most recently adopted Clean Air Plan for the District.

602.4 The adjusted baseline emissions shall be the adjusted baseline emission rate multiplied by the baseline throughput.

2-5-603 Health Risk Screening Analysis Procedures: Each HRSA shall be prepared following the District's Health Risk Screening Analysis Guidelines.

2-5-604 Calculation Procedures for Toxicity Weighted Emissions: In order to determine applicability for Section 2-5-304, calculation of contemporaneous emission reductions and emission increases for new and modified sources in the project shall be done on a toxicity weighted basis. The annual-average emission rate of each carcinogen shall be multiplied by its CP Weighting Factor; the products shall be summed to calculate the total weighted carcinogenic emission rate. The annual-average emission rate of each noncarcinogen shall be divided by its CREL Weighting Factor; the quotients shall be summed to calculate the total weighted noncarcinogenic emission rate. (CP and CREL Weighting Factors are listed in Table 2-5-1.)

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
Acetaldehyde	75-07-0	4.7E+02	1.4E+02 ~~9.0E+00~~		1.4E+02	1.0E-02		1.0E-02	1.0E+00	3.2E+01 ~~6.4E+01~~
Acetamide	60-35-5					7.0E-02		7.0E-02		4.6E+00 ~~9.1E+00~~
Acrolein	107-02-8	2.5E+00 ~~1.9E-01~~	3.5E-01 ~~6.0E-02~~		3.5E-01				5.5E-03 ~~4.2E-04~~	6.8E+00 ~~2.3E+00~~
Acrylamide	79-06-1		~~7.0E-01~~			4.5E+00		4.5E+00		7.1E-02 ~~1.4E-01~~
Acrylic acid	79-10-7	6.0E+03	~~1.0E+00~~						1.3E+01	~~3.9E+01~~
Acrylonitrile	107-13-1		5.0E+00		5.0E+00	1.0E+00		1.0E+00		3.2E-01 ~~6.4E-01~~
Allyl chloride	107-05-1		~~1.0E+00~~			2.1E-02		2.1E-02		1.5E+01 ~~3.0E+01~~
Aminoanthraquinone, 2-	117-79-3					3.3E-02		3.3E-02		9.7E+00 ~~1.9E+01~~
Ammonia	7664-41-7	3.2E+03	2.0E+02		2.0E+02				7.1E+00	3.9E+03 ~~7.7E+03~~
Aniline	62-53-3		~~1.0E+00~~			5.7E-03		5.7E-03		5.6E+01 ~~3.9E+01~~
~~Antimony compounds~~	~~7440-36-0~~		~~2.0E-01~~							~~7.7E+00~~
~~antimony trioxide~~	~~1309-64-4~~		~~2.0E-01~~							~~7.7E+00~~
Arsenic and compounds (inorganic) [3, 4]	7440-38-2	2.0E-01 ~~1.9E-01~~	1.5E-02 ~~3.0E-02~~	3.5E-06 ~~3.0E-04~~	4.0E-4	1.2E+01	1.5E+00	5.4E+01	4.4E-04 ~~4.2E-04~~	6.1E-03 ~~1.2E-02~~
Arsine	7784-42-1	2.0E-01 ~~1.6E+02~~	1.5E-02 ~~5.0E-02~~		4.0E-4				4.4E-04 ~~3.5E-01~~	2.9E-01 ~~1.9E+00~~
Asbestos [5]	1332-21-4					2.2E+02		2.2E+02		1.4E-03 ~~2.9E-03~~
Benzene [3]	71-43-2	1.3E+03	6.0E+01		6.0E+01	1.0E-01		1.0E-01	2.9E+00	3.2E+00 ~~6.4E+00~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
Benzidine (and its salts)	92-87-5		~~1.0E+01~~			5.0E+02		5.0E+02		6.4E-04 ~~1.3E-03~~
benzidine based dyes			~~1.0E+01~~			5.0E+02		5.0E+02		6.4E-04 ~~1.3E-03~~
direct black 38	1937-37-7		~~1.0E+01~~			5.0E+02		5.0E+02		6.4E-04 ~~1.3E-03~~
direct blue 6	2602-46-2		~~1.0E+01~~			5.0E+02		5.0E+02		6.4E-04 ~~1.3E-03~~
direct brown 95 (technical grade)	16071-86-6		~~1.0E+01~~			5.0E+02		5.0E+02		6.4E-04 ~~1.3E-03~~
Benzyl chloride	100-44-7	2.4E+02	~~1.2E+01~~			1.7E-01		1.7E-01	5.3E-01	1.9E+00 ~~3.8E+00~~
Beryllium and compounds [4]	7440-41-7		7.0E-03	2.0E-03	7.0E-03	8.4E+00		8.4E+00		4.0E-02 ~~8.0E-02~~
Bis (2-chloroethyl) ether (Dichloroethyl ether)	111-44-4					2.5E+00		2.5E+00		1.3E-01 ~~2.6E-01~~
Bis (chloromethyl) ether	542-88-1					4.6E+01		4.6E+01		7.0E-03 ~~1.4E-02~~
~~Bromine and compounds~~	~~7726-95-6~~		~~1.7E+00~~							~~6.6E+01~~
~~Bromine pentafluoride~~	~~7789-30-2~~		~~1.7E+00~~							~~6.6E+01~~
~~hydrogen bromide~~	~~10035-10-6~~		~~2.4E+01~~							~~9.3E+02~~
Potassium bromate (See page 2-5-21)	~~7758-01-2~~		~~1.7E+00~~			~~4.9E-01~~				~~1.3E+00~~
Butadiene, 1,3-	106-99-0		2.0E+01		2.0E+01	6.0E-01		6.0E-01		5.3E-01 ~~1.1E+00~~
Cadmium and compounds [4]	7440-43-9		2.0E-02	5.0E-04	1.8E-02	1.5E+01		1.5E+01		2.2E-02 ~~4.5E-02~~
Carbon disulfide [3]	75-15-0	6.2E+03	8.0E+02		8.0E+02				1.4E+01	1.5E+04 ~~3.1E+04~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
Carbon tetrachloride [3] (Tetrachloromethane)	56-23-5	1.9E+03	4.0E+01		4.0E+01	1.5E-01		1.5E-01	4.2E+00	2.1E+00 ~~4.3E+00~~
Chlorinated paraffins	108171-26-2					8.9E-02		8.9E-02		3.6E+00 ~~7.2E+00~~
Chlorine	7782-50-5	2.1E+02	2.0E-01		2.0E-01				4.6E-01	3.9E+00 ~~7.7E+00~~
Chlorine dioxide	10049-04-4		6.0E-01		6.0E-01					1.2E+01 ~~2.3E+01~~
Chloro-o-phenylenediamine, 4-	95-83-0					1.6E-02		1.6E-02		2.0E+01 ~~4.0E+01~~
~~Chloroacetophenone, 2-~~	~~532-27-4~~		~~3.0E-02~~							~~1.2E+00~~
Chlorobenzene	108-90-7		1.0E+03		1.0E+03					1.9E+04 ~~3.9E+04~~
~~Chlorodifluoromethane (Freon 22) [see Fluorocarbons]~~										
~~Chlorofluorocarbons [see Fluorocarbons]~~										
Chloroform [3]	67-66-3	1.5E+02	3.0E+02		3.0E+02	1.9E-02		1.9E-02	3.3E-01	1.7E+01 ~~3.4E+01~~
~~Chlorophenol, 2-~~	~~95-57-8~~		~~1.8E+01~~							~~7.0E+02~~
Chloropicrin	76-06-2	2.9E+01	4.0E-01		4.0E-01				6.4E-02	7.7E+00 ~~1.5E+01~~
~~Chloroprene~~	~~126-99-8~~		~~1.0E+00~~							~~3.9E+01~~
Chloro-o-toluidine, p-	95-69-2					2.7E-01		2.7E-01		1.2E+00 ~~2.4E+00~~
Chromium, (hexavalent, 6+) [4]	18540-29-9		2.0E-01	2.0E-02	2.0E-01	5.1E+02		5.1E+02		6.5E-04 ~~1.3E-03~~
barium chromate [4]	10294-40-3		2.0E-01	2.0E-02	2.0E-01	5.1E+02		5.1E+02		6.5E-04 ~~1.3E-03~~
calcium chromate [4]	13765-19-0		2.0E-01	2.0E-02	2.0E-01	5.1E+02		5.1E+02		6.5E-04 ~~1.3E-03~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
lead chromate [4]	7758-97-6		2.0E-01	2.0E-02	2.0E-01	5.1E+02		5.1E+02		6.5E-04 ~~1.3E-03~~
sodium dichromate [4]	10588-01-9		2.0E-01	2.0E-02	2.0E-01	5.1E+02		5.1E+02		6.5E-04 ~~1.3E-03~~
strontium chromate [4]	7789-06-2		2.0E-01	2.0E-02	2.0E-01	5.1E+02		5.1E+02		6.5E-04 ~~1.3E-03~~
Chromium trioxide (as chromic acid mist) [4]	1333-82-0		2.0E-03	2.0E-02	2.0E-03	5.1E+02		5.1E+02		6.5E-04 ~~1.3E-03~~
Copper and compounds	7440-50-8	1.0E+02	~~2.4E+00~~						2.2E-01	~~9.3E+01~~
Cresidine, p-	120-71-8					1.5E-01		1.5E-01		2.1E+00 ~~4.3E+00~~
Cresols (m-, o-, p-)	1319-77-3		6.0E+02		6.0E+02					1.2E+04 ~~2.3E+04~~
Cupferron	135-20-6					2.2E-01		2.2E-01		1.5E+00 ~~2.9E+00~~
Cyanide and compounds (inorganic)	57-12-5	3.4E+02	9.0E+00		9.0E+00				7.5E-01	1.7E+02 ~~3.5E+02~~
hydrogen cyanide (hydrocyanic acid)	74-90-8	3.4E+02	9.0E+00		9.0E+00				7.5E-01	1.7E+02 ~~3.5E+02~~
Diaminoanisole, 2,4-	615-05-4					2.3E-02		2.3E-02		1.4E+01 ~~2.8E+01~~
Diaminotoluene, 2,4-	95-80-7					4.0E+00		4.0E+00		8.0E-02 ~~1.6E-01~~
Dibromo-3-chloropropane, 1,2- (DBCP)	96-12-8		~~2.0E-01~~			7.0E+00		7.0E+00		4.6E-02 ~~9.1E-02~~
Dichlorobenzene, 1,4-	106-46-7		8.0E+02		8.0E+02	4.0E-02		4.0E-02		8.0E+00 ~~1.6E+01~~
Dichlorobenzidine, 3,3-	91-94-1					1.2E+00		1.2E+00		2.7E-01 ~~5.3E-01~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
Dichloroethane, 1,1- (Ethylidene dichloride)	75-34-3					5.7E-03		5.7E-03		5.6E+01 ~~1.1E+02~~
Dichloroethylene, 1,1- [see vinylidene chloride]										
Diesel exhaust particulate matter [6]			5.0E+00		5.0E+00	1.1E+00		1.1E+00		2.9E-01 ~~5.8E-01~~
Diethanolamine	111-42-2		3.0E+00		3.0E+00					5.8E+01 ~~1.2E+02~~
Di(2-ethylhexyl)phthalate (DEHP) [4]	117-81-7		~~7.0E+01~~			8.4E-03	8.4E-03	9.3E-03		3.5E+01 ~~6.9E+01~~
Dimethylaminoazobenzene, p-	60-11-7					4.6E+00		4.6E+00		7.0E-02 ~~1.4E-01~~
Dimethyl formamide, N,N-	68-12-2		8.0E+01		8.0E+01					1.5E+03 ~~3.1E+03~~
Dinitrotoluene, 2,4-	121-14-2					3.1E-01		3.1E-01		1.0E+00 ~~2.1E+00~~
Dioxane, 1,4- (1,4-diethylene dioxide)	123-91-1	3.0E+03	3.0E+03		3.0E+03	2.7E-02		2.7E-02	6.6E+00	1.2E+01 ~~2.4E+01~~
Epichlorohydrin (1-chloro-2,3-epoxypropane)	106-89-8	1.3E+03	3.0E+00		3.0E+00	8.0E-02		8.0E-02	2.9E+00	4.0E+00 ~~8.0E+00~~
Epoxybutane, 1,2-	106-88-7		2.0E+01		2.0E+01					3.9E+02 ~~7.7E+02~~
~~Ethyl acrylate~~	~~140-88-5~~		~~4.8E+01~~							~~1.9E+03~~
Ethyl benzene	100-41-4		2.0E+03		2.0E+03	8.7E-03		8.7E-03		3.7E+01 ~~7.7E+04~~
Ethyl chloride (chloroethane)	75-00-3		3.0E+04		3.0E+04					5.8E+05 ~~1.2E+06~~
Ethylene dibromide (1,2-dibromoethane)	106-93-4		8.0E-01		8.0E-01	2.5E-01		2.5E-01		1.3E+00 ~~2.6E+00~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
Ethylene dichloride (1,2-dichloroethane)	107-06-2		4.0E+02		4.0E+02	7.2E-02		7.2E-02		4.4E+00 ~~8.9E+00~~
Ethylene glycol	107-21-1		4.0E+02		4.0E+02					7.7E+03 ~~1.5E+04~~
Ethylene glycol butyl ether – EGBE [see Glycol ethers]										
Ethylene oxide (1,2-epoxyethane)	75-21-8		3.0E+01		3.0E+01	3.1E-01		3.1E-01		1.0E+00 ~~2.1E+00~~
Ethylene thiourea	96-45-7					4.5E-02		4.5E-02		7.1E+00 ~~1.4E+01~~
Fluorides ~~and compounds~~		2.4E+02	1.3E+01	4.0E-02	1.3E+01				5.3E-01	2.5E+02 ~~5.0E+02~~
hydrogen fluoride (hydrofluoric acid)	7664-39-3	2.4E+02	1.4E+01	4.0E-02	1.4E+01				5.3E-01	2.7E+02 ~~5.4E+02~~
~~Fluorocarbons (chlorinated)~~			~~7.0E+02~~							~~2.7E+04~~
~~chlorinated fluorocarbon (CFC-113)~~	~~76-13-1~~		~~7.0E+02~~							~~2.7E+04~~
~~chlorodifluoromethane (Freon 22)~~	~~75-45-6~~		~~5.0E+04~~							~~1.9E+06~~
~~dichlorofluoromethane (Freon 21)~~	~~75-43-4~~		~~7.0E+02~~							~~2.7E+04~~
~~trichlorofluoromethane (Freon 11)~~	~~75-69-4~~		~~7.0E+02~~							~~2.7E+04~~
~~fluorocarbons (brominated)~~			~~7.0E+02~~							~~2.7E+04~~
Formaldehyde	50-00-0	5.5E+01 ~~9.4E+01~~	9.0E+00 ~~3.0E+00~~		9.0E+00	2.1E-02		2.1E-02	1.2E-01 ~~2.1E-01~~	1.5E+01 ~~3.0E+01~~
~~Freons [see Fluorocarbons]~~										
Glutaraldehyde	111-30-8		8.0E-02		8.0E-02					1.5E+00 ~~3.1E+00~~
Glycol ethers										
ethylene glycol butyl ether – EGBE (2-butoxy ethanol; butyl cellosolve)	111-76-2	1.4E+04	~~2.0E+01~~						3.1E+01	~~7.7E+02~~
ethylene glycol ethyl ether – EGEE (2-ethoxy ethanol; cellosolve) [3]	110-80-5	3.7E+02	7.0E+01		7.0E+01				8.2E-01	1.4E+03 ~~2.7E+03~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
ethylene glycol ethyl ether acetate – EGEEA (2-ethoxyethyl acetate; cellosolve acetate) [3]	111-15-9	1.4E+02	3.0E+02		3.0E+02				3.1E-01	5.8E+03 ~~1.2E+04~~
ethylene glycol methyl ether – EGME (2-methoxy ethanol; methyl cellosolve) [3]	109-86-4	9.3E+01	6.0E+01		6.0E+01				2.1E-01	1.2E+03 ~~2.3E+03~~
ethylene glycol methyl ether acetate – EGMEA (2-methoxyethyl acetate; methyl cellosolve acetate)	110-49-6		9.0E+01		9.0E+01					1.7E+03 ~~3.5E+03~~
Hexachlorobenzene	118-74-1		~~2.8E+00~~			1.8E+00		1.8E+00		1.8E-01 ~~3.6E-01~~
Hexachlorocyclohexanes (mixed or technical grade) [4]	608-73-1		~~1.0E+00~~	~~3.0E-04~~		4.0E+00	4.0E+00	5.7E+00		5.8E-02 ~~1.2E-01~~
Hexachlorocyclohexane, alpha- [4]	319-84-6		~~1.0E+00~~	~~3.0E-04~~		4.0E+00	4.0E+00	5.7E+00		5.8E-02 ~~1.2E-01~~
Hexachlorocyclohexane, beta- [4]	319-85-7		~~1.0E+00~~	~~3.0E-04~~		4.0E+00	4.0E+00	5.7E+00		5.8E-02 ~~1.2E-01~~
Hexachlorocyclohexane, gamma- (lindane) [4]	58-89-9		~~1.0E+00~~	~~3.0E-04~~		1.1E+00	1.1E+00	1.6E+00		2.1E-01 ~~4.2E-01~~
~~Hexachlorocyclopentadiene~~	~~77-47-4~~		~~2.4E-01~~							~~9.3E+00~~
Hexane, n-	110-54-3		7.0E+03		7.0E+03					1.4E+05 ~~2.7E+05~~
Hydrazine	302-01-2		2.0E-01		2.0E-01	1.7E+01		1.7E+01		1.9E-02 ~~3.8E-02~~
Hydrochloric acid (hydrogen chloride)	7647-01-0	2.1E+03	9.0E+00		9.0E+00				4.6E+00	1.7E+02 ~~3.5E+02~~
~~Hydrogen bromide [see bromine & compounds]~~										
Hydrogen cyanide (hydrocyanic acid) [see cyanide & compounds]										
Hydrogen fluoride (hydrofluoric acid) [see fluorides & compounds]										
Hydrogen selenide [see selenium compounds]										

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
Hydrogen sulfide	7783-06-4	4.2E+01	1.0E+01		1.0E+01				9.3E-02	1.9E+02 ~~3.9E+02~~
Isophorone	78-59-1		2.0E+03		2.0E+03					3.9E+04 ~~7.7E+04~~
Isopropyl alcohol (isopropanol)	67-63-0	3.2E+03	7.0E+03		7.0E+03				7.1E+00	1.4E+05 ~~2.7E+05~~
Lead and compounds (inorganic) [4]	7439-92-1					4.2E-02	8.5E-03	1.2E-01		2.7E+00 ~~5.4E+00~~
lead acetate [4]	301-04-2					4.2E-02	8.5E-03	1.2E-01		2.7E+00 ~~5.4E+00~~
lead phosphate [4]	7446-27-7					4.2E-02	8.5E-03	1.2E-01		2.7E+00 ~~5.4E+00~~
lead subacetate [4]	1335-32-6					4.2E-02	8.5E-03	1.2E-01		2.7E+00 ~~5.4E+00~~
Lindane [see hexachlorocyclohexane, gamma]										
Maleic anhydride	108-31-6		7.0E-01		7.0E-01					1.4E+01 ~~2.7E+01~~
Manganese and compounds	7439-96-5		9.0E-02 ~~2.0E-01~~		9.0E-02					1.7E+00 ~~7.7E+00~~
Mercury and compounds (inorganic) [4]	7439-97-6	6.0E-01 ~~1.8E+00~~	3.0E-02 ~~9.0E-02~~	1.6E-04 ~~3.0E-04~~	7.1E-03				1.3E-03 ~~4.0E-03~~	1.4E-01 ~~5.6E-01~~
mercuric chloride [4]	7487-94-7	6.0E-01 ~~1.8E+00~~	3.0E-02 ~~9.0E-02~~	1.6E-04 ~~3.0E-04~~	7.1E-03				1.3E-03 ~~4.0E-03~~	1.4E-01 ~~5.6E-01~~
~~Mercury and compounds (organic)~~										
~~methyl mercury~~	~~593-74-8~~		~~1.0E+00~~							~~3.9E+01~~
Methanol (methyl alcohol)	67-56-1	2.8E+04	4.0E+03		4.0E+03				6.2E+01	7.7E+04 ~~1.5E+05~~
Methyl bromide (bromomethane)	74-83-9	3.9E+03	5.0E+00		5.0E+00				8.6E+00	9.7E+01 ~~1.9E+02~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
Methyl chloroform (1,1,1-trichloroethane)	71-55-6	6.8E+04	1.0E+03		1.0E+03				1.5E+02	1.9E+04 ~~3.9E+04~~
Methyl ethyl ketone (MEK) (2-butanone)	78-93-3	1.3E+04	~~1.0E+03~~						2.9E+01	~~3.9E+04~~
Methyl isocyanate	624-83-9		1.0E+00		1.0E+00					1.9E+01 ~~3.9E+01~~
~~Methyl mercury [see mercury & compounds]~~										
~~Methyl methacrylate~~	~~80-62-6~~		~~9.8E+02~~							1.8E+02 ~~3.8E+04~~
Methyl tertiary-butyl ether (MTBE)	1634-04-4		8.0E+03		8.0E+03	1.8E-03		1.8E-03		1.8E+02 ~~3.6E+02~~
Methylene bis (2-chloroaniline), 4,4'- (MOCA)	101-14-4					1.5E+00		1.5E+00		2.1E-01 ~~4.3E-01~~
Methylene chloride (dichloromethane)	75-09-2	1.4E+04	4.0E+02		4.0E+02	3.5E-03		3.5E-03	3.1E+01	9.1E+01 ~~1.8E+02~~
Methylene dianiline, 4,4'- (and its dichloride) [4]	101-77-9		2.0E+01		2.0E+01	1.6E+00	1.6E+00	1.6E+00		2.0E-01 ~~4.1E-01~~
Methylene diphenyl isocyanate	101-68-8		7.0E-01		7.0E-01					1.4E+01 ~~2.7E+01~~
Michler's ketone (4,4'-bis(dimethylamino)benzophenone)	90-94-8					8.6E-01		8.6E-01		3.7E-01 ~~7.4E-01~~
~~Mineral fibers (<1% FREE SILICA)~~			~~2.4E+01~~							~~9.3E+02~~
~~ceramic fibers (man-made)~~			~~2.4E+01~~							~~9.3E+02~~
~~glasswool (man-made fibers)~~			~~2.4E+01~~							~~9.3E+02~~
~~mineral fibers (fine: man-made)~~			~~2.4E+01~~							~~9.3E+02~~
~~rockwool (man-made fibers)~~			~~2.4E+01~~							~~9.3E+02~~
~~slagwool (man-made fibers)~~			~~2.4E+01~~							~~9.3E+02~~
Naphthalene [see polycylcic aromatic hydrocarbons]										
Nickel and compounds [4] *(values also apply to:)*	7440-02-0	6.0E+00	5.0E-02	5.0E-02	5.0E-02	9.1E-01		9.1E-01	1.3E-02	3.7E-01 ~~7.3E-01~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
nickel acetate [4]	373-02-4	6.0E+00	5.0E-02	5.0E-02	5.0E-02	9.1E-01		9.1E-01	1.3E-02	3.7E-01 ~~7.3E-01~~
nickel carbonate [4]	3333-39-3	6.0E+00	5.0E-02	5.0E-02	5.0E-02	9.1E-01		9.1E-01	1.3E-02	3.7E-01 ~~7.3E-01~~
nickel carbonyl [4]	13463-39-3	6.0E+00	5.0E-02	5.0E-02	5.0E-02	9.1E-01		9.1E-01	1.3E-02	3.7E-01 ~~7.3E-01~~
nickel hydroxide [4]	12054-48-7	6.0E+00	5.0E-02	5.0E-02	5.0E-02	9.1E-01		9.1E-01	1.3E-02	3.7E-01 ~~7.3E-01~~
Nickelocene [4]	1271-28-9	6.0E+00	5.0E-02	5.0E-02	5.0E-02	9.1E-01		9.1E-01	1.3E-02	3.7E-01 ~~7.3E-01~~
nickel oxide [4]	1313-99-1	6.0E+00	1.0E-01	5.0E-02	1.0E-01	9.1E-01		9.1E-01	1.3E-02	3.7E-01 ~~7.3E-01~~
nickel refinery dust from the pyrometallurgical process [4]		6.0E+00	5.0E-02	5.0E-02	5.0E-02	9.1E-01		9.1E-01	1.3E-02	3.7E-01 ~~7.3E-01~~
nickel subsulfide [4]	12035-72-2	6.0E+00	5.0E-02	5.0E-02	5.0E-02	9.1E-01		9.1E-01	1.3E-02	3.7E-01 ~~7.3E-01~~
Nitric acid	7697-37-2	8.6E+01							1.9E-01	
~~Nitrobenzene~~	~~98-95-3~~		~~1.7E+00~~							~~6.6E+01~~
~~Nitropropane, 2-~~	~~79-46-9~~		~~2.0E+01~~							~~7.7E+02~~
Nitrosodi-n-butylamine, N-	924-16-3					1.1E+01		1.1E+01		2.9E-02 ~~5.8E-02~~
Nitrosodi-n-propylamine, N-	621-64-7					7.0E+00		7.0E+00		4.6E-02 ~~9.1E-02~~
Nitrosodiethylamine, N-	55-18-5					3.6E+01		3.6E+01		8.9E-03 ~~1.8E-02~~
Nitrosodimethylamine, N-	62-75-9					1.6E+01		1.6E+01		2.0E-02 ~~4.0E-02~~
Nitrosodiphenylamine, N-	86-30-6					9.0E-03		9.0E-03		3.6E+01 ~~7.1E+01~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
Nitroso-n-methylethylamine, N-	10595-95-6					2.2E+01		2.2E+01		1.5E-02 ~~2.9E-02~~
Nitrosomorpholine, N-	59-89-2					6.7E+00		6.7E+00		4.8E-02 ~~9.6E-02~~
Nitrosopiperidine, N-	100-75-4					9.4E+00		9.4E+00		3.4E-02 ~~6.8E-02~~
Nitrosopyrrolidine, N-	930-55-2					2.1E+00		2.1E+00		1.5E-01 ~~3.0E-01~~
Nitrosodiphenylamine, p-	156-10-5					2.2E-02		2.2E-02		1.5E+01 ~~2.9E+01~~
Ozone	10028-15-6	1.8E+02	~~1.8E+02~~						4.0E-01	~~7.0E+03~~
Pentachlorophenol	87-86-5		~~2.0E-01~~			1.8E-02		1.8E-02		1.8E+01 ~~7.7E+00~~
Perchloroethylene (tetrachloroethylene)	127-18-4	2.0E+04	3.5E+01		3.5E+01	2.1E-02		2.1E-02	4.4E+01	1.5E+01 ~~3.0E+01~~
Phenol	108-95-2	5.8E+03	2.0E+02		2.0E+02				1.3E+01	3.9E+03 ~~7.7E+03~~
Phosgene	75-44-5	4.0E+00							8.8E-03	
Phosphine	7803-51-2		8.0E-01		8.0E-01					1.5E+01 ~~3.1E+01~~
Phosphoric acid	7664-38-2		7.0E+00		7.0E+00					1.4E+02 ~~2.7E+02~~
~~Phosphorus (white)~~	~~7723-14-0~~		~~7.0E-02~~							~~2.7E+00~~
Phthalic anhydride	85-44-9		2.0E+01		2.0E+01					3.9E+02 ~~7.7E+02~~
PCBs (polychlorinated biphenyls) [low risk] [4, 7]	1336-36-3		~~1.2E+00~~	~~2.0E-05~~		7.0E-02	7.0E-02	9.3E-01		4.0E-01 ~~8.0E-01~~
PCBs (polychlorinated biphenyls) [high risk] [4, 7]	1336-36-3		~~1.2E+00~~	~~2.0E-05~~		2.0E+00	2.0E+00	2.7E+01		1.4E-02 ~~2.8E-02~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
Polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), and dioxin-like polychlorinated biphenyls (PCBs) (as 2,3,7,8-PCDD equivalent) [4, 8]	See Footnote 8		4.0E-05	1.0E-08	3.8E-06	1.3E+05	1.3E+05	1.3E+06		2.9E-07 ~~5.7E-07~~
Polycyclic aromatic hydrocarbon (PAH) (as B(a)P-equivalent) [4, 9]	See Footnote 9					3.9E+00	1.2E+01	6.4E+01		5.9E-03 ~~1.1E-02~~
Naphthalene	91-20-3		9.0E+00		9.0E+00	1.2E-01		1.2E-01		2.7E+00 ~~5.3E+00~~
Potassium bromate ~~[see bromine & compounds]~~	7758-01-2		1.7E+00		1.7E+00	4.9E-01		4.9E-01		6.5E-1 ~~1.3+00~~
Propane sultone, 1,3-	1120-71-4					2.4E+00		2.4E+00		1.3E-01 ~~2.7E-01~~
Propylene (propene)	115-07-1		3.0E+03		3.0E+03					5.8E+04 ~~1.2E+05~~
Propylene glycol monomethyl ether	107-98-2		7.0E+03		7.0E+03					1.4E+05 ~~2.7E+05~~
Propylene oxide	75-56-9	3.1E+03	3.0E+01		3.0E+01	1.3E-02		1.3E-02	6.8E+00	2.5E+01 ~~4.9E+01~~
Selenium and compounds	7782-49-2		2.0E+01		2.0E+01					3.9E+02 ~~7.7E+02~~
hydrogen selenide	7783-07-5	5.0E+00							1.1E-02	
selenium sulfide	7446-34-6		2.0E+01		2.0E+01					3.9E+02 ~~7.7E+02~~
Silica (crystalline, respirable)	7631-86-9		3.0E+00		3.0E+00					5.8E+01
Sodium hydroxide	1310-73-2	8.0E+00	~~4.8E+00~~						1.8E-02	~~1.9E+02~~
Styrene	100-42-5	2.1E+04	9.0E+02		9.0E+02				4.6E+01	1.7E+04 ~~3.5E+04~~
Sulfates		1.2E+02	~~2.5E+01~~						2.6E-01	~~9.7E+02~~
Sulfuric acid and oleum	7664-93-9	1.2E+02	1.0E+00		1.0E+00				2.6E-01	1.9E+01 ~~3.9E+01~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
sulfuric acid	7664-93-9	1.2E+02	1.0E+00		1.0E+00				2.6E-01	1.9E+01 ~~3.9E+01~~
sulfur trioxide	7446-71-9	1.2E+02	1.0E+00		1.0E+00				2.6E-01	1.9E+01
oleum	8014-95-7	1.2E+02	1.0E+00		1.0E+00				2.6E-01	1.9E+01 ~~3.9E+01~~
Tetrachloroethane, 1,1,2,2-	79-34-5					2.0E-01		2.0E-01		1.6E+00 ~~3.2E+00~~
~~Tetrachlorophenols~~	~~25167-83-3~~		~~8.8E+01~~							~~3.4E+03~~
Thioacetamide	62-55-5					6.1E+00		6.1E+00		5.2E-02 ~~1.0E-01~~
Toluene	108-88-3	3.7E+04	3.0E+02		3.0E+02				8.2E+01	5.8E+03 ~~1.2E+04~~
Toluene diisocyantates	26471-62-5		7.0E-02		7.0E-02	3.9E-02		3.9E-02		1.4E+00 ~~2.7E+00~~
toluene-2,4-diisocyanate	584-84-9		7.0E-02		7.0E-02	3.9E-02		3.9E-02		1.4E+00 ~~2.7E+00~~
toluene-2,6-diisocyanate	91-08-7		7.0E-02		7.0E-02	3.9E-02		3.9E-02		1.4E+00 ~~2.7E+00~~
Trichloroethane, 1,1,1 (see methyl chloroform)										
Trichloroethane, 1,1,2- (vinyl trichloride)	79-00-5					5.7E-02		5.7E-02		5.6E+00 ~~1.1E+01~~
Trichloroethylene	79-01-6		6.0E+02		6.0E+02	7.0E-03		7.0E-03		4.6E+01 ~~9.1E+01~~
Trichlorophenol, 2,4,6-	88-06-2					7.0E-02		7.0E-02		4.6E+00 ~~9.1E+00~~
Triethylamine	121-44-8	2.8E+03	2.0E+02		2.0E+02				6.2E+00	3.9E+03 ~~7.7E+03~~
Urethane (ethyl carbamate)	51-79-6					1.0E+00		1.0E+00		3.2E-01 ~~6.4E-01~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

Chemical	CAS Number [1]	Acute Inhalation REL ($\mu g/m^3$)	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL (mg/kg-day)	CREL Weighting Factor [10]	Inhalation Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Oral Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	CP Weighting Factor [10]	Acute (1-hr. max.) Trigger Level [2] (lb/hour)	Chronic Trigger Level [2] (lb/year)
Vanadium Compounds										-
vanadium (fume or dust)	7440-62-2	3.0E+01							6.6E-02	
vanadium pentoxide	1314-62-1	3.0E+01							6.6E-02	
Vinyl acetate	108-05-4		2.0E+02		2.0E+02					3.9E+03 ~~7.7E+03~~
~~Vinyl bromide~~	~~593-60-2~~		~~7.0E+00~~							~~2.7E+02~~
Vinyl chloride (chloroethylene)	75-01-4	1.8E+05	~~2.6E+01~~			2.7E-01		2.7E-01	4.0E+02	1.2E+00 ~~2.4E+00~~
Vinylidene chloride (1,1-dichloroethylene)	75-35-4		7.0E+01		7.0E+01					1.4E+03 ~~2.7E+03~~
Xylenes (mixed isomers)	1330-20-7	2.2E+04	7.0E+02		7.0E+02				4.9E+01	1.4E+04 ~~2.7E+04~~
m-xylene	108-38-3	2.2E+04	7.0E+02		7.0E+02				4.9E+01	1.4E+04 ~~2.7E+04~~
o-xylene	95-47-6	2.2E+04	7.0E+02		7.0E+02				4.9E+01	1.4E+04 ~~2.7E+04~~
p-xylene	106-42-3	2.2E+04	7.0E+02		7.0E+02				4.9E+01	1.4E+04 ~~2.7E+04~~
~~Zinc and compounds~~	~~7440-66-6~~		~~3.5E+01~~							~~1.4E+03~~
~~*zinc oxide*~~	~~1314-13-2~~		~~3.5E+01~~							~~1.4E+03~~

Table 2-5-1 Toxic Air Contaminant Trigger Levels

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[1] **Chemical Abstract Number (CAS):**
CAS numbers are not available for many chemical groupings and mixtures.

[2] **Trigger Levels:**
If a source is not located within a priority community and is not located within 500 feet of a K-12 School, the chronic trigger levels shall be doubled.
All trigger levels are presented in scientific notation (i.e., exponential form based on powers of the based number 10.) For example: 4.9E+01 is equivalent to $4.9X10^{1}$, or 49; 6.6E-02 is equivalent to $6.6X10^{-2}$, or 0.066; and 5.8E+00 is equivalent to $5.8X10^{0}$, or 5.8.

[3] **Averaging Period for Non-Cancer Acute Trigger Levels:**
The averaging period for non-cancer acute trigger levels is generally a one-hour exposure. However, some are based on several hours of exposure. The screening levels for the following substances should be compared to estimated emissions occurring over a time period other than maximum one-hour emissions (e.g., a 4-hour trigger level should be compared to the maximum 4-hour average concentration estimated from the maximum emissions occurring in a 4-hour period). However, for conservative screening purposes, a maximum one-hour emission level can be compare to all acute trigger levels.
4-hour: arsenic and inorganic arsenic compounds
6-hour: benzene, carbon disulfide, ethylene glycol ethyl ether, ethylene glycol ethyl ether acetate, ethylene glycol methyl ether
7-hour: carbon tetrachloride, chloroform

[4] **Chemicals for Which Multi-Pathway Risks are Assessed:**
Trigger levels are adjusted to include the impact from default non-inhalation pathways.

[5] **Asbestos:**
The units for the inhalation cancer potency factor for asbestos are $(100\ PCM\ fibers/m^3)^{-1}$. A conversion factor of 100 fibers/0.003 μg can be multiplied by a receptor concentration of asbestos expressed in $\mu g/m^3$. Unless other information necessary to estimate the concentration ($fibers/m^3$) of asbestos at receptors of interest is available, an inhalation cancer potency factor of $220\ (mg/kg\text{-}day)^{-1}$ is available.

[6] **Diesel Exhaust Particulate Matter:**
Diesel exhaust particulate matter should be used as a surrogate for all TAC emissions from diesel-fueled compression-ignition internal combustion engines. However, diesel exhaust particulate matter should not be used for other types of diesel-fueled combustion equipment, such as boilers or turbines. For equipment other than diesel-fueled compression-ignition internal combustion engines, emissions should be determined for individual TACs and compared to the appropriate trigger level for each TAC.

[7] **Polychlorinated Biphenyls:**
Low Risk: Use in cases where congeners with more than four chlorines comprise less than one-half percent of total polychlorinated biphenyls.
High Risk: Use in cases where congeners with more than four chlorines do not comprise less than one-half percent of total polychlorinated biphenyls.

[8] **Polychlorinated Dibenzo-p-Dioxins (PCDDs), Polychlorinated Dibenzofurans (PCDFs), and Dioxin-like Polychlorinated Biphenyls (PCBs):** These substances are PCDDs, PCDFs, and dioxin-like PCBs for which OEHHA has adopted the World Health Organization (WHO_{97}) Toxicity Equivalency Factor (TEF) scheme for evaluating cancer risk due to exposure to samples containing mixtures of PCDDs, PCDFs, and dioxin-like PCBs. PCDDs, PCDFs, and dioxin-like PCBs should be evaluated as PCDD-equivalent. This evaluation process consists of multiplying individual PCDD-, PCDF-, and dioxin-like PCB-specific emission levels with their corresponding TEFs listed below. The sum of these products is the PCDD-equivalent and should be compared to the PCDD-equivalent trigger level.

PCDD	CAS Number	TEF
2,3,7,8-tetrachlorodibenzo-p-dioxin	1746-01-6	1.0
1,2,3,7,8-pentachlorodibenzo-p-dioxin	40321-76-4	1.0
1,2,3,4,7,8-hexachlorodibenzo-p-dioxin	39227-28-6	0.1
1,2,3,6,7,8-hexachlorodibenzo-p-dioxin	57653-85-7	0.1
1,2,3,7,8,9-hexachlorodibenzo-p-dioxin	19408-74-3	0.1
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	35822-46-9	0.01
1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin	3268-87-9	0.0001

PCDF	CAS Number	TEF
2,3,7,8-tetrachlorodibenzofuran	5120-73-19	0.1
1,2,3,7,8-pentachlorodibenzofuran	57117-41-6	0.05
2,3,4,7,8-pentachlorodibenzofuran	57117-31-4	0.5
1,2,3,4,7,8-hexachlorodibenzofuran	70648-26-9	0.1
1,2,3,6,7,8-hexachlorodibenzofuran	57117-44-9	0.1
1,2,3,7,8,9-hexachlorodibenzofuran	72918-21-9	0.1
2,3,4,6,7,8-hexachlorodibenzofuran	60851-34-5	0.1
1,2,3,4,6,7,8-heptachlorodibenzofuran	67562-39-4	0.01
1,2,3,4,7,8,9-heptachlorodibenzofuran	55673-89-7	0.01
1,2,3,4,6,7,8,9-octachlorodibenzofuran	39001-02-0	0.0001

Dioxin-like PCBs (coplanar PCBs)	CAS Number	TEF
PCB 77 (3,3'4,4'-tetrachlorobiphenyl)	32598-13-3	0.0001
PCB 81 (3,4,4',5-tetrachlorobiphenyl)	70362-50-4	0.0001
PCB 105 (2,3,3'4,4'-pentachlorobiphenyl)	32598-14-4	0.0001
PCB 114 (2,3,4,4'5-pentachlorobiphenyl)	74472-37-0	0.0005
PCB 118 (2,3',4,4',5-pentachlorobiphenyl)	31508-00-6	0.0001
PCB 123 (2',3,4,4',5-pentachlorobiphenyl)	65510-44-3	0.0001
PCB 126 (3,3',4,4',5-pentachlorobiphenyl)	57465-28-8	0.1
PCB 156 (2,3,3',4,4',5-hexachlorobiphenyl)	38380-08-4	0.0005
PCB 157 (2,3,3',4,4',5'-hexachlorobiphenyl)	69782-90-7	0.0005
PCB 167 (2,3',4,4',5,5'-hexachlorobiphenyl)	52663-72-6	0.00001
PCB 169 (3,3',4,4',5,5'-hexachlorobiphenyl)	32774-16-6	0.01
PCB 170 (2,2',3,3',4,4',5-heptachlorobiphenyl)	35065-30-6	0
PCB 180 (2,2',3,4,4',5,5'-heptachlorobiphenyl)	35065-29-3	0
PCB 189 (2,3,3',4,4',5,5'-heptachlorobiphenyl)	39635-31-9	0.0001

[9] **Polycyclic Aromatic Hydrocarbons (PAHs):**
These substances are PAH-derivatives that have OEHHA-developed Potency Equivalency Factors (PEFs). PAHs should be evaluated as benzo(a)pyrene-equivalents. This evaluation process consists of multiplying individual PAH-specific emission levels with their corresponding PEFs listed below. The sum of these products is the benzo(a)pyrene-equivalent level and should be compared to the benzo(a)pyrene equivalent trigger level.

PAH or derivative	CAS Number	PEF
benz(a)anthracene	56-55-3	0.1
benzo(b)fluoranthene	205-99-2	0.1
benzo(j)fluoranthene	205-82-3	0.1
benzo(k)fluoranthene	207-08-9	0.1
benzo(a)pyrene	50-32-8	1.0
chrysene	218-01-9	0.01
dibenz(a,j)acridine	224-42-0	0.1
dibenz(a,h)acridine	226-36-8	0.1
dibenz(a,h)anthracene	53-70-3	1.05
7H-dibenzo(c,g)carbazole	194-59-2	1.0
dibenzo(a,e)pyrene	192-65-4	1.0
dibenzo(a,h)pyrene	189-64-0	10
dibenzo(a,i)pyrene	189-55-9	10
dibenzo(a,l)pyrene	191-30-0	10
7,12-dimethylbenz(a)anthracene	57-97-6	64
indeno(1,2,3-cd)pyrene	193-39-5	0.1
5-methylchrysene	3697-24-3	1.0
3-methylcholanthrene	56-49-5	5.7
5-nitroacenaphthene	602-87-9	0.03
1-nitropyrene	5522-43-0	0.1
4-nitropyrene	57835-92-4	0.1
1,6-dinitropyrene	42397-64-8	10
1,8-dinitropyrene	42397-65-9	1.0
6-nitrocrysene	7496-02-8	10
2-nitrofluorene	607-57-8	0.01

[10] **CREL (chronic Reference Exposure Level) and CP (Cancer Potency) Weighting Factors. These factors are to be used for purposes of calculating toxicity weighted emissions for mitigated project risk. Factors were developed assuming multi-pathway exposure where applicable, and continuously operating sources for residential receptor exposure.**