



WORKSHOP REPORT

JULY 2009

Proposed Amendments to:

Regulation 2: Permits,

Rule 5: New Source Review of Toxic Air Contaminants

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1. Executive Summary

For more than twenty years, the District has implemented programs that are designed to identify and reduce the public's exposure to toxic air contaminants (TACs). TACs are air pollutants which may cause or contribute to an increase in mortality, or in serious illness, or which may pose a potential hazard to human health. The District's long-standing Air Toxics Program is directed at reducing TAC emissions from stationary sources. The Air Toxics Program has three main elements that integrate federal and state mandates and local goals: preconstruction review of new and modified sources of TAC emissions (the Air Toxics New Source Review Program), assessment and reduction of health risks from existing facilities (the Air Toxics "Hot Spots" program), and air pollution control measures for specific categories of TAC sources.

In 2004, the District initiated the Community Air Risk Evaluation (CARE) program, which focuses on assessing air pollution health impacts for specific Bay Area priority communities and sensitive receptors and reducing health disparities for highly impacted individuals. The CARE program takes a broader look at air pollution health impacts than the District's other toxic programs by including both stationary and mobile sources of air pollution in the health impacts analysis and by evaluating the cumulative health impacts that arise from multiple causes of air pollution in a community.

Through the CARE program, the District has determined that diesel PM is the primary contributor to Bay Area air pollution health impacts, and the CARE Workgroup has identified six "priority communities" in the Bay Area that have comparatively high health impacts. The District is pursuing multiple mitigation measures (eg. grants, incentives, land use guidance, rules, and regulations) to reduce health impacts related to air pollution in these priority communities. Although, stationary source contributions to health impacts in priority communities are generally small compared to impacts from mobile sources, the District is considering revisions to several stationary source air toxics programs in order to diminish the cumulative impacts of toxic emission sources. These air toxic program revisions will require various additional mitigation measures for new, modified, and existing stationary sources located in priority communities. This report addresses proposed changes to the District's Air Toxics New Source Review (NSR) Program that will include additional mitigation measures for new and modified stationary sources.

The Air Toxics NSR Program was established in 1987 at the direction of the District's Board of Directors, and was initially implemented based on policies and procedures established by the District's Air Pollution Control Officer (APCO). In 2005, the District updated the Air Toxics NSR Program and codified the Air Toxics NSR policies and procedures in Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants and in Manual of Procedures, Volume II, Part 4: New and Modified Sources of Toxic Air Contaminants.

The goal of the Air Toxics NSR Program is to prevent significant increases in health risks resulting from new and modified sources of TACs based on preconstruction permit review. The program is also intended to reduce existing health risks by requiring updated control requirements when older, more highly polluting, sources are modified or replaced. Regulation 2, Rule 5 contains health risk based thresholds at which a new or modified source must employ Best Available Control Technology for Toxics (TBACT) and health risk limits that each project cannot exceed. The rule also delineates the procedures to be used for calculating TAC emission increases from sources and projects and evaluating the health impacts that result from these emission increases.

The goals of this rule development project are: (a) to provide an additional margin of public health safety for children at school sites and residents living in priority communities, and (b) to increase conformity with State health risk assessment guidelines. Specifically, the District is proposing to increase the stringency of the current Regulation 2, Rule 5 limitations on stationary source impacts from new and modified TAC sources by establishing lower TBACT thresholds and lower project risk limits for certain sensitive receptors impacted by projects located within a designated priority community or within 500 feet of a K-12 school. To ensure that these rule amendments will not discourage the replacement of older equipment with new lower emitting equipment, the District is proposing an alternative compliance option that will exempt a project from the more stringent project risk limits, if contemporaneous risk reductions at the site will result in a net health benefit. When evaluating health impacts from new and modified sources, the District follows the BAAQMD Health Risk Screening Analysis (HRSA) Guidelines, which generally conform to State health risk assessment (HRA) guidelines. The state periodically revises these HRA guidelines and has made a number of changes to TAC health effects values since the BAAQMD HRSA Guidelines were adopted in 2005. The District is proposing revisions to Regulation 2, Rule 5 and the BAAQMD HRSA Guidelines that will incorporate the State's new and revised health effects values for TACs.

The proposed revisions to Regulation 2, Rule 5 are:

- Currently, TBACT is required for a new or modified source if the source risk exceeds a cancer risk of 1.0 in one million or a chronic hazard index of 0.20. The proposed amendments would add new TBACT thresholds for any new and modified sources located in a priority community or within 500 feet of a K-12 school. For a new or modified source located in these areas, the proposed TBACT thresholds are: a cancer risk exceeding 0.50 in one million or a chronic hazard index exceeding 0.10.

- Currently, projects involving new and modified TAC sources cannot exceed the following health impacts: a cancer risk of 10.0 in one million, a chronic hazard index of 1.0, and an acute hazard index of 1.0. The proposed amendments would add new project risk limits for a project located in a priority community or within 500 feet of a K-12 school. The proposed risk limits for these projects are: a cancer risk of 5.0 in one million, a chronic hazard index of 0.50, and an acute hazard index of 1.0 (exclusively for student receptors for those sources within 500 feet of a K-12 school). The proposed chronic risk limits are one half of the current chronic risk limits for all projects.
- The proposed rule amendments will add an exemption from the more stringent project risk limits, if the site will have contemporaneous risk reduction and a net health benefit. To qualify for this exemption, the contemporaneous risk reduction measures must achieve a net risk reduction for the maximally exposed individual and must have toxicity weighted emission reductions that are at least 20% greater than the toxicity weighted emission increases from the new project. The new project cannot exceed the current project risk standards and cannot result in a net risk increase to any receptor that is greater than 0.50 in a million cancer risk or 0.10 chronic hazard index (exclusively for student receptors for those sources within 500 feet of a K-12 school).
- The rule amendments will include new definitions and revised procedures to fully explain the applicability of the new standards and the net health benefit demonstration requirements.
- Table 2-5-1 health effects values and trigger levels will be revised by incorporating the most recent health effects value changes that have been adopted by OEHHA as of January 1, 2009. Any revisions in health effects values adopted between January 2005 and February 2009 will be reflected in the proposed Table 2-5-1. The specific changes to this table include: the addition of a cancer potency factor for ethyl benzene, a chronic REL for silica (crystalline, respirable) and sulfur trioxide, an acute REL for acetaldehyde, the amendment of RELs for acetaldehyde, acrolein, arsenic, formaldehyde, manganese, and mercury. Also, several compounds will be removed from Table 2-5-1 based on deletion of old CAPCOA chronic RELs and USEPA RfCs. OEHHA has developed and adopted new risk assessment guidelines that update and replace CAPCOA's Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993.

2. Background

2.1 Introduction

Over the last several decades, public concern about air pollution has expanded from what is typically called “smog” and other criteria air pollutants (so called because they are regulated by first developing health-based criteria as the basis for setting permissible ambient air quality standards) to include toxic air contaminants (TACs). A pollutant is considered toxic if it has the potential to cause adverse health effects such as cancer, birth defects, respiratory ailments, or other serious illness.

For the last twenty-two years, the District’s Air Toxics Program has sought to evaluate and reduce the public’s exposure to TACs through the control of emissions from stationary sources. The District’s Air Toxics Program, along with other programs in place at the State and national level, has significantly reduced exposure to TACs from stationary sources, motor vehicles, fuels, and consumer products. Despite this success, regulatory programs continue to be needed to manage and further reduce public exposure to TACs.

The District’s efforts to reduce public exposure to TACs include the promotion of measures directed at reducing emissions from motor vehicles, which are the largest source of TACs. In 2004, the District initiated the Community Air Risk Evaluation (CARE) Program to investigate the cumulative impact of stationary, area, and mobile sources at a neighborhood-level. These investigations have confirmed that motor vehicle emissions, especially emissions of diesel PM, are the largest contributor to neighborhood-level health impacts from air pollution. The CARE Program identified a number of Bay Area communities that have comparatively high air pollution related health impacts and designated six “Priority Communities” that the District should focus risk reduction efforts on.

The District is pursuing multiple mitigation measures (e.g., grants, incentives, land use guidance, rules, and regulations) to reduce the health impacts in these priority communities. Although, stationary source contributions to air pollution health impacts in priority communities are generally small compared to impacts from mobile sources, the District is considering revisions to several stationary source air toxics programs that will require additional mitigation measures for stationary sources located in these priority communities.

This report addresses proposed changes to the District’s Air Toxics New Source Review (NSR) Program that will include additional mitigation measures for new and modified stationary sources located in priority communities and near K-12 schools. The District is also proposing revisions to the District’s Air Toxics NSR regulations, guidelines, and procedures to incorporate updates to State health risk assessment guidelines that have been adopted since the District last revised the Air Toxics NSR Program in 2005.

2.2 The District Air Toxics Program

The District's Air Toxics Program includes three distinct but complementary regulatory programs that reduce the health risks associated with exposure to TACs emitted from stationary sources: (1) a Source Category-based Control Program, (2) the Air Toxic "Hot Spots" Program, and (3) the Air Toxics NSR Program.

1. The goal of the Source Category-based Control Program is to reduce emissions from new and existing sources by establishing control measures for specific types of sources. This program includes Airborne Toxic Control Measures (ATCMs) originating from California's Toxic Air Contaminant Identification and Control Act (AB 1807, Tanner 1983), and National Emission Standards for Hazardous Air Pollutants (NESHAPs) originating from the federal Clean Air Act. The District has also adopted a number of locally developed control measures that reduce emissions of TACs including a number of rules in District Regulations 8 and 11. In recent years, the California Air Resources Board (CARB) has adopted several statewide ATCM to regulate stationary, portable and vehicular diesel engines.
2. The Air Toxics "Hot Spots" (ATHS) Program was established with the adoption of the Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, Connelly 1987). The ATHS Program requires facilities to establish and update TAC air emissions inventories. The District then prioritizes these facilities based on the quantity and toxicity of emissions, and the proximity of the facility to potential receptors. High priority facilities are required to prepare facility-wide health risk assessments and, where health risks are determined to be above significance levels established by the District, notification of nearby people is required. The ATHS Program also was amended (SB 1731, Calderon 1992) to require facilities that pose a significant health risk to the community to reduce their risk by implementing a risk reduction audit and plan. A number of facilities in the Bay Area reduced TAC emissions in order to get below risk thresholds requiring public notification under the ATHS Program. In addition, many Bay Area dry cleaners that use perchloroethylene were required to implement risk reduction measures under Regulation 11, Rule 16.
3. The goal of the District's Air Toxics NSR Program is to prevent significant increases in health risks resulting from new and modified sources of TACs based on preconstruction permit review. The program is also intended to reduce health risks by requiring updated control requirements when older, more highly polluting, sources are modified or replaced. The rationale for this approach is that it is generally more cost-effective to apply stringent air pollution controls to sources at the time of initial construction or modification versus on a retrofit-basis.

The Air Toxics NSR Program is the subject of this staff report. The proposed changes to this program are discussed in Section 3.

2.3 The CARE Program

The Community Air Risk Evaluation (CARE) program was initiated in 2004 to identify Bay Area communities that have both high exposures to toxic air contaminants (TAC) and populations that may be particularly sensitive to the adverse health effects of TAC. The CARE program seeks then to implement mitigation measures focused on reducing TAC emissions that affect these impacted communities.

Starting in 2006, the District developed gridded TAC emissions inventories and compiled demographic information that were used to identify priority communities for the purposes of distributing grant and incentive funding. In 2009, the District completed regional modeling of TAC emissions to estimate cancer risk and TAC population exposures for the entire District. This health impact information was analyzed and compared to demographic data. Various selection criteria were then used to update and refine the identification of priority communities. Appendix C contains a detailed discussion of the TAC inventory and modeling procedures, demographic comparisons, and selection criteria.

Using the methods discussed in Appendix C, the District has identified the following six areas as priority communities:

1. Portions of the City of Concord;
2. Western Contra Costa County (including portions of the Cities of Richmond and San Pablo);
3. Western Alameda County along the Interstate-880 corridor (including portions of the Cities of Berkeley, Oakland, San Leandro, San Lorenzo, Hayward;
4. Portions of the City of San Jose.
5. Eastern San Mateo County (including portions of the Cities of Redwood City and East Palo Alto); and
6. Eastern portions of the City of San Francisco;

Maps showing all six priority communities in the Bay Area and the boundaries for each priority community are attached in Appendix C.

The proposed changes to the Air Toxics NSR Program will include more stringent NSR requirements for new and modified sources located in priority communities. The affected communities are the six areas identified above that have been designated as priority communities through the CARE Program. Any future updates to priority community designations will follow the CARE Program designation methods outlined in Appendix C. The District plans to publish these priority community designation guidelines and will periodically update the list of priority communities and Guidelines for Designation of Priority Communities.

3. Proposed Changes to Air Toxics NSR Program

This staff report addresses proposed changes to the Bay Area Air Quality Management District (“the District”) Air Toxics New Source Review (NSR) program. The Air Toxics NSR Program has been an important part of the District’s air pollution control efforts for the past twenty-two years. The proposed changes in the program will result in amendments to BAAQMD Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants and amendments to Manual of Procedures, Volume II, Part 4. The District is also proposing to revise the BAAQMD Health Risk Screening Analysis (HRSA) Guidelines and to add new guidelines for designation of priority communities and for tracking and evaluating cumulative impacts in priority communities. The proposed revisions to Regulation 2 Rule 5 are provided in Appendix A of this report. The proposed revisions to BAAQMD HRSA Guidelines are provided in Appendix B. The new guidelines related to designation of priority communities and cumulative risk tracking will be provided at a later date in Appendices C and D, respectively. The proposed revisions to MOP, Volume II, Part 4 will be provided in Appendix E at a later date.

3.1 Goals of Proposed Changes to Air Toxics NSR Program

The District is proposing to amend Regulation 2: Permits, Rule 5: New and Modified Sources of Toxic Air Contaminants and Manual of Procedures Volume II: Engineering Permitting Procedures, Part 4: New and Modified Sources of Toxic Air Contaminants.

The goals of this proposed rulemaking are:

1. To further reduce the impacts of toxic air contaminants emissions from permitted new or modified sources located in “Priority Communities” or located near schools.
2. To update the existing District Air Toxics NSR regulations and guidelines to increase conformity with State health risk assessment guideline revisions that have been adopted since 2005.

3.2 Program Updates and Enhancements

The adoption of the proposed revisions to Regulation 2, Rule 5, and the companion Manual of Procedures, Volume II: Part 4, will update and enhance program requirements and increase conformity with State risk assessment guidelines.

CalEPA’s Office of Environmental Health Hazard Assessment (OEHHA) is required to develop guidelines for conducting health risk assessments under the Air Toxics Hot Spots Program. In addition to the Air Toxics Hot Spots Program, the District also uses these guidelines to conduct health risk assessments under Regulation 2, Rule 5 (New Source Review of Toxic Air Contaminants). These health risk assessment

guidelines include the development of risk assessment health values (reference exposure levels (RELs), and cancer potency factors (CPF)), and technical support documents (TSDs) for exposure assessment, and a guidance manual for preparation of health risk assessments. In accordance with the mandate of the Children's Environmental Health Protection Act (Senate Bill 25, Escutia 731, Statutes of 1999, Health and Safety Code Sections 39669.5 et seq.), OEHHA is currently revising their health risk assessment guidelines to reflect scientific knowledge and techniques developed since their previous guidelines were prepared (in 2003), and in particular to explicitly include consideration of possible differential effects on the health of infants, children and other sensitive subpopulations.

In December 2008, OEHHA finalized and adopted the revised TSD for the development of RELs (a REL is an airborne level of a chemical that is not anticipated to present a significant risk of an adverse non-cancer health effect). In addition to the revised methodology for REL development, the TSD also included revised RELs for six chemicals (acetaldehyde, acrolein, arsenic, formaldehyde, manganese, and mercury). Adoption of the TSD does not automatically affect the other existing RELs. RELs for other toxic air contaminants (TACs) will be revised in the future in accordance with the methodology outlined in the revised TSD for REL development.

The TSD for CPFs was finalized and adopted in June 2009. OEHHA's revised cancer risk assessment guidelines includes supplemental guidance on children's cancer risk including the use of age-dependent adjustment factors (ADAFs) for exposures in infancy and childhood, which are meant to apply to lifetime cancer risk. ADAFs address the inherent susceptibility (sensitivity) of the young to carcinogens and the longer period of time that carcinogen exposure to the young has to manifest as cancer. In addition, OEHHA staff is reviewing many exposure assumptions, including periods of exposure, breathing rates, and noninhalation factors. The District will implement the revised cancer risk assessment guidelines when OEHHA finalizes the Exposure Assessment TSD. OEHHA staff has indicated that these changes could increase cancer risk estimates by a factor of 2 to 3.

4. Proposed Rule Amendments

4.1 Proposed Amendments to Regulation 2, Rule 5

The District is proposing to amend Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants. The rule is organized into six sections as follows: General (section numbers in the 100's), Definitions (200's), Standards (300's), Administrative Requirements (400's), Monitoring and Records (500's), and Manual of Procedures (600's). It also includes Table 2-5-1 Toxic Air Contaminant Trigger Levels. A copy of the proposed revisions to this rule is provided in Appendix A of this staff report. The proposed revisions to each section of this rule are discussed below.

4.1.1 General Requirements

The General requirements define the applicability of the rule and identify any exemptions from the rule or from specific sections of the rule. The proposed amendments to the general requirements are as follows.

Section 2-5-110: Exemption, Low Emission Levels: The District is adding text to clarify the applicability of the Table 2-5-1 chronic trigger levels. The proposed chronic trigger levels will apply to sources and projects located within a priority community or within 500 feet of a K-12 school. For all other sources or projects, the applicable chronic trigger levels are two times the chronic trigger levels specified in Table 2-5-1.

Currently, sources in a project are exempt from this rule if the TAC emission increases for the project are less than the Table 2-5-1 trigger levels. These trigger levels were developed using – among other procedures and assumptions – the District’s HRSA Guidelines and target health impact level assumptions. For chronic emissions, the target health impact levels were assumed to be 1.0 in one million cancer risk and 0.20 chronic hazard index.

As discussed in Section 4.1.7, the District is proposing numerous revisions to the Table 2-5-1 trigger levels. In addition to the health effect level changes noted in other columns of Table 2-5-1, the proposed chronic trigger levels also reflect new target chronic health impact level assumptions of 0.50 in one million cancer risk and 0.10 chronic hazard index for sources located in priority communities and for sources impacting student receptors. For any other sources, the target chronic health impact assumptions are the same as the current levels (1.0 in one million cancer risk and 0.20 chronic hazard index). The ratio between these two sets of target chronic health impact levels is two to one. Thus, the chronic trigger levels in Table 2-5-1 may be doubled for projects that are not located in priority communities or within 500 feet of a K-12 school.

Section 2-5-112: Applicability and Circumvention: This section identifies the two effective dates for this rule: applications submitted on or after July 1, 2005 and sources constructed or modified on or after January 1, 1987. The District is proposing to add new health risk standards for sources and projects that impact student receptors or that are located within priority communities. The District is proposing to make these new standards effective for applications submitted on or after January 1, 2010.

Section 2-5-113: Limited Exemption, Contemporaneous Risk Reduction: This proposed exemption applies to projects that are located in priority communities or that impact student receptors. Regulation 2-5-113 will exempt such projects from the proposed more stringent project risk limits in Regulation 2-5-303, if the project includes contemporaneous risk reduction and will comply with all of the requirements of Regulation 2-5-304.

4.1.2 Definitions

This section of the rule contains definitions for terms used in this rule. The District is proposing to modify two existing definitions and to add six new definitions to this rule. These definitions are necessary to identify which sources and projects will be subject to the District's more stringent project risk standards and to explain the District's new terms.

Section 2-5-212: Maximally Exposed Individual, or MEI: The District is proposing to add a sentence to this definition to clarify that MEI locations are determined for each type of health impact and for all potential receptors. For a given project, the District will determine the health impacts (cancer risk, chronic hazard index, and acute hazard index) for each type of receptor (residential, worker, and student). The highest health impact for any type of receptor is the MEI for that particular health impact. The MEI location for cancer risk may be different than the MEI location for chronic hazard index or the MEI location for acute hazard index.

Section 2-5-216: Project: The District is proposing to clarify that a project involving a modified source may include any contemporaneous risk reduction that occurs at that modified source as a result of the project. From the calculation procedures in Regulation 2-5-601.4, the District already includes emission reductions at a modified source as part of the project. This definition revision makes it clear that any type of contemporaneous risk reduction measure at a modified source may be included as part of the project.

Section 2-5-225: K-12 School: New project risk standards will apply to any student receptor located at K-12 school. The proposed definition for a K-12 school is based on the California Health and Safety Code Section 42301.9(a) definition of "school." The District plans to use this school definition because the District has procedures in place to identify these schools and is currently using this definition for the purpose of satisfying the Regulation 2-1-412 public noticing requirements for schools.

Section 2-5-226: Student Receptor: This section defines the term: "student receptor" and is necessary to clearly identify the applicability of the new project risk limits.

Section 2-5-227: Priority Community: This definition describes the general concept of a priority community, which was developed through the District's CARE Program.

Section 2-5-228: Contemporaneous Risk Reduction: This definition explains the general concepts of risk reduction and contemporaneous as they relate to this rule. It also lists the calculation procedures that must be followed.

Section 2-5-229: Contemporaneous Risk Reduction Measures: This section describes the District's concept of risk reduction measures, provides examples of potentially appropriate risk reduction measures, and states other criteria that must be satisfied.

Section 2-5-230: Net Risk: This section defines the term: “net risk.” It is necessary because the Regulation 2-5-304 mitigated project risk standards include specific limitations on net risk.

4.1.3 Standards

This section of the rule contains the health risk standards that apply to all new and modified sources and all projects. The District is proposing to revise the TBACT standards and is proposing to add new project risk standards for sources located in priority communities or within 500 feet of a K-12 school. Projects in these locations will be required to comply with either: (a) more stringent project risk standards, or (b) mitigated project risk requirements that include contemporaneous risk reduction, net risk limits, emission reduction requirements, and the current project risk standards. The proposed revisions are discussed below.

Section 2-5-301: Best Available Control Technology for Toxics (TBACT) Requirement: The current TBACT thresholds have been renumbered as subparts 301.1 and 301.2. Any source that has a source risk greater than one of these risk levels (1.0 in one million cancer risk or 0.20 chronic hazard index) must employ TBACT on that source.

The District is also proposing to add lower TBACT thresholds for sources located in a priority community (Section 301.3) and for sources located within 500 feet of a K-12 school (Section 301.4). These proposed TBACT thresholds are a source risk greater than: 0.50 in one million cancer risk and 0.10 chronic hazard index (one half of the TBACT thresholds for other project locations). These new thresholds are expected to mitigate any potential health impacts from new and modified sources that will be located in priority communities or near schools by requiring TBACT controls on more sources, which will result in lower TAC emission increases compared to TAC emission increases that would have been allowed at the current TBACT thresholds.

Section 2-5-303: Project Risk for Sources that Impact Students and Priority Communities: In addition to lower TBACT thresholds, the District is proposing to add more stringent project risk standards for sources located within a priority community or near a K-12 school. Regulation 2-5-303 identifies these lower project risk limits: 5.0 in one million cancer risk (Section 303.1) and 0.50 chronic hazard index (Section 303.2). These proposed project risk limits for student receptors and receptors in priority communities are one half of the project risk standards for other locations. The District is proposing to retain the current project risk standard of 1.0 for acute hazard index (Section 303.3). The more stringent project risk standards for projects impacting students or priority communities are expected to result in lower project emission increases for such projects and will provide a greater degree of health protection for receptors in these locations.

Section 2-5-304: Mitigated Project Risk for Sources that Impact Students and Priority Communities: To avoid discouraging projects that will have a net health benefit (such as the replacement of a diesel engine with a new lower emitting engine), the District is proposing to add mitigated project risk standards for certain qualifying projects. These mitigated project risk standards would only apply to projects located in a priority community or within 500 feet of a K-12 school. As an alternative to complying with the very stringent project risk standards proposed in Section 303, a facility could shut down, replace, or modify existing equipment or operations to achieve a contemporaneous risk reduction at the facility.

Projects that are mitigated in this fashion would be subject to the current project risk standards: 10.0 in one million cancer risk (Section 304.1), 1.0 chronic hazard index (Section 304.2), and 1.0 acute hazard index (Section 304.3). For mitigated projects, the project health impacts would still be determined based on project emission increases. Thus, a facility would not be allowed to net out of compliance with the current project risk standards.

Mitigated projects would also be subject to additional emission reduction requirements (Sections 304.1b and 304.2b) and net risk limitations (Sections 304.1c and 304.2c). The toxicity weighted emission reductions achieved by any contemporaneous risk reduction measures must be at least 120% of toxicity weighted emission increases for the project. Any emission reductions must be on-site, permanent, real, quantifiable, and enforceable, and must be above and beyond any emission reductions required by regulations. For mitigated projects, the net change in health risks for the maximally exposed individuals cannot be any greater than 0.50 in one million cancer risk and 0.10 chronic hazard index (the same as the proposed TBACT thresholds for new or modified sources in these locations). This allowance for a small net health risk increase is necessary, because changes in source locations and emission release parameters that are necessary to achieve risk reductions for the maximally exposed individual may result in small health risk increases for another receptor.

Overall, the mitigated project must achieve a net health risk benefit in order to qualify for the alternative project risk standards. The mitigated project risk standards will ensure that projects with contemporaneous risk reduction do not avoid current standards, result in TAC emission reductions that are above and beyond the reductions required by regulatory requirements, and have no greater than a target net health risk increase for any receptor. These mitigated project risk limits are expected to reduce cumulative health impacts in sensitive populations by encouraging facilities to undertake on-site risk reduction measures.

4.1.4 Administrative Requirements

This section of the rule identifies various administrative requirements that are necessary for the District to determine compliance with this rule. These administrative requirements include various guidelines and other publications related to this rule that the District must maintain and periodically update.

Sections 2-5-402: Health Risk Screening Analysis Guidelines: The District's HRSA Guidelines generally conform to OEHHA HRA Guidelines for the Air Toxics Hot Spots Program. The current HRSA Guidelines are based on OEHHA HRA Guidelines in effect as of January 1, 2005. The District is updating Regulation 2, Rule 5 to incorporate changes made to OEHHA HRA Guidelines since January 2005. The District is including all OEHHA updates to acute inhalation RELs, chronic inhalation RELs, chronic oral RELs, inhalation cancer potency factors, and oral cancer potency factors approved as of January 1, 2009. This effective date is noted in Section 402. OEHHA has also adopted new 8-hour RELs for a few compounds. However, the District is not incorporating these 8-hour RELs into the District's HRSA Guidelines at this time, because the accompanying risk assessment guidance for using these 8-hour RELs is not complete.

Sections 2-5-404: Designation of Priority Communities: The District is adding a requirement for the APCO to publish and update a list of the designated priority communities. The designation procedures and selection criteria were initially developed through the District's CARE program and will be documented in the District's Guidelines for Designation of Priority Communities. The new TBACT and project risk standards will only apply to sources located within the boundary of one of these designated priority communities or to sources located within 500 feet of a K-12 school.

Sections 2-5-405: Cumulative Impact Summary for Priority Communities: The District is adding a requirement for the APCO to publish and update a cumulative impact summary report. For each priority community, the District will track all project emission increases since January 1, 2010 and will periodically evaluate the cumulative risk from these projects. The District will also publish and periodically update the Guidelines for Tracking Cumulative Risk.

4.1.5 Monitoring and Records

The District is not proposing any changes to this section of the rule.

4.1.6 Manual of Procedures

This section of the rule identifies various procedures that must be followed when demonstrating compliance with the standards in this rule. The District is proposing revisions to these sections related to the proposed new standards.

Section 2-5-601: Emission Calculation Procedures: In Section 601.4, the District is clarifying how contemporaneous risk reduction should be handled for modified sources.

Section 2-5-602: Baseline Emission Calculation Procedures: The District is adding a statement to indicate that the baseline emission calculation procedures for modified sources should also be used for determining emission reductions for projects involving contemporaneous risk reduction.

Section 2-5-604: Calculation Procedures for Toxicity Weighted Emissions: The mitigated project risk requirements in Section 304 require that toxicity weighted emission reductions exceed toxicity weight emission increases by at least 20%. This section explains how the cancer potency (CP) weighting factors and chronic REL (CREL) weighting factors in Table 2-5-1 should be used in order to determine toxicity weighted emission reductions and toxicity weighted emission increases.

4.1.7 Toxic Air Contaminant Trigger Levels in Table 2-5-1

The proposed TAC trigger levels presented in Table 2-5-1 are used to determine the need for a health risk screening analysis (HRSA) for projects involving new and modified sources. The proposed TAC trigger levels are also used: (1) to establish permit requirements for certain sources that may otherwise qualify for permit exemptions, (2) as part of the applicability of the accelerated permit program, and (3) in determining permit fees. The proposed TAC trigger levels are considered to be reasonable de minimus emission rates for use at a project-level. Projects with emissions below the TAC trigger levels are unlikely to cause, or contribute significantly to, adverse health risks.

The proposed TAC trigger levels were calculated using: (1) target health risk levels that are considered de minimus for project-level risks, (2) OEHHA/ARB health effect values, (3) generally conservative modeling procedures which establish the extent to which a TAC is transported and dispersed in the atmosphere after its release from the source, and (4) health-protective assumptions regarding the extent of an individual's exposure to an emitted TAC.

Target Health Risk Levels:

For chronic health risk, a lifetime cancer risk of 0.5 in a million (0.5×10^{-7}) and a non-cancer hazard index of 0.1 are proposed as the target health risk levels to derive the chronic trigger levels. These are the risk thresholds at which TBACT is proposed and represents one half of the risk thresholds used in the current Table 2-5-1. If a source is not located in a priority community and is not located within 500 feet of a K-12 school, the chronic trigger levels shall be doubled. For acute health risk, a hazard index of 1.0 is proposed as the target health risk level, which is the same acute non-cancer risk threshold currently used in Regulation 2, Rule 5.

Health Effects Values:

The proposed Table 2-5-1 incorporates the most recent health effects values adopted by OEHHA/ARB (through December 2008) for use in the AHS Program. Any revisions in health effects values (other than 8-hour RELs) adopted between January 1, 2005 and January 1, 2009 are reflected in the proposed Table 2-5-1. OEHHA has adopted 8-hour RELs for a few compounds; however, the District is not proposing to add these RELs to Table 2-5-1 at this time, because the risk assessment guidance procedures that would use these 8-hour RELs are not complete. Table 4.1.7-1 identifies the new and revised health effects values that are being incorporated into Table 2-5-1.

OEHHA has developed and adopted new risk assessment guidelines that update and replace CAPCOA's Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993. OEHHA has deleted old CAPCOA chronic RELs and USEPA RfCs for many chemicals. The District is revising Table 2-5-1 to incorporate these chronic REL deletions. Table 4.1.7-2 identifies chemicals for which the chronic REL is being deleted, but the chemical will remain in Table 2-5-1 because it has other established health effects values. Table 4.1.7-3 identifies the chemicals that will be removed from Table 2-5-1 because their chronic RELs are being deleted and these chemicals have no other established health effects values.

Weighting Factors:

For purposes of calculating toxicity weighted emissions for mitigated project risk, chronic reference exposure level (CREL) and cancer potency (CP) weighting factors were added to Table 2-5-1. These factors were developed assuming multi-pathway exposure where applicable, and continuously operating sources for residential receptor exposure.

Table 4.1.7-1 New and Revised Health Effects Values for Table 2-5-1

| Chemical | Acute Inhalation REL ($\mu\text{g}/\text{m}^3$) | Chronic Inhalation REL ($\mu\text{g}/\text{m}^3$) | Chronic Oral REL (mg/kg-day) | Inhalation Cancer Potency Factor (mg/kg-day) ⁻¹ |
|-----------------------------------|---|---|----------------------------------|--|
| Acetaldehyde | <u>4.7E+02</u> | <u>1.4E+02</u> <u>9.0E+00</u> | | 1.0E-02 |
| Acrolein | <u>2.5E+00</u> <u>4.9E-04</u> | <u>3.5E-01</u> <u>6.0E-02</u> | | |
| Arsenic and compounds (inorganic) | <u>2.0E-01</u> <u>1.9E-04</u> | <u>1.5E-02</u> <u>3.0E-02</u> | <u>3.5E-06</u> <u>3.0E-04</u> | 1.2E+01 |
| Arsine | <u>2.0E-01</u> <u>4.6E+02</u> | <u>1.5E-02</u> <u>5.0E-02</u> | | |
| Ethylbenzene | | 2.0E+03 | | <u>8.7E-03</u> |
| Formaldehyde | <u>5.5E+01</u> <u>9.4E+04</u> | <u>9.0E+00</u> <u>3.0E+00</u> | | 2.1E-02 |
| Manganese | | <u>9.0E-02</u> <u>2.0E-04</u> | | |
| Mercury and compounds (inorganic) | <u>6.0E-01</u> <u>4.8E+00</u> | <u>3.0E-02</u> <u>9.0E-02</u> | <u>1.6E-04</u> <u>3.0E-04</u> | |
| Mercuric chloride | <u>6.0E-01</u> <u>4.8E+00</u> | <u>3.0E-02</u> <u>9.0E-02</u> | <u>1.6E-04</u> <u>3.0E-04</u> | |
| Silica (crystalline, respirable) | | <u>3.0E+00</u> | | |
| Sulfur trioxide | 1.2E+02 | <u>1.0E+00</u> | | |

Table 4.1.7-2 Chemicals for which the Chronic REL was deleted in Table 2-5-1

| |
|---|
| Acrylamide |
| Acrylic acid |
| Allyl chloride |
| Aniline |
| Benzidine (and its salts) |
| benzidine based dyes |
| direct black 38 |
| direct blue 6 |
| direct brown (technical grade) |
| Benzyl chloride |
| Copper and compounds |
| Dibromo-3-chloropropane, 1,2-(DBCP) |
| Di(2-ethylhexyl)phthalate (DEHP) |
| Ethylene glycol butyl ether – EGBE (2-butoxy ethanol; butyl cellosolve) |
| Hexachlorobenzene |
| Hexachlorocyclohexanes (mixed or technical grade) |
| Hexachlorocyclohexane, alpha- |
| Hexachlorocyclohexane, beta- |
| Hexachlorocyclohexane, gamma- (lindane) |
| Methyl ethyl ketone (MEK) (2-butanone) |
| Ozone |
| Pentachlorophenol |
| PCBs (polychlorinated biphenyls) |
| Sodium Hydroxide |
| Sulfates |
| Vinyl chloride |

Table 4.1.7-3 Chemicals Removed from Table 2-5-1

| |
|------------------------------------|
| Antimony compounds |
| Antimony trioxide |
| Bromine and compounds |
| bromine pentafluoride |
| hydrogen bromide |
| 2-Chloroacetophenone |
| Chlorodifluoromethane (Freon 22) |
| Chlorofluorocarbons |
| 2-Chlorophenol |
| Chloroprene |
| Ethyl acrylate |
| Fluorocarbons (chlorinated) |
| chlorinated fluorocarbon (CFC-113) |
| chlorodifluoromethane (Freon 22) |
| dichlorofluoromethane (Freon 21) |
| trichlorofluoromethane (Freon 11) |
| fluorocarbons (brominated) |
| Freons |
| Hexachlorocyclopentadiene |
| Methyl mercury |
| Methyl methacrylate |
| Mineral fibers (<1% free silica) |
| ceramic fibers (man made) |
| glasswool (man made fibers) |
| mineral fibers (fine: man made) |
| rockwool (man made fibers) |
| slagwool (man made fibers) |
| Nitrobenzene |
| 2-Nitropropane |
| Phosphorus (white) |
| Tetrachlorophenols |
| Vinyl bromide |
| Zinc and compounds |
| zinc oxide |

4.2 Proposed Amendments to MOP, Volume II, Part 4

The District is planning to modify this MOP part to describe the proposed new requirements for Regulation 2, Rule 5 and the proposed revisions to calculation and analysis procedures. Specific changes to this MOP part will be discussed in this section after the MOP revisions are available.

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WORKSHOP REPORT

JULY 2009

Proposed Amendments to:

Regulation 2: Permits, Rule 5: New Source Review of Toxic Air Contaminants

Appendix A:

Proposed Regulatory Language

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WORKSHOP REPORT

JULY 2009

Proposed Amendments to:

Regulation 2: Permits, Rule 5: New Source Review of Toxic Air Contaminants

Appendix B:

Proposed Revisions to the BAAQMD's

Health Risk Screening Analysis (HRSA) Guidelines

WORKSHOP REPORT

JULY 2009

Proposed Amendments to:

Regulation 2: Permits, Rule 5: New Source Review of Toxic Air Contaminants

Appendix C:

Guidelines for Designation of Priority Communities

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WORKSHOP REPORT

JULY 2009

Proposed Amendments to:

Regulation 2: Permits, Rule 5: New Source Review of Toxic Air Contaminants

Appendix D:

Guidelines for Tracking Cumulative Risk

(to be added)

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WORKSHOP REPORT

JULY 2009

Proposed Amendments to:

Regulation 2: Permits, Rule 5: New Source Review of Toxic Air Contaminants

Appendix E:

Proposed Revisions to MOP, Volume II, Part 4

(to be added)

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