

State of California
AIR RESOURCES BOARD

**PUBLIC HEARING TO CONSIDER
AMENDMENTS TO THE
EMISSION INVENTORY CRITERIA AND
GUIDELINES REPORT
FOR THE AIR TOXICS "HOT SPOTS"
PROGRAM**

STAFF REPORT: INITIAL STATEMENT OF REASONS

DATE OF RELEASE: September 29, 2020

SCHEDULED FOR CONSIDERATION: November 19, 2020

Location:

Please see the Public Agenda which will be posted ten days before the November 19, 2020, Board Meeting for any appropriate direction regarding a possible remote-only Board Meeting. If the meeting is to be held in person, it will be held at the California Air Resources Board, Byron Sher Auditorium, 1001 I Street, Sacramento, California 95814.

This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

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Note: Most mentions of an appendix in this document refer to one of the several appendices (A through G) that are part of the EICG Report. References to appendices that are part of the Staff Report are identified as "Appendix to the ISOR"

EXECUTIVE SUMMARY

Staff of the California Air Resources Board (CARB) is proposing to amend the “Emission Inventory Criteria and Guidelines Report for the Air Toxics “Hot Spots” Program” (the Guidelines or EICG). Under this program, stationary sources are required to report the types and quantities of certain toxic substances their facilities routinely release into the air. The program aims to protect public health by collecting emission data, identifying facilities having the potential for localized impacts, ascertaining the health risks, and requiring that owners of significant-risk facilities reduce their risks below the level of significance.

The EICG, which is incorporated by reference into amendments to Section 93300.5, Title 17, California Code of Regulations, provides direction and criteria to facilities on how to compile and submit air toxics emission data¹. The primary purpose of the proposed EICG amendments is to provide CARB and air districts with a better understanding of stationary source emissions, enhance the public access to information on toxic pollutant emissions, and further reduce their impacts on public health by ensuring that many new and emerging chemicals of concern are reported.

The proposed amendments would also expand the applicability requirements to bring in new facilities into the inventory program. As California continues to transition toward zero-emission vehicles, the relative contribution of emissions from stationary sources will continue to increase, and more a comprehensive understanding of stationary source emissions from all pollutant types, particularly air toxics, will be needed to identify and evaluate appropriate mitigation strategies to reduce public exposures to harmful pollutants.

The proposed EICG amendments have been developed to support multiple CARB and air district program needs, and are necessary to:

- Reflect significant advances in our understanding of the health risks of toxic air pollutants;
- Enhance the comprehensiveness, consistency, and transparency of the air toxics emissions data collected from a large number of facilities in California;
- Align the Hot Spots program with other regulations and requirements already in place to ensure consistency and minimize duplication of effort;
- Support public right-to-know requirements under AB 197; community air protection components under AB 617²; air toxics emission reporting under

¹ (CCR, 1993). 17 CCR 93000, *Substances Identified as Toxic Air Contaminants*. California Air Resources Board.

<https://www.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants>

² (Garcia, 2017). *Assembly Bill 617. Chapter 136. California*; Christina Garcia; July 26, 2017.

https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB617

National Emission Inventory requirements; development of Air Toxic Control Measures, air monitoring studies and CalEnviroScreen inputs; and other Board activities;

- Further refine the current requirements in the regulation for completeness and clarity.

The compliance requirements and the economic impact of the proposed amendments would begin with the 2023 reporting year, based on emissions data from 2022. Costs to the private sector are expected to increase from \$2.1 million per year in 2022 and peak at \$7.9 million per year in 2025, before decreasing to \$5.2 annually from 2031 on due to completion of one-time compliance requirements and facilities seeking exemption from further reporting requirements. The proposed amendments have been developed in parallel with proposed amendments to Regulation for the Reporting of Criteria Air Pollutants and Toxic Air Contaminants (CTR), which requires reporting of criteria pollutant and toxic air contaminant emissions. The proposed implementation schedule for the CTR amendments is designed to synchronize with the periodic cycle of emissions reporting inherent to the EICG and Hot Spots program until the entirety of emissions reporting requirements are subsumed by the proposed CTR amendments. In this manner, costs for emissions reporting for the facilities subject would not be additive, and costs for emissions reporting between the two programs are harmonized and streamlined. In addition to the private sector, local government and state government are also expected to incur costs, at a maximum of \$4.5 million and \$653,000 per year, respectively.

Overview of the Proposed Amendments

Table ES-1 provides a summary of the key amendments proposed to the regulation. Complete descriptions of the proposed amendments are provided in the remainder of this staff report, particularly in in the Purpose and Rationale Section (section XI). The full text of the proposed amended EICG and Appendices, including underline/strikeout text displaying all revisions is provided in Appendix A of this document (Appendix A to the ISOR).

Note: Most mentions of an appendix in this document refer to one of the several appendices that are part of the EICG Report. References to appendices that are part of the Staff Report will be clearly identified as "Appendix to the ISOR"

Table ES-1: Summary of Proposed Regulatory Amendments to EICG and Appendices

Topic	Proposed Regulatory Updates
General	<ul style="list-style-type: none"> • Incorporate by reference the most recent OEHHA Risk Assessment Guidelines³ • Incorporate by reference the most recent CAPCOA Facility Prioritization Guidelines⁴ • Update several definitions for clarity and consistency with other programs • Update list of documents incorporated by reference • Harmonize with other reporting requirements
Reporting Requirements	<ul style="list-style-type: none"> • Expand the reporting of building height and related parameters within zone of building downwash effects⁵ • Include language to address prior guidance regarding on-site mobile source coverage and other technical interpretations • Add factors for district consideration in determining facility exemptions and reinstatements • Add factors for district consideration in determining extent of update reporting provisions

³ (OEHHA, 2015). *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments 2015, Notice of Adoption*. Published March 6, 2015. <https://oehha.ca.gov/air/cnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>

⁴ (CAPCOA, 2016). *Air Toxic "Hot Spots" Program Facility Prioritization Guidelines*. California Air Pollution Control Officers Association & Air Toxics and Risk Managers Committee. Published August, 2016. <http://www.capcoa.org/wp-content/uploads/2016/08/CAPCOA%20Prioritization%20Guidelines%20-%20August%202016%20FINAL.pdf>

⁵(USEPA, 2019a). Air dispersion models: *AERMOD* (19191) modeling system, August 2019, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod>; specifically the *AERSCREEN* (16216) model, December 2016, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models#aerscreen>; *BPIPPRM* (19191) model, November 2019, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-related-model-support-programs#bpipprm>. Accessed August 20, 2020

Topic	Proposed Regulatory Updates
Diesel Engine Reporting Requirements	<ul style="list-style-type: none"> • Require reporting of emissions from stationary portable diesel engines greater than 50 horsepower at specified larger facilities • Clarify text allowing districts to override facility exemptions for smaller engines that may pose public health risk • Clarify scenarios that the districts may determine as routine operations for emissions reporting • Strengthen the use of population-wide impact parameters as a consideration for screening assessments
Appendix A – List of Reportable Substances	<ul style="list-style-type: none"> • Update the list of reportable substances to include new/modified chemicals of concern • Add three types of chemical functional group categories to Appendix A-I • Establish a phase-in schedule for reporting of newly added chemicals
Appendix C – Facility "Look-Up" Table	<ul style="list-style-type: none"> • Update the list of chemicals associated with specific industry sectors and broad overarching processes
Appendix D – Source Testing Requirements	<ul style="list-style-type: none"> • Add new source test requirements for waste management facilities, allowing for a two-step testing and review process • Add new source test requirements for secondary aluminum processing
Appendix E – Requirements for Facilities Emitting Less than 10 ton/year of Criteria Pollutants	<ul style="list-style-type: none"> • Update the classes/sectors and reporting thresholds to add facility types posing potential public health concerns • Revise categories and thresholds to more health protective levels, in light of 2015 OEHHA health risk science⁶ • Add a class/sector for facilities that emit 4 or more tons per year of criteria pollutants (but less than 10 tons per year) • Establish a sector phase-in schedule consistent with proposed CTR Regulation amendments

⁶ (OEHHA, 2015). *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments 2015, Notice of Adoption*. Published March 6, 2015. <https://oehha.ca.gov/air/cnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>

Topic	Proposed Regulatory Updates
Appendix F – Criteria/Protocols for Screening Assessment	<ul style="list-style-type: none"> Establish a stepwise protocol for determining acceptable types of screening air dispersion and other screening methods

Staff Recommendation

Staff recommends that the Board approve the amendments to the EICG, as proposed, to support multiple CARB and air district programs.

I. INTRODUCTION AND BACKGROUND

Over the last several decades, California has enacted several pieces of legislation that form the basis for a comprehensive program to identify and control air toxics from a multitude of sources, inform the public of significant toxic exposures and provide ways to reduce risks from these exposures.

The Air Toxics "Hot Spots" Information and Assessment Act of 1987 and its subsequent amendments (the Act) directed CARB to establish a program to inventory emissions of toxic substances emitted into the air, and to assess the public health risk to those who are exposed⁷. The Act requires that toxic air emissions from stationary sources (facilities) be quantified and compiled into an inventory according to criteria and guidelines developed by CARB. The Act also requires that each facility be prioritized to determine whether a health risk assessment must be conducted, that the risk assessments be conducted according to methods developed by the Office of Environmental Health Hazard Assessment (OEHHA), that the public be notified of significant risks posed by nearby facilities, and that emissions which result in a significant risk be reduced.

The Act also directed CARB to adopt an Emission Inventory Criteria and Guidelines (EICG) Regulation. The EICG Report, which is incorporated by reference into Section 93300.5, Title 17, California Code of Regulations, specifies criteria for determining which emissions are reported, and guidelines for how those emissions are reported to the local district, including requirements for inventory plans and reports,

⁷ (Connelly, 1987) *Air Toxic Hot Spots Information and Assessment Act*. Published September, 1987. Accessed August 19, 2020. <https://www.arb.ca.gov/ab2588/overview.htm>

the use of source testing and other measurement or estimation methods, and the list of substances to be reported⁸.

Data collected under EICG, along with other emission inventory data, forms the foundation of many CARB programs devoted to protecting human health. The emission inventory compiled under this program provides essential information for the development of risk assessments and cost-effective risk reduction measures. More importantly, public health risks throughout the state are reduced as facilities implement measures to reduce the air toxic emissions resulting from their operations.

Another beneficial outcome of the data collected under the EICG has been its incorporation into the California Toxics Inventory (CTI), a comprehensive compilation of toxic emissions from stationary, areawide, on-road mobile, off-road mobile, and natural sources. The CTI provides an estimate of the relative contribution of the various source categories to the overall air toxic emissions burden, and improvements to the quality and comprehensiveness of the data help CARB and the air districts identify the most significant sources and establish priorities in the development of control measures and regulatory actions.

The remainder of this staff report discusses the objectives and benefits of the proposed amendments, and provides a summary of fiscal and environmental impacts and other information related to the EICG updates.

II. THE PROBLEM THAT THE PROPOSAL IS INTENDED TO ADDRESS

Emission inventory data is critical to understanding the sources of emissions that may contribute to adverse health risks or other impacts. Exposure to polluted air is linked to a number of health effects such as worsened asthma, hospitalizations, and even premature death related to heart and lung disease. Toxic air pollutants emitted from cars, trucks and industrial sources can also cause other adverse health effects such as cancer.

In the years since the last EICG update in 2007, there have been significant advances in our understanding of the toxic health risk posed by many chemicals and their impacts on public health at different stages in life. Most notably, the latest scientific evidence shows that early-life exposures to air toxics contribute to an increased lifetime risk of developing cancer, or other adverse health effects, compared to exposures that occur in adulthood. Overall, these studies concluded that lifetime inhalation cancer risk could be increased by a factor of three times higher than

⁸ (CCR, 1993). 17 CCR 93000, *Substances Identified as Toxic Air Contaminants*. California Air Resources Board.
<https://www.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants>

previously estimated. In response, the Office of Environmental Health Hazard Assessment (OEHHA) updated their Guidance Manual for Health Risk Assessments in 2015, and the EICG must be updated to reflect this latest guidance⁹.

Additionally, the Act requires CARB to compile a list of substances of concern identified by other agencies and scientific bodies. Substances that must be considered include CARB's own Toxic Air Contaminants¹⁰, U.S. EPA's Hazardous Air Pollutants¹¹, substances from the International Agency for Research on Cancer¹², the California Proposition 65 list¹³, the National Toxicology Program¹⁴, and the Hazard Evaluation System and Information Service list¹⁵. In addition, CARB can also include other substances that may present a chronic or acute threat to the public but have not been formally listed in the six sources above. Since the last EICG update in 2007, many substances have been added to the six source lists that CARB must consider for inclusion, and CARB staff identified over 1,000 new substances that meet the criteria for reporting under the Hot Spots Act.

The primary purpose of the proposed EICG amendments is to align the Hot Spots Program with the latest OEHHA Health Risk Assessment Guidelines and to update the

⁹ (OEHHA, 2015). *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments 2015, Notice of Adoption*. Published March 6, 2015. <https://oehha.ca.gov/air/crnrr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>

¹⁰ (CCR, 1993). 17 CCR 93000, *Substances Identified as Toxic Air Contaminants*. California Air Resources Board. <https://www.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants>

¹¹ (USEPA, 1990). *The Clean Air Act Amendments of 1990 List of Hazardous Air Pollutants*. United States Environmental Protection Agency. <https://www.epa.gov/airtoxics/orig189.html>

¹² (IARC, 2020). *IARC Monographs on the Identification of Carcinogenic Hazards to Humans*. International Agency for Research on Cancer; June 26, 2020. <https://monographs.iarc.fr/list-of-classifications/>

¹³(OEHHA, 2020a). *The Proposition 65 List*. Office of Environmental Health Hazard Assessment; Accessed August 13, 2020. <https://oehha.ca.gov/proposition-65/proposition-65-list>

¹⁴ (NTP, 2020). *National Toxicology Program: Monographs*. Accessed August 19, 2020. <https://ntp.niehs.nih.gov/publications/monographs/index.html>

¹⁵ (CDPH, 2020b). *Hazard Evaluation System and Information Service (HESIS) Publications*. Accessed August 18, 2020. <https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/HESIS/Pages/Publications.aspx#otherhazards>

list of chemical substances that have been recognized as having the potential for adverse health effects.¹⁶

III. BENEFITS ANTICIPATED FROM THE REGULATORY ACTION, INCLUDING THE BENEFITS OR GOALS PROVIDED IN THE AUTHORIZING STATUTE

Government Code section 11346.2(b)(1) requires enumeration of the anticipated benefits of the regulatory action, including the benefits and goals of the authorizing statutes and other needs. The Air Toxics "Hot Spots" Information and Assessment Act requires affected facility operators in the State to report the types and quantities of toxic substances their facilities release into the air. Facility operators prepare and update emission inventory reports and submit these data to the districts for review and approval. The goals of the Act are to collect this emission information and make it available to the public, to identify and prioritize facilities having localized impacts, to assess health risks, and to notify nearby residents of significant risks¹⁷. After amendments in 1992, the Act calls for owners of significant-risk facilities to reduce that risk below the level of significance within specified timeframes.

Both the public and industry have benefited from the Hot Spots Program. The emission inventory compiled under this program provides essential data for the risk assessment and public notification processes. It provides data for public requests for toxics information and provides an essential tool for development of cost-effective risk reduction audits and plans. The emission data collected under this program are used to help prioritize the development of air toxic control measures, and has helped identify source of air toxics not previously under evaluation and has provided exposure information needed to prioritize control measures and develop regulatory actions. The reported data also serve as a baseline for quantifying progress toward reducing toxic emissions. Over the last three decades, facilities that pose a potential significant health risk to the public have been required to reduce their risks, thereby reducing the near-source exposure of Californians to toxic air pollutants.

Despite significant progress in reducing overall risk from facilities statewide, newer studies suggest an increase in lifetime cancer risk from exposures to air toxics in the early life stages. In addition, the number of chemical substances identified as posing

¹⁶ (OEHHA, 2015). *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments 2015, Notice of Adoption*. Published March 6, 2015. <https://oehha.ca.gov/air/cnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>

¹⁷ (Connelly, 1987). *Air Toxic Hot Spots Information and Assessment Act*. Published September, 1987. Accessed August 19, 2020. <https://www.arb.ca.gov/ab2588/overview.htm>

chronic or acute health threats when present in the air has increased significantly. The proposed amendments will enhance the public access to information about releases of toxics into the air from a large number of facilities; provide more comprehensive toxics data for evaluating the health risks to nearby residents; and harmonize the reporting requirements with other reporting programs to create consistency and avoid duplication.

Also, as California continues to transition toward zero-emission vehicles, the relative contribution of emissions from stationary sources will continue to increase, and more comprehensive stationary source inventories will be needed to identify and evaluate appropriate mitigation strategies to reduce public exposures to harmful pollutants.

A key benefit of the proposed amendments will be to provide the public, community groups, scientists, air districts, CARB, and others with updated information about facilities that represent a potential health risk to nearby residents. The proposed amendments will not only expand the number of harmful substances that must be reported, but also increase access to information about the facilities that emit them. Improving the availability of emissions data at the local level will help to efficiently implement community air protection requirements under Assembly Bill 617 (AB 617)¹⁸, and may also be used to inform the development of CalEnviroScreen, which is a tool to identify and assess geographic areas within California that are disproportionately impacted by pollution. And, although the proposed regulation amendments provide no direct benefits to worker safety, over time, indirect health benefits to workers and residents within California are expected to be realized as actions are taken to reduce emissions based on improved inventory data.

IV. AIR QUALITY

The overarching objective of the Hot Spots program is to reduce exposures to harmful substances, particularly in areas impacted by nearby facilities. The improved and more extensive toxics emission inventory data to be collected under the proposed EICG amendments will play a key role in identifying facilities whose emissions represent a potential risk to the surrounding community. Under the program requirements, high-risk facilities are required to reduce their health risk impacts, which can be achieved by direct emission reductions or other modifications to the facility's industrial processes.

The proposed amendments would also provide indirect air quality benefits. For instance, the emission data collected under this program can be used to help prioritize

¹⁸ (HSC, 2017). *Statutes of 2017; Chapter 136; Health and Safety Code Section 29607.1: Nonvehicular Air Pollution: Criteria Air Pollutants and Toxic Air Contaminants (AB 617)*. Accessed August 25, 2020.
https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB617

the development of air toxic control measures and other regulatory actions that result in emission reductions.

V. ENVIRONMENTAL ANALYSIS

A. Introduction

This chapter provides the basis for CARB's determination that the proposed project is exempt from the requirements of the California Environmental Quality Act (CEQA). A brief explanation of this determination is provided in section B below. CARB's regulatory program, which involves the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the State's ambient air quality, has been certified by the California Secretary for Natural Resources under Public Resources Code section 21080.5 of CEQA (14 CCR 15251(d)). Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative declarations, and initial studies. CARB, as a lead agency, prepares a substitute environmental document (referred to as an "Environmental Analysis" or "EA") as part of the Staff Report prepared for a proposed action to comply with CEQA (17 CCR 60000-60008). If the project is finalized, a Notice of Exemption will be filed with the Office of the Secretary for the Natural Resources Agency and the State Clearinghouse for public inspection.

B. Analysis

CARB has determined that the proposed project is exempt from CEQA under the general rule or "common sense" exemption (14 CCR 15061(b)(3)). CEQA Guidelines state that "[t]he activity is covered by the common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA". The proposal is also categorically exempt from CEQA under the "Class 6" exemption (14 CCR 15306) because it is an action for the collection of information (i.e., basic data collection, research, experimental management, and resource activities) which does not result in serious or major disturbances to an environmental resource. The proposed EICG amendments modify existing reporting requirements for regulated entities to enhance the toxics emissions reporting program. The proposed amendments only affect data collection, data reporting, program administration, and the contents of electronic databases, and does not involve or result in any changes to the physical environment. Based on CARB's review it can be seen with certainty that there is no possibility that the proposed project may result in a significant adverse impact on the environment. Further, the proposed action is designed for the purpose of information collection and CARB found no substantial evidence indicating the proposal could adversely affect any environmental

resource areas, or that any of the exceptions to the exemption applies (14 CCR 15300.2). Therefore, this activity is exempt from CEQA.

VI. ENVIRONMENTAL JUSTICE

State law defines environmental justice as the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Government Code, section 65040.12, subd (e)(1)). Environmental justice includes, but is not limited to, all of the following: (A) The availability of a healthy environment for all people. (B) The deterrence, reduction, and elimination of pollution burdens for populations and communities experiencing the adverse effects of that pollution, so that the effects of the pollution are not disproportionately borne by those populations and communities. (C) Governmental entities engaging and providing technical assistance to populations and communities most impacted by pollution to promote their meaningful participation in all phases of the environmental and land use decision making process. (D) At a minimum, the meaningful consideration of recommendations from populations and communities most impacted by pollution into environmental and land use decisions (Gov. Code, § 65040.12, subd. (e)(2)). The Board approved its Environmental Justice Policies and Actions (Policies) on December 13, 2001, to establish a framework for incorporating environmental justice into CARB's programs consistent with the directives of State law (CARB 2001). These policies apply to all communities in California, but are intended to address the disproportionate environmental exposure burden borne by low-income communities and communities of color. Environmental justice is one of CARB's core values and fundamental to achieving its mission.

Actions of CARB, local air districts, and federal air pollution control programs have made substantial progress towards improving air quality in California. However, some communities continue to experience higher exposure than others because of the cumulative impacts of air pollution from multiple sources. Adoption and implementation of the proposed EICG amendments will have no negative environmental impacts on environmental justice communities.

Many disadvantaged communities experience environmental and health inequities from air pollution. These communities tend to experience disproportionate air pollution impacts from freeways, rail yards, warehouses, and ports. Many of the same communities also experience pollution impacts from large industrial facilities such as oil refineries, or from proximity to smaller sources like chrome platers, metal recycling facilities, oil and gas operations, agricultural burning, or fugitive dust. The EICG, along with the programs mandated by AB 617 and AB 197, is a key component of CARB's comprehensive approach for reducing the health risk burden in these communities.

Under the proposed amendments, a substantial number of additional facilities throughout the state will be required to report their toxics emissions, and many new and emerging chemicals of concern will be addressed as well. The proposed amendments will ensure that potential risks from all new facilities and chemical substances are evaluated and mitigated where necessary. These amendments will provide air quality benefits for all Californians, particularly those residing in communities located near facilities in the Hot Spots program.

The additional EICG emissions information will be made widely available to the public at large, providing accurate and transparent emissions data to environmental justice communities, scientists, and others. The data will support community emissions reduction programs, community monitoring programs, CARB rulemakings, development of emission reduction strategies, development of CARB Airborne Toxics Control Measures, and more, all focused on improving the air quality, and reducing air pollution impacts within California environmental justice communities and statewide.

VII. ECONOMIC IMPACTS ASSESSMENT

The following economic impacts assessment (EIA) for the proposed amendments to the EICG addresses the legal requirements for an EIA by presenting a summary of changes and costs due to the amendments, a description of the methodology used to estimate the cost of compliance and approach to the analysis, as well as CARB staff's analysis of the economic impact on California businesses and fiscal impact of State and local agencies.

New requirements in the proposed revised EICG would increase the number of facilities applicable to the Hot Spots Program and increase costs for some existing facilities subject to the Program. A summary of the costs and the legal requirements that must be satisfied in analyzing the economic impacts to businesses is provided in the following sections.

Unless expressly stated, this analysis does not include the costs associated with complying with elements of the EICG not being amended or other regulations that may affect facilities subject to the proposed amendments. An analysis of potential costs sharing if proposed amendments the Regulation for Reporting Criteria Air Pollutants and Toxic Air Contaminants (CTR) are adopted is provided in a later section.

Legal Requirements

Government Code Sections 11346.2(b)(2) and 11346.3(b) require the preparation of an EIA¹⁹. Specifically, Section 11346.3 of the Government Code requires California agencies, in proposing to adopt or amend any administrative regulation, to:

- assess the potential for adverse economic impacts on California business enterprises and individuals, including the ability of California businesses to compete with businesses in other states
- include the potential impact of the regulation on California jobs, business expansion, and business elimination or creation
- estimate the costs or savings to any State or local agency and school district in accordance with instructions adopted by the Department of Finance
- include any non-discretionary cost or savings to local agencies, and the cost or savings in federal funding to the State

Additional requirements apply for an EIA based on whether the proposed regulation is, or is not, a *major regulation*. There are two thresholds to consider regarding major regulations.

For a major regulation proposed on or after January 1, 2014, a standardized regulatory impact analysis (SRIA) is required. The definition of major regulation as it specifically relates to a SRIA is “any proposed rulemaking action adopting, amending or repealing a regulation subject to review by OAL that will have an economic impact on California business enterprises and individuals in an amount exceeding fifty million dollars (\$50,000,000) in any 12-month period between the date the major regulation is estimated to be filed with the Secretary of State through 12 months after the major regulation is estimated to be fully implemented (as estimated by the agency), computed without regard to any offsetting benefits or costs that might result directly or indirectly from that adoption, amendment or repeal.” (1 CCR § 2000)

A SRIA requires a comprehensive assessment of all costs or all benefits (direct, indirect, and induced) or the proposed regulation on business enterprises and individuals located in or doing business with California.

Health and Safety Code (H&SC) Section 57005 addresses the requirements for major regulations as defined in that section. In implementing these requirements, the California Environmental Protection Agency (CalEPA) requires CARB to perform an economic impact analysis of submitted alternatives to the proposed regulation before adopting any major regulation, as defined in that section. A major regulation is defined in that section as “any proposed regulation that will have a potential cost to

¹⁹ (AB 1033 §11346, 2016). *Government Code section 11346. Economic Impact Assessment: Small Business Definition*, Eduardo Garcia. September 14, 2016. https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB1033

California business enterprises in an amount exceeding ten million dollars (\$10,000,000) in any single year.”

Exceeding the CalEPA major regulation threshold requires a consideration of whether there is a less costly alternative or combination of alternatives which would be equally as effective in achieving increments of environmental protection in a manner that ensures full compliance with statutory mandates within the same amount of time as the proposed regulatory amendments.

The proposed regulatory amendments are not projected to have potential costs to California business enterprises exceeding ten million dollars in any single year; therefore, the proposed regulatory amendments are not considered a major regulation under H&SC Section 57005 (CalEPA Guidelines), and do not require the preparation of a SRIA.

Government Code Section 11346.3(b)(1)(D) further requires the EIA to also state the benefits to the health and welfare of CA residents, worker safety, and public health. A key benefit of the proposed amendments will be to provide the public, community groups, scientists, air districts, CARB, and others with updated information about facilities that represent a potential health risk to nearby residents. The proposed amendments will not only expand the number of harmful substances that must be reported, but also increase access to information about the facilities that emit them. Improving the availability of emissions data at the local level will help to efficiently implement community air protection requirements under Assembly Bill 617 (AB 617)²⁰, and may also be used to inform the development of CalEnviroScreen, which is a tool to identify and assess geographic areas within California that are disproportionately impacted by pollution. And, although the proposed regulation amendments provide no direct benefits to worker safety, over time, indirect health benefits to workers and residents within California are expected to be realized as actions are taken to reduce emissions based on improved inventory data.

C. Summary of Total Costs Due to Amendments

The proposed amendments to the EICG would affect approximately 60,900 unique facilities statewide (comprised of 58,400 private sector facilities, 2,000 local government facilities, and 500 state government facilities), but those affected facilities would not all be required to report emissions or conduct source testing on an annual basis, so the total affected in any one year is lower. The total cost impact to all affected by the proposed amendments, including private businesses and local and

²⁰ (HSC, 2017). *Statutes of 2017; Chapter 136; Health and Safety Code Section 29607.1: Nonvehicular Air Pollution: Criteria Air Pollutants and Toxic Air Contaminants (AB 617)*. Accessed August 25, 2020.

https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB617

state government is projected to be \$13.0 million in any year of implementation, at maximum. For the private sector, the maximum annual cost impact is projected to be \$7.9 million. After implementation, the ongoing annual statewide costs of the regulation are expected to decrease to \$9.2 million a year (of which \$5.2 million is private sector costs, \$3.4 million is local government costs, and \$548,000 is state government costs). Table 1 presents a summary of estimated total costs due to the proposed amendments.

Table 1. Summary of Total Costs Due to Amendments, By Economic Sector

Year	Total Affected Facilities	Private Sector (2019\$)	Local Government (2019\$)	State Government (2019\$)	Annual Total (2019\$)
2022	17,100	2.1 million	785,000	23,000	2.9 million
2023	21,300	5.9 million	4.5 million	532,000	10.9 million
2024	21,300	3.7 million	2.5 million	408,000	6.6 million
2025	36,600	7.9 million	4.4 million	653,000	13.0 million
2026	35,500	6.7 million	4.3 million	636,000	11.6 million
2027	31,500	6.3 million	3.4 million	572,000	10.3 million
2028	30,500	5.9 million	3.7 million	553,000	10.2 million
2029	30,500	5.9 million	3.7 million	554,000	10.2 million
2030	30,500	5.3 million	3.5 million	549,000	9.3 million
2031	30,500	5.2 million	3.4 million	548,000	9.2 million

Additional details regarding specific costs are provided in the remaining sections of this economic assessment.

D. Costs Considered and Approach to Analysis

The cost estimates performed as part of this EIA are based on approximations of the costs for affected facilities to comply with the regulatory requirements.

Costs Considered

The costs considered in this analysis include the cost of compliance for affected facilities to comply with the requirements of the proposed amendments. These estimates are based on previous experience in revising the EICG and CARB staff interactions with district staff, facility operators, and environmental consultants. The cost analysis presents an estimated typical cost for an average facility. It is likely that some complex facilities may have higher or lower costs than those represented in this analysis.

Emissions Estimation

The primary costs associated with complying with the emissions estimation requirements of the proposed amendments include the determination of applicability,

data gathering and recordkeeping activities, preparation of emissions inventory plans and reports, quality assurance/quality control, and submitting the report to the local air district. The specific cost for a facility subject to emissions reporting will vary depending on each facility's unique situation in terms of its complexity and its current emission reporting requirements as compared to the requirements under this proposal. The phase-in requirements of the proposed amendments to the regulation were included in the analysis.

Source Testing

Source testing typically involves sampling the industrial waste gas stream for pollutants or analyzing the fuel or material used in the industrial process. Source testing is typically a one-time cost that would be used to develop emissions factors for emissions estimation. Source testing may be done for individual facilities, groups of similar facilities doing pooled source testing, or may be skipped entirely if suitable approved emission factors already exist to accurately estimate the facility's emissions. Small business alternatives currently contained in the regulation would allow for a less-burdensome measurement approach as compared to stack testing. These small business alternatives are typically fuel sampling and analysis methods that still provide for an adequate screening step.

Approach to Analysis

The regulation requires activities to be carried out by affected regulated facilities. Costs were estimated for the following activities that may be required of facilities:

1. Emission inventory plan development and implementation, and generally quadrennial (every four years) emission inventory updates; and
2. Source testing.

Not every activity will need to be performed for every affected facility, and not every step will be performed in the same year for all affected facilities because the facilities are expected to be evaluated over a typical four-year Hot Spots Program cycle. Furthermore, some facilities will be new to the program and other existing facilities may need to reevaluate and update their emissions based on the proposed amendments (again, over a four-year cycle). A subset of facilities initially subject to the proposed amendments may have to continue reporting emissions through quadrennial emission inventory updates, after the first four-year cycle is complete. The phase-in requirements of the proposed amendments to the regulation were included in the analysis.

The specific cost for a facility subject to emissions reporting will vary depending on each facility's unique situation in terms of its complexity and its current emission reporting requirements as compared to the requirements under this proposal. Complex facilities are much more likely to be required to update their emission inventory. For most businesses that emit a newly listed substance (or one with a new health value), an emission inventory update is likely to have low financial costs.

A detailed summary of costs to the private sector, as discussed above, is presented in Table 2. As shown, for the private sector, the maximum annual cost of \$7.9 million consists of an estimated \$6.6 million in emissions estimation costs and \$1.3 million for source testing.

Table 2. Detailed Summary of Total Private Sector Costs, By Compliance Requirement

Year	Emissions Estimation (2019\$)	Source Testing (2019\$)	Annual Total (2019\$)
2022	2.1 million	0	2.1 million
2023	4.6 million	1.3 million	5.9 million
2024	2.4 million	1.3 million	3.7 million
2025	6.6 million	1.3 million	7.9 million
2026	5.4 million	1.3 million	6.7 million
2027	5.0 million	1.3 million	6.3 million
2028	4.6 million	1.3 million	5.9 million
2029	4.6 million	1.3 million	5.9 million
2030	4.0 million	1.3 million	5.3 million
2031	3.9 million	1.3 million	5.2 million

E. Economic Impacts to the Private Sector, Including Small Businesses

CARB staff estimates that the proposed EICG Amendments will affect 53,500 private businesses, at a maximum annual statewide cost of \$7.9 million in any one year, and \$5.2 million in ongoing years after implementation. These costs include costs to small businesses, which are discussed separately below.

Staff estimates that the average cost per facility to comply with the requirements of the proposed amendments would initially range from approximately \$560 to \$22,300 per year. These costs decrease to approximately \$300 to \$720 annually after completion of one-time requirements and as reporters become familiar with other emissions reporting requirements under the proposed regulation amendments. However, there will be some businesses with higher or lower costs, depending on the complexity of the facility, or if a facility is not subject to preexisting reporting requirements such that they are not currently collecting data needed to compute emissions data (which will typically be performed by air districts for the smaller facilities).

CARB staff expects the per-facility financial impact to be minimal and absorbable, because in general, the costs will only be minor additional incremental costs in addition to administration activities and existing data collection. In addition, for smaller facilities, it is anticipated that the local air districts will provide assistance to these facilities in computing emissions based on easily obtained throughput and

activity information such as the quantity of material sold (such as gasoline), material consumed (such as natural gas, diesel fuel, or coatings), or material produced or processed. In addition, the reporting costs are expected to decrease over time as ongoing reporting methods are established, and as the air districts and CARB develop more advanced electronic data reporting systems to streamline the reporting process. The compliance requirements of conducting source testing are generally reserved for larger, more complex facilities. These larger facilities are expected to have the economic wherewithal to absorb the additional costs associated with these requirements. Therefore, because of the relatively small incremental additional costs per affected business, CARB staff does not expect businesses to be adversely affected by the costs of the proposed EICG Amendments.

CARB staff does not expect a noticeable change in employment, business creation, elimination or expansion, consumer prices, or business competitiveness in California due to the expanded reporting requirements. However, if the proposed EICG amendments are adopted, we are expecting a minor additional increase in California employment for technical consultants and environmental professionals who may assist facilities in meeting the regulatory requirements. These consultants will typically act as technical services providers to assist in compiling data, preparing and reviewing emissions reports, and submitting required data. The proposed amendments are estimated to create an equivalent of 37 to 64 new full-time jobs statewide. To clarify, there are not 37 to 64 specifically identifiable jobs that would likely be created by affected businesses, but this analysis is provided to estimate the overall potential statewide impact on business job creation. We do not expect any new businesses to be created resulting from the regulation, because any needed consultants would most likely be hired from existing firms.

The proposed amendments to the regulation would have limited impact on the ability of California businesses to compete with businesses in other states. This is because the proposed amendments would impose only a modest additional cost to comply with the emissions reporting requirements, relative to the overall total operational costs for affected facilities. Therefore, the additional cost to comply with this specific regulation would not meaningfully impact the ability of affected California businesses to compete with businesses in other states.

Small Businesses

The proposed EICG amendments will impact an estimated 50,000 small businesses, with a maximum annual statewide cost impact of \$5.9 million in any one year. Ongoing costs are expected to decrease to \$3.9 million per year after the implementation period.

The definition of “small business” is based on the description of “small business” as established in California Government Code Section 11346.3(b)(4)(B), which requires that the business be independently owned and operated, not dominant in its field of operation, and have 100 or fewer employees. Some of the types of affected small

businesses include retail gasoline fueling stations, dry cleaners, print shops, auto body and auto paint shops, metal plating, metal grinding and finishing, coating and finishing facilities, industrial cleaning and degreasing operations, welding operations, facilities with backup diesel generators and emergency fire pumps, and others.

Staff expects nearly all small businesses to primarily have emissions estimation reporting requirements, and not any of the additional compliance requirements of conducting source testing. Staff estimates that the average cost for a small business to comply with the reporting requirements would be approximately \$560 initially and \$300 annually thereafter. These costs are expected to have a minor financial impacts on individual small businesses. Furthermore, for smaller facilities, like small businesses, it is anticipated that the local air districts will often provide assistance to these facilities in computing air toxics emissions based on easily obtained throughput and activity information.

F. Economic Impacts to State and Local Government, Including Air Districts

Under the proposed EICG amendments, compliance would be required for any facility or entity that meets the regulation's applicability requirements, including state and local agencies.

Local Government

The requirements for local government facilities such as landfills and wastewater treatment plants are the same as for any other facilities subject to the regulation. An estimated 2,000 facilities statewide are local government facilities. Most costs for local government facilities to implement the regulation are expected to be similar to the costs for facilities in general. Some facilities subject to the new source testing requirements of the proposed amendments (due to the unique waste stream characteristics and resulting emissions) are typically operated by local governments, such as wastewater treatment plants and landfills. Total estimated costs to local government facilities for the ten-year evaluation period are \$6.3 million.

The local air districts are a form of local government. Districts review inventory plans and reports, review source test plans and reports, track facility status, emissions, and risk in a database, and make information available to CARB and the public. Districts also review public notification letters and attend public consultation meetings, review facility risk reduction audit and plans, and enforce facility risk reduction plans.

Local district fee rules are approved by the local air district. The district determines how much to charge facilities, based on the workload associated with reviewing the facility's emissions and risk information. Similar facilities in different districts may be charged different district fees, depending on each district's program needs and resources. District staff compiles risk information for each facility and annually submits updated information to CARB staff. Total estimated costs to local air districts for the ten-year evaluation period are \$27.8 million.

It is anticipated that districts will cover any additional increase in implementation costs associated with the proposed amendments through the “Hot Spots” fees and existing program budgets and resources. The “Hot Spots” program requires ongoing facility evaluations, and these activities are funded through current budget structures, which are reimbursed through facility fees.

The total costs to local government would then amount to \$34.1 million (i.e., \$6.3 million for local government facilities and \$27.8 million for air districts) over the ten-year life of the amendments.

State Government

State government costs include costs to affected facilities operated by state government, and costs for state agencies to implement the proposed amendments.

Some facilities required to report as a part of the proposed amendments to the regulation are state government agencies. The requirements for state government facilities (such as universities and prisons) to implement the proposed amendments to the regulation are the same as for any other facilities subject to the regulation. An estimated 500 facilities statewide are state government facilities. Costs to state government facilities over the ten-year evaluation period are \$1.2 million.

CARB assists districts in implementing the “Hot Spots” program, compiles emission inventories, develops and refines health risk assessment tools, and makes emissions and risk information available to the public. The Office of Environmental Health Hazard Assessments (OEHHA) adopts health values, develops and updates risk assessment guidelines, and assists districts in reviewing health risk assessments²¹.

It is anticipated that CARB and OEHHA will cover any additional increase in implementation costs associated with the proposed amendments through the “Hot Spots” fees and existing program budgets and resources. The “Hot Spots” program requires ongoing facility evaluations, and these activities are funded through current budget structures, which are reimbursed through facility fees. Estimated fees to be collected based on the proposed amendments provide an estimate of the implementation costs for CARB and OEHHA. Based on existing fee structures and estimates of the number of facilities affected per year, the fee regulation may provide \$3.8 million over ten years, in addition to existing fees.

State fee rates for facilities subject to the Hot Spots Program are listed in the AB 2588 Air Toxic “Hot Spots” Fee Regulation (Section 90700-90705, Title 17, California Code

²¹ (OEHHA, 2015). *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments 2015, Notice of Adoption*. Published March 6, 2015. <https://oehha.ca.gov/air/cnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>

of Regulations) which lists the fee rates for each risk category. A facility is not subject to State fees if the facility has low risk, reduces its risk to low, or does not meet the applicability criteria of the Hot Spots program. CARB staff uses the fee rate schedule to assign State fees to each facility subject to the "Hot Spots" program. Existing facilities already in the "Hot Spots" program will pay the same State fee as in previous years until the facility has determined if the risk at the facility changes when additional listed substances are included in the facility evaluation. There is a legislative cap on State fees of \$1,350,000 (H&SC Section 44380).

The total costs to state government would amount to \$5.0 million (i.e., \$1.2 million for state government facilities and \$3.8 million for CARB/OEHHA) over the ten-year life of the amendments.

G. Alignment with Criteria and Toxics Reporting Regulation

The Regulation for the Reporting of Criteria Air Pollutants and Toxic Air Contaminants (CTR) is currently proposed to be amended. The proposed amendments to the CTR require annual emissions reporting of criteria air pollutants and toxic air contaminants from the same pool of facilities as those required in the proposed revisions to the EICG. The emissions reporting requirements under the proposed EICG amendments are being harmonized with the CTR regulation; in other words, reporting emissions under the CTR program will comply with the emissions reporting requirements of the EICG.²² There is expected to be considerable economic overlap between the two programs, and that costs for the emissions estimation requirements of the EICG will be absorbed into the proposed amendments to the CTR.

Table 3 shows the total private sector costs for the EICG and CTR, and the additional cost if the CTR amendments were adopted as well. The shared costs include all emissions estimation costs for the EICG amendments except for source testing. The EICG emissions estimation costs are effectively absorbed into the emissions reporting costs of CTR. Therefore, if the proposed amendments to the EICG and CTR are adopted, the private sector would not incur the full costs of the proposed amendments to the CTR program (i.e., \$67.4 million over ten years) in addition to the costs for the proposed amendments to the EICG. Instead, the cost for the two programs would be \$79.1 million over ten years (\$54.9 million for EICG + \$24.2 million for CTR).

²² A small, but key difference between the two programs are the difference between Industrywide reporting in EICG and Abbreviated Reporting in CTR. However, those differences are expected to be minimal with regards to the cost of implementation between the two programs, and costs between Industrywide reporting and Abbreviated Reporting are considered the same for this analysis.

Table 3. Cost Comparison: Difference Between CTR and EICG Amendments

Year	EICG: Emissions Estimation (2019\$)	EICG: Source Testing (2019\$)	EICG: Total Private Sector Costs (2019\$)	CTR: Total Private Sector Costs (2019\$)	CTR Additional Cost (2019\$)
2022	2.1 million	0	2.1 million	2.1 million	0
2023	4.6 million	1.3 million	5.9 million	4.6 million	0
2024	2.4 million	1.3 million	3.7 million	2.4 million	0
2025	6.6 million	1.3 million	7.9 million	6.6 million	0
2026	5.4 million	1.3 million	6.7 million	8.5 million	+3.1 million
2027	5.0 million	1.3 million	6.3 million	9.6 million	+4.6 million
2028	4.6 million	1.3 million	5.9 million	9.0 million	+4.4 million
2029	4.6 million	1.3 million	5.9 million	9.0 million	+4.4 million
2030	4.0 million	1.3 million	5.3 million	7.9 million	+3.9 million
2031	3.9 million	1.3 million	5.2 million	7.7 million	+3.8 million
Total	43.2 million	11.7 million	54.9 million	67.4 million	+24.2 million

H. Reasonable Alternatives to the Regulation and the Agency's Reason for Rejecting those Alternatives

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

Staff considered several alternatives to the proposed regulation, including not establishing the regulation (taking no action), evaluation of several alternatives related to altering the reporting applicability criteria, and alternatives for small business applicability. The specific alternatives are described in Chapter VIII of this document. These alternatives were evaluated, but dismissed as not being as effective as or more effective than the proposed regulation in carrying out the purposes of the AB 2588 reporting requirements and other CARB program mandates.

As Chapter VIII of the ISOR describes, these alternatives would be ineffective in meeting the data reporting requirements mandated by AB 2588, as well as supporting other mandated CARB program needs such as AB 617 and AB 197, the Air Toxics "Hot Spots" program, Airborne Toxic Control Measures, and others. Therefore, the alternatives would not produce cost-savings in effectively meeting CARB goals and requirements. In conclusion, no alternative considered by the agency would be more effective in carrying out the purpose for which the regulation is proposed or would be

as effective as, or less burdensome, to affected private persons than the proposed regulation.

VIII. EVALUATION OF REGULATORY ALTERNATIVES

Government Code section 11346.2, subdivision (b)(4) (Gov. Code § 11346, 2016) requires CARB to consider and evaluate reasonable alternatives to the proposed regulatory action and provide reasons for rejecting those alternatives²³. This section discusses alternatives evaluated and provides reasons why these alternatives were not included in the proposal. As explained below, no alternative proposed to the amendments was found to be less burdensome and equally effective in achieving the purposes of the regulation in a manner that ensures full compliance with the initial authorizing law (i.e., AB 2588), and in meeting multiple CARB and district program emission inventory and needs, including those of AB 617 and AB 197, as previously identified. The Board has also not identified any reasonable alternatives to the proposed amendments that would lessen any adverse impact on small business.

A. Take No Action Alternative

An overall “no action” alternative means that the regulation would not be amended, and the existing provisions would remain as they are. Under this alternative, reporting of toxic emissions would continue to be required for facilities currently in the program, but it would be limited to only the chemical substances currently on the list. Facilities emitting unlisted chemicals in amounts that could represent health risks to nearby communities would not have to estimate or report those emissions, and even if the health risks were serious, the facilities would not have to take any measures to reduce their risk. The “no action” option is not consistent with the mandates of AB 2588 or with the AB 197 community right to know provisions. Therefore, the “no action” option is not a viable alternative and was rejected.

B. Require an All-in Approach for Reporting of New Chemical Substances

The proposed EICG amendments allow for a phased approach for when the reporting requirements would apply to the new chemicals; the first group of substances would phase-in on the first year of implementation of the amendments, and the second group would phase-in four years later. Staff considered an alternative in which reporting of all new chemicals would start on the first year of implementation of the amendments.

A potential benefit of this “all-in” approach could be the availability of a more comprehensive inventory at an earlier time, compared to the phased-in approach. It

²³ (AB 1033 §11346, 2016). *Government Code section 11346. Economic Impact Assessment: Small Business Definition*, Eduardo Garcia. September 14, 2016. https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB1033

would also simplify implementation and compliance with the regulation, as facility operators would have to do only a one-time determination of the chemicals they emit. A disadvantage of this approach is that it treats all facilities the same, regardless of the complexity of their emitting processes. Operators of complex facilities with a large number of devices and processes that emit a large number of chemicals would be given the same amount of time to develop an emission inventory plan and estimate their emissions, as a smaller, less complex facility emitting only a few substances. Furthermore, all the facilities (large and small) that emit any of the newly added chemicals would have to prepare an emission inventory plan and emission report. The all-in approach would concentrate the work needed to develop and review the emission inventory plans into a very short timeframe, potentially resulting in unsustainably heavy workloads for large facilities and air district staff, which could lead to delays. Delays would counteract the purpose of adopting the all-in approach, so this option was rejected in preference of the phased-in approach that would allow facilities and air districts to distribute the workload over a longer, more manageable timeframe.

C. Require Quantification of All of the Newly Added Chemical Substances

Under the proposed amendments, emissions of chemical substances newly added to Appendix A-I have to be quantified only if an emission quantification method exists. If no quantification method exists, the facility operator only needs to report the presence, use, or production of the substance and the amounts present, used, or produced. Staff considered an alternative in which all chemicals newly added to Appendix A-I would have to be quantified.

A potential benefit of requiring quantification for all chemicals is that it would result in a more comprehensive and complete inventory of air toxic emissions. The ability to determine the types and amounts of chemicals emitted at any facility would greatly enhance the public right-to-know, and could lead to the identification of facilities whose emissions might merit evaluation for potential localized impacts. A disadvantage of this approach is that it is based on an assumption that emission quantification methods exist for every process that might result in emissions of a substance on the proposed new list.

The most accurate emission quantification methods rely on very expensive source tests that often require elaborate sampling methods and highly specialized laboratory analyses, and which typically target a narrow group of chemicals. Less expensive but still reliable options include the use of emission factors and speciation profiles; however, these are usually derived from the results of multiple source tests, making them applicable only to the processes and chemical species for which the original source tests were conducted. Another inexpensive and reasonably reliable method is chemical mass balance, which can be useful in determining emissions of volatile solvents, albeit only for the relatively narrow category of solvent use. Emissions for many of the newly added chemicals can only be estimated by potentially less reliable

methods that rely on engineering calculations and/or engineering judgment: a series of assumptions about the amount of a particular chemical that might become airborne while undergoing a particular industrial process.

Many of the over 900 new chemicals being proposed for addition to Appendix A-I may not be quantifiable through the more reliable types of emission quantification methods and would have to be estimated by an engineering calculation or engineering judgment method. Since this option would impose a significant amount of work on facility operators and air districts and would result in a less unreliable emission inventory, this option was rejected in favor of the preferred option that chemicals be quantified only if a quantification method exists.

D. Small Business Alternative

Government Code section 11346.2(b)(4)(B) (Gov. Code § 11346, 2016) requires a description of reasonable alternatives to the proposed amendments that would lessen any adverse impact on small business and the agency's reasons for rejecting those alternatives²⁴.

For small businesses or businesses where compliance with standard Hot Spots requirements could create an economic hardship, districts may assign certain classes of facilities to an "industrywide" category. The districts prepare the emission inventory for industrywide categories which are generally subject to lower fees. CARB is recommending to districts that facilities that are brought under "Hot Spots" review due solely to diesel engines be treated in a similar manner to "industrywide" facilities.

The amended applicability criteria in the proposed regulation will include additional small businesses throughout California. To reduce small business impacts, staff has incorporated several mechanisms to reduce scope, cost, and workload. For example, by specifically defining reporting thresholds, the smallest facilities, expected to have negligible air quality impacts, will not be subject to reporting. Also, by providing "industrywide" emission estimation mechanisms for certain sectors (some of which affect many sources such as retail gasoline stations and backup emergency generators), the data reporting requirements are minimized under the proposal. For example, under the "industrywide" emission inventory requirements, minimal data must be collected, such as quantity of gasoline dispensed, which is typically readily available). Then, local air district staff will typically directly assist these affected small businesses in complying with the EICG emissions estimation and reporting requirements.

²⁴ (AB 1033 §11346, 2016). *Government Code section 11346. Economic Impact Assessment: Small Business Definition*, Eduardo Garcia. September 14, 2016. https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB1033

Finally, we considered reporting exclusions for small businesses, or for certain small business categories. In considering this alternative, during our public process in developing the proposed amendments, we received public support to include as many facilities as reasonable, and to avoid exclusions of emitting facilities, particularly in selected AB 617 communities. Community members and others throughout California have a strong interest in having a clear understanding of sources of emissions in their communities, even if those sources are small businesses. In addition, emissions from small business sources may individually or cumulatively create unexpectedly significant impacts, which is another reason to not exclude certain facilities, merely because they are small businesses. For these reasons, to be health protective, and to collect the data needed to fully identify air pollution sources and impacts within communities and statewide, staff did not propose specific exclusions for small businesses within the proposed regulation. Instead, within the amendments we have attempted to provide pathways to reduce small business reporting burdens where reasonable and technically feasible.

E. Health and Safety Code section 57005 Major Regulation Alternatives

The proposed amendments to EICG will not result in a total economic impact on state businesses of more than \$10 million in any single year of implementation. Therefore, this proposal is not a major regulation as defined by H&SC section 57005.

IX. JUSTIFICATION FOR ADOPTION OF REGULATIONS DIFFERENT FROM FEDERAL REGULATIONS CONTAINED IN THE CODE OF FEDERAL REGULATIONS

Government Code section 11346.2(b)(6) requires CARB to describe its efforts to avoid unnecessary duplication or conflicts with federal regulations that address the same issues. As with the proposed EICG amendments, various provisions of existing federal regulations require the reporting of toxic air contaminants to U.S. EPA. For example, U.S. EPA established the Toxics Release Inventory (TRI) to track the management of certain toxic chemicals that may pose a threat to human health and the environment. Facilities in different industry sectors must report annually how much of each chemical is released to the environment (emitted to the air or water, or placed in some type of land disposal) and/or managed through recycling, energy recovery and treatment.

The TRI was created as part of a response to several events that raised public concern about local preparedness for chemical emergencies and the availability of information on hazardous substances. In 1986, Congress passed the Emergency Planning and Community Right-to-Know Act (EPCRA) to support and promote emergency planning

and to provide the public with information about releases of toxic chemicals in their community. Section 313 of EPCRA established the TRI Program²⁵.

Although the proposed EICG amendments also require reporting toxic emissions, which does have some overlap with existing federal requirements, the requirements are not duplicative. The proposed amendments to the regulation are specifically designed to address the needs associated with evaluating air pollution impacts in disproportionately impacted communities, and comprehensively throughout California using consistent data. These needs cannot be met with data collected under existing federal regulations, which makes it necessary to implement the proposed EICG amendments.

The core reporting requirements for EICG are mandated by AB 2588 (Stat. 1987, ch 1252; Health and Safety Code Sections 44300 through 44394), which required CARB to set in motion steps to collect emission data on air toxics emitted in California, to identify those facilities with unacceptable localized health risks, and to ensure nearby residents were notified of significant risks. Subsequent legislation (SB 1731) in 1992 established a mechanism to reduce significant risks to health protective levels. Also, H&SC section 39607(b)(2) established under AB 197 requires that the state board shall, "Inventory sources of air pollution with the air basins and determine the kinds and quantity of air pollutants...". Further, the cost of differing state and federal reporting regulations is justified by the expected benefits to human health, public welfare, and the environment. CARB programs to reduce public exposure to air toxics and the resulting health risks will be substantially supported using the data collected under the regulation.

Further examples of how data collected under existing federal programs is not sufficient to successfully fulfil the requirements of AB 2588, and why the proposed EICG amendments are necessary are provide below.

Facilities that report to TRI are typically larger facilities involved in manufacturing, metal mining, electric power generation, chemical manufacturing and hazardous waste treatment. Not all industry sectors are covered by the TRI Program, and not all facilities in covered sectors are required to report to TRI²⁶. In general, facilities reporting to TRI must meet three criteria: 1) be part of a specific industry sector; 2) employ 10 or more full-time equivalent employees; and 3) manufacture, process, or otherwise use a TRI-listed chemical in quantities above threshold levels in a given year

²⁵ (USEPA, 2017a). *Toxic Chemical Release Inventory Reporting (TRI), Section 313 of the Emergency Planning and Community Right-to-Know Act*. Accessed August 19, 2020. <https://www.epa.gov/toxics-release-inventory-tri-program/what-toxics-release-inventory>

²⁶ (USEPA, 2018b). *TRI Reporting and NAICS Industries*. Published March 19, 2018. <https://www.epa.gov/toxics-release-inventory-tri-program/tri-covered-industry-sectors>

The toxics data collected by TRI presents some limitations which necessitates that CARB establish a separate regulation and requirements to collect emissions data necessary to effectively implement the requirements of AB 2588. For example, the facility self-reported TRI data is not reviewed by CARB or the air districts for quality or completeness, as would be done for data collected through the Hot Spots program. In addition, TRI focuses on specific larger industry sectors, and does not include smaller sources such as small diesel engines, gas stations, print shops, and auto body shops, which are fully included under the EICG. The TRI data also does not explicitly collect diesel particulate matter as an individual toxic substance, which is of significant concern in impacted communities. Collecting criteria and toxics emissions data from small sources or facilities, which is then reviewed by air districts and CARB for public dissemination, is a critical element needed to understand and reduce the air pollution impacts in disproportionately burdened communities and statewide where warranted. For these reasons, the proposed amendments to EICG are necessary to successfully and fully meet the AB 2588 program and other needs, as previously mentioned.

The proposed amendments also do not conflict with any Federal regulations. For facilities that may be subject to partial overlap between the federal and CARB requirements due to the amendments, the impacts would be minimal, because the collected data will meet the requirements of both federal and state reporting programs, so duplicative data collection is not required. In addition, for the federal criteria and toxics emissions reporting programs, we anticipate that the proposed EICG amendments may enhance compliance and data quality, because of the requirement for more comprehensive and consistent emissions reporting, and the enhanced scrutiny of the collected air toxics data by CARB, local air district staff, and others.

X. PUBLIC PROCESS FOR DEVELOPMENT OF THE PROPOSED ACTION (PRE-REGULATORY INFORMATION)

Consistent with Government Code sections 11346, subdivision (b), and 11346.45, subdivision (a), and with the Board's long-standing practice, CARB staff held a public workshop and had other meetings with interested persons during the development of the proposed EICG amendments. These informal pre-rulemaking discussions provided staff with useful information that was considered during development of the amendments that is now being proposed for formal public comment.

In this chapter, we provide a brief overview of the regulatory process and actions taken to develop the staff's proposed amendments.

CARB staff initiated the preliminary work on the EICG amendments in the fall of 2017, and over the course of the next 15 months held a series of internal meetings to further refine the scope and anticipated timeline of the proposed revisions. During this time,

CARB staff reached out to OEHHA staff to start discussions on the chemical substances being evaluated for possible inclusion in the Appendix A list.

In June 2019, CARB staff engaged the Scientific Review Panel to request their support in reviewing the proposed additions to the chemical substance list^{27,28,29,30}. Also starting in June 2019, CARB staff initiated coordination with the newly established CAPCOA AB 2588 EICG workgroup. This workgroup, which includes representatives from CARB and several large, medium, and rural air districts, held several teleconferences during the amendment development process that specifically focused on the EICG emissions reporting requirements. During the calls, CARB and district staff discussed both general and very detailed practical elements of the proposed amendments, some of which would impose additional reporting requirements on both facilities and air districts.

CARB staff also had a series of one-on-one calls with a number of large, medium, and rural air districts for the specific purpose of developing a deeper understanding of the variations between air districts in their methods, resources, staffing, and the overarching requirements under their purview. The air districts were instrumental in developing the proposed amendments, providing both verbal and written comments on key issues through the process.

During the course of developing the proposed amendments, CARB staff also met separately with several industry and trade associations; local agencies that provide public utility services; and environmental and community groups to discuss the proposed revisions under consideration and to allow them to provide early input as the regulatory concepts took shape. As with the calls with the CAPCOA workgroup and the individual air districts, these meetings were very useful in refining the scope of the proposed amendments.

On April 30, 2020, CARB staff hosted an online public workshop (via webinar) focusing on the proposed amendments to the regulation. Prior to the workshop, CARB staff

²⁷ (SRP, 2019a). *SRP Transcript: CARB 2588 Air Toxics Hot Spots Presentation*; June 28, 2019.

https://ww2.arb.ca.gov/sites/default/files/2020-07/19_06_28_arb_srp_ADA.pdf

²⁸ (SRP, 2019b). *SRP Transcript: AB 2588 EICG Proposed Revisions to Appendix A Chemical List*; October 4, 2019.

https://ww2.arb.ca.gov/sites/default/files/2020-07/19_10_04_arb_srp_ADA.pdf

²⁹ (SRP, 2019c). *SRP Transcript: CARB Summary of SRP AB 2588 Discussion*; November 22, 2019.

https://ww2.arb.ca.gov/sites/default/files/2020-07/19_11_22_arb_srp_ADA.pdf

³⁰ (SRP, 2019c). *SRP Transcript: CARB Summary of SRP AB 2588 Discussion*; November 22, 2019.

https://ww2.arb.ca.gov/sites/default/files/2020-07/19_11_22_arb_srp_ADA.pdf

sent notification letters to over 1,000 facilities potentially subject to the regulation, and electronically notified over 20,000 individuals or companies via CARB email lists. Notices for the workshop were sent out to the email lists for: AB2588 Air Toxics Hot Spots; Criteria and Toxics Reporting Regulation; AB32 Public Health Workgroup; Community Air; Environmental Justice Stakeholders Group; GHG Mandatory Emissions Reporting³¹; Oil and Natural Gas Production, Processing, and Storage; Refineries Sector; Title V Activities; Manure Management; Semiconductors; Automotive Refinishing Suggested Control Measure; AB179; Incentives for Community Air Protection; Bulk Plant Vapor Recovery; Combined Heat and Power Systems; Portable Equipment Registration Program³²; Landfill Methane Control Measure; Dry Cleaning Program; Chrome Plating ATCM; Stationary Diesel Engine Risk Reduction; Thermal Spraying Materials; Asbestos - Naturally Occurring; Vapor Recovery Program; and Composite Wood Products.

Attendance at the workshop included nearly 700 participants representing air districts, environmental groups, community groups, affected businesses, industry groups, academics, consultants, government agencies, and others. During the workshop, staff addressed nearly 100 questions and comments, and following the workshops, we received an additional ten “informal” comment letters regarding the proposed amendments, which are posted on the Comments Webpage for the Hot Spots Emission Inventory Criteria and Guidelines Regulation³³. Staff considered the submitted comments in developing and refining the CTR amendments in the current rulemaking.

In addition to the CAPCOA workgroup calls, and the public workshop, staff has also had follow-up calls with air districts and industry groups to discuss specific elements of the proposed amendments and implementation of the new provisions. On July 29, CARB staff released additional draft materials to allow for further public review and comment prior to the publication of the formal proposed regulatory materials in late September. Staff are also planning to hold a second workshop on September 30, 2020, to provide an update on the full extent of the changes being proposed for consideration.

³¹ (CARB, 2017b). 17 CCR Section 95100-95163. *Mandatory Greenhouse Gas Emissions Reporting*, October 2017. https://www.arb.ca.gov/cc/reporting/ghg-rep/regulation/mrr-2016-unofficial-2017-10-10.pdf?_ga=2.19545019.2011882723.1536854970-680078377.1532727140

³² (CCR, 2011). 13 CCR 2450, *Regulation to Establish a Statewide Portable Equipment*. California Air Resources Board. <https://www.arb.ca.gov/resources/documents/perp-regulation-and-portable-engine-atcm>

³³ (CARB, 2018a). *Emission Inventory and Criteria Guidelines Regulation Comments*. Accessed August 24, 2020. <https://ww2.arb.ca.gov/eicg/comments>

Beyond the public, district, and workgroup meetings mentioned above, staff's outreach efforts included numerous personal contacts via telephone, electronic mail, and individual meetings with interested parties. These contacts included regulated facilities, environmental and community organizations, industry groups, and other entities. Staff considered the informal comments provided during and after the contacts and meetings in crafting the staff proposal.

XI. THE SPECIFIC PURPOSE OF EACH ADOPTION AND RATIONALE FOR CARB'S DETERMINATION THAT IT IS REASONABLY NECESSARY

The overall AB 2588 program was established to collect emission data on air toxics emitted in California, to identify those facilities with unacceptable localized health risks, and to ensure nearby residents were notified of significant risks. The associated requirements of the Emission Inventory Criteria and Guidelines Report (EICG), of which this section primarily focuses upon, are enforceable as regulations because EICG is incorporated by reference into title 17 of the California Code of Regulations, section 93300.5.

This section provides a purpose for each individual amendment to the EICG, and the rationale for including the update. The complete amended text, shown in underline-strikeout formatting, is included in Appendix A of this document (Appendix A to the ISOR).

TITLE 17, CALIFORNIA CODE OF REGULATIONS

Purpose of Section 93300.5

Section 93300.5 is modified to include reference to the proposed 2020 amendments to the EICG.

Rationale

The update is necessary to include reference to the most recent 2020 amendments to EICG, as proposed under this regulatory action. Otherwise, should the regulation be adopted, sources would not be subject to the amended requirements.

EMISSION INVENTORY CRITERIA AND GUIDELINES REPORT

Section I. Purpose and How to Use This Report

Purpose of the Table of Contents.

This section was updated to orient the reader to the contents of the EICG. Updates include section names that were added or modified.

Rationale

The update is necessary in order to direct the reader to the correct section and page number and section. If the table of contents was not updated, it would lead to confusion among the users of the document. The individual rationales for additional sections or section name changes are described below.

Purpose of Section I.A.

This section is amended to delete a summary of the revisions made during the last update of the EICG in 2007, and to add a summary of the revisions being proposed in the current update.

Rationale

This update is necessary to delete information that is outdated and no longer pertinent, and replace it instead with a more relevant summary of the proposed new revisions.

Purpose of Section I.B.

This section is revised to delete an outdated reference to Table 2, which is no longer in the EICG.

Rationale

This update is necessary to delete a reference to a table that is not part of the current report. In an earlier version, Table 2 was used to provide a crosswalk of the section numbers between the earlier EICG Regulation (amended January 31, 1994) and the EICG Report. However, the August 27, 2007, EICG Report did not include a Table 2, but the reference was inadvertently left in. The proposed EICG amendments will use the same organizational structure as the August 27, 2007, EICG report; therefore, the reference to the Table 2 crosswalk is not necessary.

Purpose of Section 1.B. Table 1

Table 1 is revised to clarify the terminology used for "Low level" facilities exempted from update reporting; "Intermediate level" facilities for update reporting; and "High level" facilities for update reporting.

Rationale

These revisions are necessary to reduce potential confusion with the low, intermediate, and high priority terms used by many air districts for their prioritization score process for determining which facilities must conduct health risk assessments. The revisions make the terminology more consistent with Section IV of the EICG, and clarify that Table 1 pertains specifically to emission update reporting requirements, not to health risk assessment priorities.

Purpose of Section 1.B. Figure 1

Figure 1 is revised to clarify the title as "Update Reporting Requirements" and to clarify the terminology used for "High-Level" Facility for Update Reporting;

"Intermediate-Level" Facility for Update Reporting; and "Low-Level" Facility Exempted from Update, and to add a footnote to clarify that exemption from Hot Spots reporting does not exempt the facility from applicable reporting requirements under other programs.

Rationale

These revisions are necessary to reduce potential confusion with the low, intermediate, and high priority terms used by many air districts for their prioritization score process for determining which facilities must conduct health risk assessments. The revisions make the terminology more consistent with Section IV of the EICG, and clarify that Figure 1 pertains specifically to emission update reporting requirements, not to health risk assessment priorities. The footnote is necessary to make clear that an exemption from reporting under the Hot Spots program does not imply an exemption from programs with other provisions. An example could be an Airborne Toxics Control Measure (ATCM) that has reporting provisions. Another example could be the proposed amendments to the AB 617 Criteria Air Pollutant and Toxic Air Contaminant (CTR) regulation being proposed in parallel with this EICG rulemaking.

Purpose of Section 1.B. Figure 2

Figure 2 is revised to clarify the title as "Exemption and Update Reporting Levels" and to clarify the terminology used for "High-Level" Facility for Update Reporting; "Intermediate-Level" Facility for Update Reporting; and "Low-Level" Facility Exempted from Update Reporting. A note explaining the terminology is also added under Figure 2. And a footnote is added to clarify that exemption from Hot Spots reporting does not exempt the facility from applicable reporting requirements under other programs.

Rationale

These revisions are necessary to reduce potential confusion with the low, intermediate, and high priority terms used by many air districts for their prioritization score process for determining which facilities must conduct health risk assessments. The revisions make the terminology more consistent with Section IV of the EICG, and clarify that Figure 2 pertains specifically to emission update reporting requirements, not to health risk assessment priorities. The footnote is necessary to make clear that an exemption from reporting under the Hot Spots program does not imply an exemption from programs with other provisions (for example, ATCMs or the CTR provisions discussed in the preceding item).

Section II. Applicability: Who Must Comply and When?

Purpose of Revision to Section II.B.

Section II.B. is revised to clarify that the normal Plan Submittal is necessary unless the district notifies the facility that the facility's emissions are or will be included in an industrywide inventory prepared by the district and submitted to CARB.

Rationale

The revision ensures that the facility's emission information will not only be prepared by the district, but also will be submitted to CARB. This is necessary so that the information regarding the numerous facilities that are treated as industrywide by the district will be compiled into the statewide data system to make all the data collected under the Hot Spots program available to the public as required by Health and Safety Code section 44345(a).

Purpose of Revision to Section II.C.

Section II.C. is revised to clarify that the normal Plan Submittal is necessary unless the district notifies the facility that the facility's emissions are or will be included in an industrywide inventory prepared by the district and submitted to CARB.

Rationale

The revision ensures that the facility's emission information will not only be prepared by the district, but also will be submitted to CARB. This is necessary so that the information regarding the numerous facilities that are treated as industrywide by the district will be compiled into the statewide data system to make all the data collected under the Hot Spots program available to the public as required by Health and Safety Code section 44345(a).

Purpose of Revision to Section II.C.(2)(c)(i).

Section II.C(2)(c)(i). is revised to clarify that the district assessment of substances listed under Appendix A-I is to be consistent with the proposed chemical phase-in provisions in section II.H.

Rationale

The revision is necessary to align the district assessment of the Appendix A-I chemicals with the new timing provisions being proposed in section II.H. that affect the Appendix A-I chemical list.

Purpose of Revision to Section II.E.(1).

Section II.E.(1)(a) is revised to clarify that the normal Plan Submittal is necessary unless the district notifies the facility that the facility's emissions are or will be included in an industrywide inventory prepared by the district and submitted to CARB; and the reporting exclusion in section II.E.(1)(c) is being removed.

Rationale

These revisions are necessary to ensure that all facilities' emission information will be submitted to CARB, both the numerous facilities treated as industrywide by the district, as well as the facilities in the classes specified in Appendix E. The revisions are necessary to ensure that these emissions data will be compiled into the statewide data system to make all the data collected under the Hot Spots program available to the public as required by Health and Safety Code section 44345(a).

Purpose of Section II.E.(2)

This section is revised to establish applicability to any facility class added or amended in Appendix E, as determined by Tables E-1, E-2 and E-3, and to modify the emission inventory plan submittal date, remove the reporting exclusion for Appendix E, and add the classification system of NAICS codes as well as SIC codes when referring to Appendix E sector classes.

Rationale

The revisions to this section are necessary to align the inventory plan submittal dates and sector coverage in EICG with the reporting schedule and sector coverage in CTR. With the inclusion of additional applicability categories in Appendix E, it was necessary to include the phase-in schedule for when the identified sources are subject to submitting reports.

Purpose of Revision to Section II.E.(3)

Section II.E(3) is revised to clarify that the normal Plan Submittal is necessary unless the district notifies the facility that the facility's emissions are or will be included in an industrywide inventory prepared by the district and submitted to CARB.

Rationale

This revision ensures that the facility's emission information will not only be prepared by the district, but also will be submitted to CARB. This is necessary so that the information regarding the numerous facilities that are treated as industrywide by the district will be compiled into the statewide data system to make all the data collected under the Hot Spots program available to the public as required by Health and Safety Code section 44345(a).

Purpose of Section II.H.

This section is revised to include Phase-In Provisions for newly added substances. Each subsection is discussed separately in the following items.

Rationale

Because of the large number of new substances being proposed for inclusion into Appendix A, a phase-in process is being proposed to create a more manageable schedule to balance workload over several years, to assist affected facilities as well as the air districts. Each subsection being added or revised in Section II.H. is discussed separately in the following items.

Purpose of Section II.H.(1)

This section is revised to establish applicability requirements when new substances without a specified delay in the "Effective Phase" are added to the Appendix A list. The letter "e" is added to the Appendix A Effective Phase column to denote the existing chemicals.

Rationale

The revision is necessary to identify the chemicals on the Appendix A list that are currently existing substances and to establish that their timing for reporting by facilities continues to match the existing update cycles, and that the data will be submitted to CARB for compilation into the statewide data reporting system, to make all the data collected under the Hot Spots program available to the public as required by Health and Safety Code section 44345(a).

Purpose of Section II.H.(2)

This section is added to establish applicability requirements when new substances denoted as "ChemSet-1" or "ExistGrp" in the "Effective Phase" are added to the Appendix A list.

Rationale

The revision is necessary to identify and phase in the reporting for the next subset of chemicals on the Appendix A list for reporting. Section II.H.(2) addresses chemicals denoted as "ExistGrp" or "ChemSet-1", which are both discussed in the following paragraphs.

In addition, the Purpose and Rationale sections in the Appendix A portion of this Staff Report also include information regarding the evaluation of new substances being proposed for addition in Appendix A, and additional discussion of the "Effective Phase" column and notations using in Appendix A.

The chemicals which are denoted as ChemSet-1 chemicals are high priority for their potential for public health impacts. The ChemSet-1 chemicals include chemicals which already have recognized health concerns, including some with recognized health effect values already approved by the Office of Environmental Health Hazard Assessment (OEHHA). Chemset-1 also makes it a priority to phase in reporting as soon as practical for several chemicals for which U.S. EPA has granted them status as "exempt from the definition of Volatile Organic Compound ("exempt from VOC")"³⁴. The intent of the U.S. EPA VOC definition and list of "exempt from VOC" chemicals is to identify chemicals that are not likely to have significant atmospheric reactions that

³⁴ (CFR, 2012a). 40 CFR 51.100. Definitions. Electronic Code of Federal Regulations, July 1, 2012. Accessed August 18, 2020. <https://www.ecfr.gov/cgi-bin/text-idx?rgn=div8&node=40:2.0.1.1.2.3.8.1>

would result in smog formation.^{35,36} However, that does not mean they do not have airborne “toxic” concerns. And the public health concern is that industries might seek to use more chemicals from the U.S. EPA “exempt from VOC” list because of trying to meeting smog-related VOC limits, but in that process would be increasing public health exposure to chemicals that may be very toxic, including cancer-causing chemicals, without realizing the full connection and implications. This is in fact already being observed with chemicals including parachlorobenzotrifluoride (PCBTF)³⁷ and n-Propyl bromide³⁸. For these chemicals, there appears to be increasing usage in a wide range of solvent applications, likely as a result of their “exempt from VOC” regulatory status from U.S. EPA. PCBTF is a carcinogen, and OEHHA has just recently adopted and published a cancer unit risk factor for PCBTF, pointing to the potential for a serious public health concern due to toxicity.³⁹ Tert-butyl acetate (TBAC) is another “exempt from VOC” case, but which already has an OEHHA approved risk value now as well, and its usage has been growing; however, it is currently not listed in Appendix A⁴⁰. TBAC is recognized as a carcinogen (similar to the PCBT situation). Similarly, there are toxicity concerns for n-Propyl bromide, but its usage has already been going up due to its “exempt from VOC” status. The Siloxane group of chemicals are another example of “exempt from VOC” substances that present toxicity concerns, in this case for reproductive and immune system effects.

Another chemical identified for phasing in with ChemSet-1 is N-Methylpyrrolidone (NMP) for which data indicate some large uses among certain industries, and which

³⁵ (CARB, 2009). *Definitions of VOC and ROG*. Published January 2009. https://www.arb.ca.gov/ei/speciate/voc_rog_dfn_1_09.pdf10.pdf?_ga=2.19545019.2011882723.1536854970-680078377.1532727140

³⁶ (CFR, 2012a).

³⁷ (OEHHA, 2020). *p-chlorobenzotrifluoride Cancer Inhalation Unit Risk Factor Technical Support Document for Cancer Potency Factors Appendix B*; published August 2020. <https://oehha.ca.gov/media/downloads/cnr/pcbtfiur080720.pdf>

³⁸ (CDPH, 2016). *Hazard Evaluation System and Information Service (HESIS), 1-Bromopropane Background*. California Department of Public Health. Published December, 2016. <https://www.cdph.ca.gov/Programs/CCDCPHP/DEODC/OHB/HESIS/CDPH%20Document%20Library/SB193-1-BP-Background.pdf>.

³⁹ (OEHHA, 2020).

⁴⁰ (OEHHA, 2019b). *Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures*. June 1, 2009. Accessed August 13, 2020. Available at: <https://oehha.ca.gov/air/cnr/technical-support-document-cancer-potency-factors-2009>; including an update made to Appendix A: *Appendix A: Hot Spots Unit Risk and Cancer Potency Values (Updated May 2019)*, Accessed August 25, 2020. Available at: <https://oehha.ca.gov/media/CPFs042909.pdf>

has not yet been reported because the chemical needs to be on the toxics list in order to require reporting⁴¹.

Other examples of important ChemSet-1 chemicals include isocyanate-related chemicals, which can occur widely in uses like autobody paint shops which can be clustered in neighborhoods. One of the health concerns is only triggering asthma attacks in asthmatics, but actually causing asthma to develop and creating a heightened allergic response so even low doses can become dangerous to a sensitized person.

It is imperative for protecting public health that these chemicals be added to the Hot Spots list not only to begin to collect data on where and how much their usage is occurring, but also to provide a clear direction to industries that there are toxicity issues that must be evaluated and recognized.

Other Chemset-1 chemicals include fumigants used at ports or other facilities to prepare crops for export and other markets, which have toxicity concerns at the point of release of the waste gas venting. This includes Sulfuryl fluoride and several phosphine-generating chemicals (all designated as ChemSet-1), as well as some existing chemical fumigants (such as Methyl bromide) that would be in the “no-delay” reporting for existing “e” designated chemicals^{42,43}.

Additional carcinogens (based on IARC and/or Prop. 65) have been included in the ChemSet-1 reporting phase. These can be readily seen by looking at the Appendix A list for those with a “c” in the carcinogen column, and the notation “ChemSet-1” in the Effective Phase column.

We also propose to include the most commercially used several chemicals from a few groups that contain a large number of chemicals, then include the rest of the chemicals in the group as part of the later ChemSet-2 phase. Examples include the most commercially used chemicals from the group for Phthalates and the group for brominated and chlorinated flame retardants. Another example is the most commercially used (including emerging) chemicals from the group for perfluoro- and

⁴¹ (OEHHA, 2020b). *Proposition 65: N-Methylpyrrolidone (NMP) Fact Sheet*. Posted March 2020; Accessed August 17, 2020. https://www.p65warnings.ca.gov/fact-sheets/n-methylpyrrolidone-nmp?utm_source=P65Warnings+-+NMP&utm_campaign=Proposition+65+Warnings+Web+Site+May+2019+-+Carbaryl&utm_medium=email

⁴² (NPIC, 2017). *Sulfuryl Fluoride General Fact Sheet*. National Pesticide Information Center, Oregon State University Extension Services. Accessed December 9, 2019. <http://npic.orst.edu/factsheets/sfgen.html>.

⁴³ (ACES, 2005). *Fumigating Agricultural Commodities with Phosphine*. Alabama Cooperative Extension System, Published August 2005; Accessed December 9, 2019. http://nasdonline.org/static_content/documents/7243/d002470.pdf

polyfluoroalkyl substances and related (PFAS-related) chemicals, as well as four of the functional group subcategories for PFAS-related chemicals that contain corresponding types of chemicals. The PFAS-related chemicals are especially a class of concern to a combination of widespread use, concern for toxic health effects, and extremely long persistence in the environment all over the planet, leading to a lifetime body burden of these chemicals in humans all over the world.

The total number of chemicals in the ChemSet-1 group is 191. The air toxics denoted as ChemSet-1 must begin to be quantified with 2022 or 2023 data depending on the district group.

The following groups of chemicals are assigned to “ChemSet-1”.

- a) Chemicals that have been recommended and pending for some time that OEHHHA has health values for and/or they are known to be an exempt Volatile Organic Compound (VOC). Exempt VOCs are especially important because increased usage due to exemption will likely create public health concerns. These include substances like PCBTF, t-Butyl acetate (TBAC), N-Methylpyrrolidone (NMP), n-Propyl bromide (nPB or 1-Bromopropane), Siloxanes (including cyclosiloxanes D5, D4, D6), Isocyanates and Fluorocarbon-related “exempt VOC” compounds.
- b) Metal and Rare Earths: The Scientific Review panel raised these as concern during panel meetings.^{44,45} Additionally, OEHHHA has recently adopted health values for Cobalt and compounds.
- c) Fumigants used at facilities
- d) Chemicals that are known carcinogens per IARC and Proposition 65^{46,47}
- e) Phthalates

⁴⁴ (SRP, 2019a). *SRP Transcript: CARB 2588 Air Toxics Hot Spots Presentation*; June 28, 2019. https://ww2.arb.ca.gov/sites/default/files/2020-07/19_06_28_arb_srp_ADA.pdf

⁴⁵ (SRP, 2019b). *SRP Transcript: AB 2588 EICG Proposed Revisions to Appendix A Chemical List*; October 4, 2019. https://ww2.arb.ca.gov/sites/default/files/2020-07/19_10_04_arb_srp_ADA.pdf

⁴⁶ (OEHHHA, 2020a). *The Proposition 65 List*. Office of Environmental Health Hazard Assessment; Accessed August 13, 2020. <https://oehha.ca.gov/proposition-65/proposition-65-list>

⁴⁷ (IARC, 2020). *IARC Monographs on the Identification of Carcinogenic Hazards to Humans*. International Agency for Research on Cancer; June 26, 2020. <https://monographs.iarc.fr/list-of-classifications/>

- f) PFAS-related substances^{48, 49}
- g) Additional Glycol-ether-related substances
- h) Flame Retardants: Many of the brominated flame retardants should be banned but the growing concern is with several Organophosphate Flame Retardants (OPFR) and staff is proposing to include several of the most used and most toxic substances⁵⁰.

The Effective Phase notation “ExistGrp” is included in Appendix-A to denote existing chemicals and chemical groups including existing metals, which already have to be reported under the Appendix A-I list, and now staff provides more examples of CAS numbers to report under this type of existing grouping. This will make it easier for companies to search their databases, especially in cases where it may not be obvious from the chemical name that the substance contains the listed compound.

In particular, the “ExistGrp” is used for existing metals, where the “metals and their metal compounds” have already been included on the existing Appendix A list. The metals and their metal compounds are already reportable, generally using the metal atom equivalent in each compound as an acceptable reportable amount. Many individual cases of metal compounds (i.e., chemicals that contain the metal also associated with or bound with other elements in the overall chemical formula) are already on the existing Appendix A, and having their CAS number in the emitter ID column is helpful to facility operators when searching their data systems and purchase records for instances of these metal-containing compounds, particularly in cases where the chemical name may not be obvious. Therefore, for the proposed new chemicals that are also additional instances of metal-containing compounds, we include these under the appropriate existing metal group, and the Effective Phase is designated as “ExistGrp”. As an example, the chemical “Cacodylic acid” is an Arsenic-containing compound, but it might not be obvious to a non-chemist that it should always have been reported as one of the metal compounds included under the Arsenic and

⁴⁸ (DTIC, 2017). *FAQs Regarding PFASs Associated with AFFF Use at U.S. Military Sites*, Dr. Field, J. et. al., Defense Technical Information Center, August 2017. Accessed August 19, 2020. <https://apps.dtic.mil/dtic/tr/fulltext/u2/1044126.pdf>

⁴⁹ (Rauert, 2018). *Atmospheric concentrations and trends of poly- and perfluoroalkyl substances (PFAS) and volatile methyl siloxanes (VMS) over 7 years of sampling in the Global Atmospheric Passive Sampling (GAPS) network*. Rauert C. et. al., *Environmental Pollution* 238 (2018) 94-102. Published March 13, 2018; doi: 10.1016/j.envpol.2018.03.017. Accessed August, 19, 2020. <https://www.sciencedirect.com/science/article/pii/S0269749117352521?via%3Dihub>

⁵⁰ (Blum, 2019). *Organophosphate Ester Flame Retardants: Are They a Regrettable Substitution for Polybrominated Diphenyl Ethers?* Blum A. et. al., *Environ. Sci. Technol. Lett.* 2019, 6, 11, 638-649, October 21, 2019; doi: 10.1021/acs.estlett.9b00582. <https://pubs.acs.org/doi/pdf/10.1021/acs.estlett.9b00582>

compounds header for Arsenic metal-containing compounds. Now the CAS number will be readily apparent and searchable for the Appendix A user.

Purpose of Section II.H.(2) Table 2

This table is added to establish the effective initial emission data quantification year for facilities located in air district groups A and B

Rationale

Table 2 provides the year for which that phase's chemicals and emissions would take effect, with reporting of emissions in the following year. Table E-2 in Appendix E defines which air districts are group A vs. B. The small/medium size districts are in group B and are given a delay of one year relative to the large group A districts (and Imperial County APCD), to bring their district's facilities into reporting, because the small/medium districts generally have limited staff and resources to work with their facilities that would need to begin submitting emission inventory plans and reports, and would need district review of the plans and the reported data. The districts included in Group A and B are further outlined in Appendix E, Table E-2.

Purpose of Section II.H.(3)

This section is added to establish applicability requirements when new substances denoted as "ChemSet-2" in the "Effective Phase" are added to the Appendix A list.

Rationale

Because of the large number of new substances being proposed for inclusion into Appendix A, a phase-in process is proposed to create a more manageable schedule to balance workload over several years, to assist affected facilities as well as the air districts who need to work with their affected facilities and review and approve their data submittals. The substances having the highest priority for public health impacts are included in the ExistGrp and ChemSet1 categories. The remaining 753 chemicals in Appendix A-I with the Effective Phase designation of "ChemSet-2" are to be reported starting with the 2026 emission inventory data year for facilities in District Group A, or 2027 data year for facilities in District Group B.

Even though there is a larger number of substances in ChemSet2, the workload is reasonably balanced across the years covered by the phases, because there is a gap of several years between the effective date for the ChemSet-1 vs. ChemSet-2 substances, which gives the affected industries and districts considerable additional time to prepare for reporting of the ChemSet-2 substances. Moreover, much of the ChemSet-2 subset consists of either chemicals that are not widely used (e.g., fairly unique to only a few very specific industries) and/or they are the remaining instances from large groups (such as the PFAS-related group or the flame retardants group) where the most commercially used instances have already been addressed by ChemSet-1, and the remaining instances are chemicals that are far less likely to be in use by most California businesses.

Purpose of Section II.H.(4)

This section is added to establish a petition process for adding new substances to the Appendix A list.

Rationale

This petition process is necessary to provide a mechanism for interested stakeholders to bring to CARB's attention additional chemical substances that may warrant inclusion on the Appendix A list of chemicals, particularly for new and emerging chemicals. This mechanism will accelerate CARB's ability to bring important chemicals into review for possible inclusion in a subsequent amendment process.

Purpose of Section II.H.(5)

This section is added to establish reporting requirements for chemical substances for which an emission quantification method is not available at the time of the substance's "Effective Phase".

Rationale

Given the large numbers of new chemicals being proposed for addition to the list, as well as reporting by some sectors that may not be previously evaluated for these many toxic chemicals, it is anticipated that for some combinations of sectors and chemicals that there may not yet be technical methods to quantify the portion of the use/presence that actually becomes airborne emissions. If that were the case, then this section is necessary to provide an alternative that will still collect useful information to help CARB understand the amounts and locations where the substance is used, produced, or otherwise present, and evaluate priorities for further evaluations and possibly test method development.

Purpose of Section II.J.(3)(a)

This section is revised to expand the list of factors under which a facility exempted from further compliance based on prioritization score shall be subject to reinstatement.

Updates to subsections (i) through (viii) are designed to specifically delineate types of emissions, exposures or health risks that could lead to a reinstatement.

In subsection (i), chemical functional groups of certain classes were added to Appendix A. In subsection (iii), it was clarified that new or updated health risk values would trigger a reinstatement. New subsections (iv)-(vi) indicate that significant changes in emissions, risk or air dispersion or related exposure modeling could trigger reinstatement. Subsection (vii) indicates that reinstatement can also occur due to the presence of persistent and bioaccumulative chemical emissions. Lastly, subsection (viii) was added to address multipathway exposures.

Rationale

Previous text in the section was narrowly focused on requiring reinstatement only in cases of changes to a facility's operations. Consideration was not given to other factors, such as improvements in the science, risk analysis or other factors not necessarily driven by the facility. The updates to this section were made to ensure that other factors, such as new or updated emissions, exposures or health risks, would also trigger reinstatement.

Purpose of Section II.J.(3)(b)(ii)

This section is revised to expand the list of factors that a district may consider when determining when the operator facility shall be subject to reinstatement. The language is consistent with the language added in Section II.J.(3)(a).

Rationale

Previous text in the section was narrowly focused on requiring reinstatement only in cases of changes to a facility's operations. Consideration was not given to other factors, such as improvements in the science, risk analysis or other factors not necessarily driven by the facility. The updates to this section were made to ensure that other factors, such as new or updated emissions, exposures or health risks, would also trigger reinstatement.

Purpose of Section II.J.(3)(c)(ii)

This section is revised to expand the list of factors that a district may consider when determining when a facility shall not be subject to reinstatement

Rationale

Previous text in the section was broad in that few parameters were used to determine if a facility needed to continue to report in the Hot Spots reporting program. Consideration was not given to other factors, such as improvements in the science, risk analysis or other factors not necessarily driven by the facility. The updates to this section were made to ensure that other factors, such as new or updated emissions, exposures or health risks, would be considered when a facility undergoes physical changes or changes in operation to determine if they are exempt from the EICG.

Section III. Removal of Facilities That No Longer Meet Applicability Criteria

Purpose of Section III.A.(1)(a)

This section is revised to add the conditions outlined in Section II.E as one of the considerations for determining which facilities may no longer meet applicability criteria.

Rationale

Section II.E outlines the requirements of facilities that emit less than 10 tons per year of a criteria pollutant. This includes facilities listed in Appendix E, listed in added or amended categories to Appendix E or identified by the air district to report. The

clarification was added to this section to indicate that the “ceasing to report” provisions apply to these types of sources in this section.

Purpose of Section III.A.(1)(c)

This section is revised to include additional factors for district consideration in determining removal of facilities whose emissions may no longer meet applicability criteria.

Rationale

Consistent with the reinstatement provisions in Section II.J.(3)(a), this section was amended to allow the districts to consider additional emissions, exposure and health risk factors when evaluating whether a facility still needs to report under the EICG.

Purpose of Sections III.C. and III.C.(1)

These sections are revised to add NAICS codes as one of the conditions for determining which facilities may no longer meet applicability criteria.

Rationale

This section previously just referenced SIC codes. In order to align the reporting more effectively across CARB programs, this section was updated to allow either a NAICS or SIC code.

Purpose of Section III.C.(1)(c)

This section is revised to include additional factors for district consideration in determining removal of facilities whose emissions may no longer meet applicability criteria

Rationale

Consistent with the reinstatement provisions in Section II.J.(3)(a), this section was amended to allow the districts to consider additional emissions, exposure and health risk factors when evaluating whether a facility still needs to report under the EICG

Section IV. Update Categories and Exemptions From Update Reporting

Purpose of Section IV.A.(1)

Text is added to clarify that exemption from Hot Spots reporting does not exempt the facility from applicable reporting requirements under other programs.

Rationale

The text is necessary to make clear that an exemption from reporting under the Hot Spots program does not imply an exemption from programs with other reporting provisions (for example, ATCMs or the CTR provisions discussed in the preceding item).

Purpose of Section IV.A.(1)(a)

This section is revised to update the incorporated reference to the CAPCOA Facility Prioritization Guidelines⁵¹.

Rationale

The Act requires air districts to rank facilities for purposes of risk assessment into high, intermediate, and low priority categories. CAPCOA, in consultation with staff from the 35 air districts, CARB and OEHHA, revised the guidelines in August 2016. This update is necessary to align the EICG with the revised CAPCOA Guidelines.

Purpose of Section IV.A.(1)(b)

This section is revised to revise the incorporated reference to reflect the February 2015 OEHHA Risk Assessment Guidelines.

Rationale

The Act requires facilities included in the districts' highest priority category to prepare a health risk assessment in accordance with guidelines established by OEHHA, which were revised in February 2015⁵². This update is necessary to align the EICG with a revised version of the OEHHA Guidelines.

⁵¹ (CAPCOA, 2016). *Air Toxic "Hot Spots" Program Facility Prioritization Guidelines*. California Air Pollution Control Officers Association & Air Toxics and Risk Managers Committee. Published August, 2016. <http://www.capcoa.org/wp-content/uploads/2016/08/CAPCOA%20Prioritization%20Guidelines%20-%20August%202016%20FINAL.pdf>

⁵² (OEHHA, 2015). *Air Toxics Hot Spots Program Guidance Manual for the Preparation of Health Risk Assessments 2015, Notice of Adoption*. Published March 6, 2015. <https://oehha.ca.gov/air/cnr/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>

Purpose of Section IV.A.(1)(c)

This section is revised to delete a list of five classes of facilities and instead add a reference to Appendix E, Table E-3, for a list of the *de minimis* thresholds for specified classes of facilities.

Rationale

In an effort to avoid redundancy and interpretation concerns, the five classes with *de minimis* thresholds was deleted and instead Appendix E, Table E-3, which contains updated *de minimis* thresholds, was referenced.

Purpose of Section IV.A.(1)(d)(i)

This section is revised to update a reference to Appendix F of this regulation, and to revise the incorporated reference to reflect the February 2015 OEHHA Risk Assessment Guidelines.

Rationale

The Act requires facilities included in the districts' highest priority category to prepare a health risk assessment in accordance with guidelines established by OEHHA, which were revised in February 2015. This update is necessary to align the EICG with a revised version of the OEHHA Guidelines.

Purpose of Section IV.A.(1)(d)(iii)

This section is revised to include additional factors that districts may consider when determining exemptions from update reporting for "low-level" facilities, based on results of a screening risk assessment.

Rationale

When a districts considers an exemption based on a screening risk assessment, additional parameters were added to allow for broader considerations that are more health protective, particularly at the community level. This includes looking not only of the impact of the facility on its surrounding, but more a combined impact of multiple facilities on the surrounding population. It also allows a district to consider a cancer burden of greater than 0.5 in a million as significant.[] This section also outlines the process for a district to notify the facility if one of these additional criteria precludes the facility from exemption.

Purpose of Section IV.A.(1)(f)

This section is revised to add a requirement for "diesel engine-only" facilities to use screening risk assessment tables that are consistent with the provisions of Section XI and Appendix F.

Rationale

This update was made in order to ensure the diesel-engine only screening risk methods not only use OEHHA method but also make sure the parameters in section XI

and Appendix F. This is to make sure diesel-engine screening is consistently done throughout the state.

Purpose of Section IV.A.(3)(a)

This section is revised to include additional factors for district consideration in determining the reinstatement of “low-level” facilities exempted from update reporting under section IV.A(1)

Updates to subsections (i) through (viii) are designed to specifically delineate types of emissions, exposures or health risks that could lead to a reinstatement. In subsection (i), chemical functional groups of certain classes were added to Appendix A. In subsection (iii), it was clarified that new or updated health risk values would trigger a reinstatement. New subsections (iv)-(vi) indicate that significant changes in emissions, risk or air dispersion or related exposure modeling could trigger reinstatement. Subsection (vii) indicates that reinstatement can also occur due to the presence of persistent and bioaccumulative chemical emissions. Lastly, subsection (viii) was added to address multipathway exposures.

Rationale

Previous text in the section was narrowly focused on requiring reinstatement only in cases of changes to a facility’s operations. Consideration was not given to other factors, such as improvements in the science, risk analysis or other factors not necessarily driven by the facility. The updates to this section were made to ensure that other factors, such new or updated emissions, exposures or health risks, would also trigger reinstatement.

Purpose of Section IV.A.(3)(b)

This section is revised to include additional factors that determine when a “low-level” facility exempted from update reporting under section IV.A(1) shall again be subject to update requirements

Rationale

Previous text in the section was narrowly focused on requiring reinstatement only in cases of changes to a facility’s operations. Consideration was not given to other factors, such as improvements in the science, risk analysis or other factors not necessarily driven by the facility. The updates to this section were made to ensure that other factors, such new or updated emissions, exposures or health risks, would also trigger reinstatement.

Purpose of Sections IV.A.(4)(c)(vii)

This section is added to include additional factors that districts may consider when conducting alternative evaluations of a physical change affecting the facility or a change in facility activities or operations.

Rationale

Consistent with the reinstatement provisions in Section II.J.(3)(a), this section was amended to allow the districts to consider additional emissions, exposure and health risk factors when evaluating whether a facility still needs to report under the EICG.

Purpose of Sections IV.A.(5)

This section is revised to include additional factors that districts may consider when making a determination of whether facility qualifies for an exemption claimed by the facility.

Rationale

Consistent with the reinstatement provisions in Section II.J.(3)(a), this section was amended to allow the districts to consider additional emissions, exposure and health risk factors when evaluating whether a facility still needs to report under the EICG.

Purpose of Section IV.B.(1)(c)(i)

This section is revised to update a reference to Appendix F of this regulation, and to revise the incorporated reference to reflect the February 2015 OEHHA Risk Assessment Guidelines.

Rationale

The Act requires facilities included in the districts' highest priority category to prepare a health risk assessment in accordance with guidelines established by OEHHA, which were revised in February 2015. This update is necessary to align the EICG with a revised version of the OEHHA Guidelines.

Purpose of Section IV.F.(4)

This section is revised to include additional factors for district consideration when redesignating a reprioritized facility

Rationale

Consistent with the reinstatement provisions in Section II.J.(3)(a), this section was amended to allow the districts to consider additional emissions, exposure and health risk factors when evaluating whether a facility still needs to report under the EICG.

Section V. Update Reporting Requirements

Purpose of Section V.C.(1)(a)(ii)

This section is revised to include additional factors for district consideration in the determination of substantial risk devices for "intermediate level" facilities.

Rationale

Consistent with the reinstatement provisions in Section II.J.(3)(a), this section was amended to allow the districts to consider additional emissions, exposure and health risk factors when evaluating whether a facility still needs to report under the EICG.

Purpose of Section V.D.

Text is added to clarify that exemption from Hot Spots reporting does not exempt the facility from applicable reporting requirements under other programs.

Rationale

The text is necessary to make clear that an exemption from reporting under the Hot Spots program does not imply an exemption from programs with other reporting provisions (for example, ATCMs or the CTR provisions discussed in the preceding item).

Purpose of Section V.H.(3)

This section is revised to include additional factors that districts may consider when reviewing a facility's Update Summary Form.

Rationale

Consistent with the reinstatement provisions in Section II.J.(3)(a), this section was amended to allow the districts to consider additional emissions, exposure and health risk factors when evaluating whether a facility still needs to report under the EICG.

Section VIII. Other Requirements

Purpose of Section VIII.E.(3)

This section is revised to add a requirement for facility operators to report the CAS number and complete chemical name for any substance meeting the definition of an applicable functional group class in appendix A-I.

Rationale

In order to ensure reporting of the functional group classes, their reporting requirement was added to this section. Additionally, the requirements of reporting a CAS, or Chemical Abstracts Services number are also required to help identify the chemical. In many cases, the emittent ID from Appendix A-I is also the CAS number. However, in some cases, there are multiple CAS numbers for a given chemical or substance and the operator of the facility would need to describe the specific chemical used at the facility. This will assist CARB staff in tracking the correct emissions of each air toxics. Further, by adding the functional group requirements the CAS is imperative in order to assess the emissions. The reason is that with the functional groups the chemical within the group may or may not be on the existing list. If it is not, then all identifying information of the chemical, including the CAS, need to be reported for CARB and the districts to correctly track and record.

Purpose of Section VIII.F.(3)(c)

This section is added to clarify the purpose of group headers added to Appendix A-I for the purpose of aiding in the organization of closely related chemical substances into "convenience groups" and which need not be reported as a group total.

Rationale

This section was needed to clarify to the user of this document why some emittent ID's are denoted with double dashes. In cases where this is relevant, the 'chemical name' is designed to be a header to categorize a broader class or group of chemicals. It is not the intent to report the grouping name as the aggregate of all chemicals that are part of the group.

Purpose of Section VIII.G.

This section is added to clarify that specified types of on-site mobile sources are included in the reporting requirements.

Rationale

The Act requires that the emission data reported by facilities must ensure a comprehensive characterization of the full range of hazardous materials that are released, or that may be released, to the surrounding air from the facility, as required by H&SC Section 44340(c)(2). There can be a substantial contribution from mobile sources that are either located on the site or have predictable operations periodically on the site. This section specifies what types of activity data and/or emissions information that facilities either must include in their Hot Spots emission report for certain sources, or data that the district may request regarding activity parameters for certain types of mobile sources that are located on the site or periodically on the site (e.g., cranes, locomotives, and others listed in the section. (Tailpipe emissions from cars and trucks and other true "motor vehicles" are generally not to be included, but activity information about the usage of such motor vehicles on the site can be collected). Collecting this information is necessary to ensure that all applicable "routine and predictable" types of emissions from a facility are considered when evaluating the impacts to neighboring residents. In addition, the information on activity of mobile sources also supports the estimation of toxics from mobile and areawide sources that CARB is required to compile pursuant to Health and Safety Code Section 44345(b). This specifications in this section were previously provided in the form of a 1989 regulatory interpretation letter from CARB to the air districts, and is being included in the EICG to provide greater transparency and consistency in implementation.

Purpose of Section VIII.H.

This section clarifies that total particulate matter must be used when calculating toxic constituents in the various size fractions.

Rationale

The Act requires that the emission data reported by facilities must ensure a comprehensive characterization of the full range of hazardous materials that are released, or that may be released, to the surrounding air from the facility, as required by H&SC Section 44340(c)(2). There can be toxic metals and other listed substances as components of all sizes of particulate making up fugitive dust, process dust, and

combustion particulate emissions. Total particulate matter (PM) not just smaller size fractions (such as PM₁₀) must be used as the basis for quantifying these metals and other toxics, in order to account for them fully.

The specifications in this section were previously provided in the form of a 1989 regulatory interpretation letter from CARB to the air districts, and is being included in the EICG to provide greater transparency and consistency in implementation.

Purpose of Section VIII.I.

Text was added to indicate that Appendix B-II(17) has information on reporting source test data when all or some of the results of the source test are below the detection limit of the method

Rationale

The procedures for handling source test results where some or all of the results have limit-of-detection (LOD) issues, has already been provided in Appendix B of the EICG but has not been clear for facilities and districts to find and use the section there, so it is being included in the main body of the EICG to ensure greater ease of use of the EICG and greater consistency.

Purpose of Section VIII.J.

This section clarifies the reporting requirements for pesticides from fumigation facilities.

Rationale

According to section of 44324 of the HSC, CARB has the authority to regulate fumigation facilities and their emissions. The emissions associated pesticides at a fumigation facility can be divided into two segments – the pesticidal use component and the release of waste gas into the ambient air. CARB has authority to regulate the waste gas once it released into the air. The section was added to address concerns from stakeholders regarding the interpretation and role of pesticides in the EICG.

Purpose of Section VIII.K.

This Section identifies that cotton ginneries, almond hullers, feedlots, and other agriculture-related facilities are subject to the EICG. It also outlines the requirements and types of emissions sources these sources need to consider when reporting.

Rationale

This section is needed to ensure the requirements for these types of sources and reporting applicability is clear. It is also important to recognize that these types of sources are not exempt from reporting natural emissions sources as well (e.g., respiring crystalline and metals in fugitive dust).

Section IX. Source Testing and Emission Factors

Purpose of Sections IX.A.(2)(a) through IX.A.(2)(d)

These sections are revised to update test method references to their most recent and current versions, or a suitable alternative.

Rationale

Some of the test methods referenced in the existing EICG are proposed to be replaced, as described below. These references need to be revised to incorporate the most current version of the test method (as it has been superseded) or a suitable alternative (because it is no longer recommended to be used).

EPA Method 7471A has been replaced with its most current version, EPA Method 7471B⁵³. EPA Method 7740 has been replaced with EPA Method 7010, because that method has been integrated into EPA Method 7010⁵⁴. EPA Method 6010A has been replaced with its most current version, EPA Method 6010D⁵⁵. Of the EPA methods, only one (EPA Method 7196A for hexavalent chromium⁵⁶) is still current.

ASTM Method D 2361-95 (Reapproved 2002) was withdrawn with no replacement by ASTM because the limits of applicability are not well defined; an alternative method ASTM D 6721-01 (Reapproved 2015) is proposed⁵⁷. ASTM Method D 3177-02 was withdrawn and replaced by ASTM with ASTM D 4239-18e1⁵⁸; therefore, we propose the use of this method. ASTM Method E 776-87 (Reapproved 2004) has been

⁵³ (EPA 7471B, 2007). EPA Method 7471B, Revision 2, February 2007, Final Update IV to the Third Edition of the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846. (CD: ##-EPA 7471B,2017)

⁵⁴ (EPA 7010, 2007). EPA Method 7010, Revision 0, February 2007, Final Update IV to the Third Edition of the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846. (CD: ##-EPA 7010,2007)

⁵⁵ (EPA 6010D, 2018). EPA Method 6010D, Revision 5, July 2018, Final Update VI to the Third Edition of the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846. (CD: ##-EPA 6010D,2018)

⁵⁶ (EPA 7196A, 1992). EPA Method 7196A, Revision 1, July 1992, Final Update I to the Third Edition of the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA publication SW-846. (CD: ##-EPA 7196A,1992)

⁵⁷ (ASTM D6721-01(2015), 2015). Standard Test Method for Determination of Chlorine in Coal by Oxidative Hydrolysis Microcoulometry, ASTM International, West Conshohocken, PA, 2015.

www.astm.org (CD: ##-ASTM D6721-01(2015),2015)

⁵⁸ (ASTM D4239-18e1, 2018). Standard Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion, ASTM International, West Conshohocken, PA, 2018 www.astm.org (CD: ##-ASTM D4239-18e1,2018)

replaced with its most current version, ASTM Method E 776-16⁵⁹. ASTM Method E 775-87 (Reapproved 2004) has been replaced with its most current version, ASTM Method E 775-15⁶⁰. ASTM Method D 808-05 has been replaced with its most current version, ASTM Method D 808-16⁶¹. ASTM Method D 129-00 has been replaced with its most current version, ASTM Method D 129-18⁶².

Purpose of Section IX.E.

This section is revised to add two-step testing, required under section IX.H, to the source tests that require a source test protocol and source test report.

Rationale

This section needed to be revised to accommodate two-step testing, required under section IX.H.

Purpose of Section IX.H.

This section is added to establish a two-step source test process and protocol for specified open sources at waste handling facilities.

Rationale

New source testing requirements are being proposed for certain types of “open” sources: wastewater treatment plants, landfills, composting and recycling facilities, and scrap metal recovery and metal shredding facilities. The operation of these facilities is unique in that it involves accepting waste streams for processing that could potentially contain and emit almost any listed substance of Appendix A-1 of the EICG. Therefore, to adequately characterize the types of substances that may be present in the waste stream, a two-step testing protocol is proposed for these facilities.

The first step of the proposed two-step testing protocol involves a qualitative test; this step would be used to identify potential listed substances of concern for the specific emitting process, device, or facility activity. From the results of the first-step

⁵⁹ (ASTM E776-16, 2016). Standard Test Method for Determination of Forms of Chlorine in Refuse-Derived Fuel, ASTM International, West Conshohocken, PA, 2016 www.astm.org (CD: ##-ASTM E776-16,2016)

⁶⁰ (ASTM E775-15, 2015). Standard Test Methods for Total Sulfur in the Analysis Sample of Refuse-Derived Fuel, ASTM International, West Conshohocken, PA, 2015. www.astm.org (CD: ##-ASTM E775-15,2015)

⁶¹ (ASTM D808-16, 2016) Standard Test Method for Chlorine in New and Used Petroleum Products (High Pressure Decomposition Device Method), ASTM International, West Conshohocken, PA, 2016. www.astm.org (CD: ##-ASTM D808-16,2016)

⁶² (ASTM D129-18, 2018). Standard Test Method for Sulfur in Petroleum Products (General High Pressure Decomposition Device Method), ASTM International, West Conshohocken, PA, 2018. www.astm.org (CD: ##-ASTM D129-18,2018)

qualitative test, a testing program protocol would be developed to perform the quantitative testing required by the second-step of the proposed two-step testing protocol. These quantitative results would be used to develop representative emission factors for the emitting process, device, or facility activity. These procedures may be used for both the qualitative and quantitative phases of testing.

Section X. Definitions

Purpose of Section X.(10)

Remove the definition of 'emergency use' and added a [reserved] bracketed section for future use

Rationale

The term 'emergency use' is no longer used in the EICG so the definition was deleted. A bracketed [reserved] was added in to allow a future definition to be added to support the reporting requirements

Purpose of Section X.(14)(b)

This section is revised to update the reference to the most current version of the San Joaquin Valley Unified Air Pollution Control District Rule 2201 "New and Modified Stationary Source Review Rule" as amended April 25, 2002.

Rationale

The EICG incorporates by reference the San Joaquin Valley Unified Air Pollution Control District Rule 2201⁶³. This update is necessary to align the EICG with a revised version of the Rule.

Purpose of Section X.(18)

This section is revised to revise the incorporated reference to reflect the February 2015 OEHHA Risk Assessment Guidelines.

Rationale

The Act requires facilities included in the districts' highest priority category to prepare a health risk assessment in accordance with guidelines established by OEHHA, which were revised in February 2015. This update is necessary to align the EICG with a revised version of the OEHHA Guidelines.

⁶³ (SJVAPCD, 2016). San Joaquin Valley Unified Air Pollution Control District Rule 2201 "New and Modified Stationary Source Review Rule", section 3.0 "Definitions", as amended February 18, 2016 (section 3.39 definition of facility "Stationary Source"). <https://www.valleyair.org/rules/curnrules/Rule22010411.pdf>

Purpose of Section X.(21.5)

This section was added to define the NAICS codes and their meaning, which are used in Appendix E, along with SIC codes, as a means to identify facility industry sectors and types of businesses for purposes of determining whether requirements pertain to that facility type⁶⁴.

Purpose of Section X.(23)

An update to the definition of Portable Diesel Engine was made to indicate dredge engines on a boat or barge are considered portable, for purpose of this regulation.

Rationale

This update was made for consistency with other CARB programs (e.g., CTR and Portable Engine Reporting Program)

Purpose of Section X.(24)

This section is revised to update the incorporated reference to the CAPCOA Facility Prioritization Guidelines.

Rationale

The Act requires air districts to rank facilities for purposes of risk assessment into high, intermediate, and low priority categories. CAPCOA, in consultation with staff from the 35 air districts, CARB and OEHHA, revised the guidelines in August 2016. This update is necessary to align the EICG with the revised CAPCOA Guidelines.

Purpose of Section X.(28)

The update was made to clarify the source of Source Classification Codes, or SCC.

Rationale

The previous text did not cite a source for locating the SCC values. In order to provide a definitive option for the reader, the text was modified to include a reference to a list of valid SCC codes.⁶⁵ In addition, staff provided U.S. EPA's description of the structure for the SCC code system.⁶⁶

⁶⁴ (OMB, 2017). *North American Industry Classification System (NAICS)*. Executive Office of the President, Office of Management and Budget.

https://www.census.gov/eos/www/naics/2017NAICS/2017_NAICS_Manual.pdf

⁶⁵ (CARB, 2018b). Staff Report: Initial Statement of Reasons for Public Hearing to Consider the Proposed Regulation for Reporting of Criteria Air Pollutants and Toxic Air Contaminants. Appendix C: Source Classification Codes, United States Environmental Protection Agency. Accessed August 24, 2020.

<https://www.arb.ca.gov/regact/2018/ctr2018/ctrappc.pdf>

⁶⁶ (U.S. EPA, 2016). Introduction to Source Classification Codes and their Use for EIS Submissions, at <https://ofmpub.epa.gov/sccweb/services/sccsearch/docs/SCC-IntroToSCCs.pdf>

Purpose of Section X.(29)

Updates were made to clarify the source for Standard Industrial Classification Codes or SIC Codes.

Rationale

The previous text did not an updated source for the SIC Codes. The text was updated so the reader has a definitive place to identify these codes.

Section XI. Diesel Engine Reporting Requirements

Purpose of Section XI.B.(1)(i)

This section is modified to revise the existing applicability criteria and establish new activity thresholds for reporting of diesel exhaust particulate matter at facilities with diesel engines.

Rationale

Diesel particulate matter is a toxic air contaminant and a carcinogen. The proposed revisions reduces the number of permissible non-emergency hours of operation from 20 to 5, and adds new applicability criteria for facilities that use more than 30 gallons of fuel to operate any number of diesel engines that do not meet Tier 4 emission standards, or more than 100 gallons of fuel to operate any number of diesel engines that meet Tier 4 emission standards. The proposed activity level reporting thresholds are based on CARB staff health risk assessments, using the current OEHHA unit risk and cancer potency values to evaluate the potential inhalation health risk of diesel particulate matter emitted near sensitive and other receptors.

Purpose of Section XI.C.(2)(a)

This section is revised to establish additional reporting requirements for the information that a facility operator must provide for diesel engines at the facility, which includes: the engine's exhaust exit temperature and velocity or flow rate; an estimate of the diesel engine exhaust particulate matter emissions; and the dimensions of any building located within the "5L" zone of impact as defined in U.S. EPA's dispersion models⁶⁷.

Rationale

When emissions to the air from diesel engines on a facility's property interact with the wind's speed and direction and with building profiles on the site, the dispersion of the

⁶⁷ (USEPA, 2019a). Air dispersion models: *AERMOD* (19191) modeling system, August 2019, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod>; specifically the *AERSCREEN* (16216) model, December 2016, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models#aerscreen>; *BPIPPRM* (19191) model, November 2019, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-related-model-support-programs#bpipprm>. Accessed August 20, 2020

airborne plume can be greatly changed, and sometimes cause much higher ground level concentrations to occur than if there had been no buildings. Because the effect of building downwash can dramatically increase potential exposures and risk, it is necessary to collect data on building heights and related parameters that are within the zone of influence defined in the U.S. EPA's approved air dispersion models (sometimes referred to as the "5L" zone of impact, referring to the building's effective length and its distance away from a stack or release). Reporting of the height and other information for all buildings within the applicable zone of influence is necessary in order to ensure that the building downwash impacts can be properly evaluated during air dispersion modeling and very important public health implications are not overlooked.

Purpose of Section XI.C.(2)(b)

This section is revised to further clarify the conditions when a facility operator is not required to information on diesel engines equal to or less than 50 horsepower.

Rationale

This section was updated to set a threshold for reporting diesel engines. It does allow an air district to incorporate more stringent measures, if warranted, and outlines those standards for an air district.

Purpose of Section XI.C.(2)(c) (deletion of old section and addition of new section)

The old section, Portable Diesel Engines of Any Size, is deleted, and is instead replaced with a new section that establishes reporting requirements for portable diesel engines greater than 50 horsepower

Rationale

Section XI.C.(2)(c) was formerly used to exempt portable diesel engines of any size. With new reporting requirements for portable diesel engines greater than 50 horsepower being added in Section XI.C.(2)(b), the old language is no longer applicable and is therefore being removed.

The new Section XI.C(2)(c) was added to be consistent with other reporting programs and allow for a broader facility footprint approach to understanding risk within a facility boundary. Without this language, generally, only stack emissions or emissions under the control of a facility would be reported. Adding this section allows for components of a facility that are directly under the control of the operator to be reported and included as part of the emissions total and subsequent risk analysis.

Purpose of Section XI.C.(2)(d)

This section is added to establish reporting requirements for portable diesel engines equal to or less than 50 horsepower

Rationale

This section is needed to identify that portable engines less than 50 horsepower do not need to be report unless warranted by an air district.

Purpose of Section XI.F

This section is modified to revise the total operating hours that a diesel engine-only facility may operate their diesel engines for non-emergency operations without being subject to reporting requirements. The proposal would reduce the number of hours from 20 to 5.

Rationale

In order to account for the increased childhood risk from air toxics and the potential impact of multiple pollution sources in close proximity to each other, the operating threshold was decreased by 75 percent.

Appendix A. List of Substances

Purpose of Appendix A List of Reportable Substances.

Appendix A is revised to update the list of reportable substances to include 1,151 new chemicals of concern that are recognized as presenting a chronic or acute threat to public health. Appendices A-I, A-II, and A-III are revised as follows:

- a) 992 new substances are being added to Appendix A-I. Sixteen of these substances are being moved from Appendix A-II to Appendix A-I, and one is being moved from Appendix A-III to Appendix A-I
- b) 13 new substances are being added to Appendix A-II
- c) 162 new substances are being added to Appendix A-III

Rationale

The Act requires CARB to compile and maintain a list of substances that are recognized as presenting a chronic or acute threat to public health in six designated lists of substances compiled by federal and State regulatory programs referenced in the statute. These include CARB's own list of Toxic Air Contaminants (TACs)⁶⁸, U.S. EPA's Hazardous Air Pollutants (HAPs)⁶⁹, the International Agency for Research on

⁶⁸ (CCR, 1993). 17 CCR 93000, *Substances Identified as Toxic Air Contaminants*. California Air Resources Board. <https://www.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants>

⁶⁹ (USEPA, 1990). *The Clean Air Act Amendments of 1990 List of Hazardous Air Pollutants*. United States Environmental Protection Agency. <https://www.epa.gov/airtoxics/orig189.html>

Cancer (IARC)⁷⁰, the California Proposition 65 (Prop 65)⁷¹, the National Toxicology Program (NTP)⁷², and the Hazard Evaluation System and Information Service (HESIS)⁷³. The statute also gives CARB explicit authority to include any additional substances recognized by the Board as presenting a chronic or acute threat to public health when present in the ambient air.

CARB staff is proposing to add 306 new substances from the six designated source lists mentioned above pursuant to Health and Safety Code section 44321 sections (a) through (e), with the following breakdown (note that the lists are not mutually exclusive):

- a) 20 substances from U.S. EPA HAPs⁷⁴
- b) 133 substances from IARC⁷⁵
- c) 193 substances from Prop 65⁷⁶
- d) 22 substances from NTP⁷⁷
- e) 50 substances from HESIS⁷⁸

In addition, CARB staff is proposing to add 670 substances under the authority granted by the Act pursuant to Health and Safety Code section 44321(f). These include:

- a) 172 substances from the U.S. EPA Toxic Release Inventory (TRI) per- and polyfluoroalkyl substances (PFAS)⁷⁹

⁷⁰ (IARC, 2020). *IARC Monographs on the Identification of Carcinogenic Hazards to Humans*. International Agency for Research on Cancer; June 26, 2020.

<https://monographs.iarc.fr/list-of-classifications/>

⁷¹ (OEHHA, 2020a). The Proposition 65 List. Office of Environmental Health Hazard Assessment; Accessed August 13, 2020. <https://oehha.ca.gov/proposition-65/proposition-65-list>

⁷² (NTP, 2020). National Toxicology Program: Monographs. Accessed August 19, 2020. <https://ntp.niehs.nih.gov/publications/monographs/index.html>

⁷³ (CDPH, 2020b). *Hazard Evaluation System and Information Service (HESIS) Publications*. Accessed August 18, 2020. <https://www.cdph.ca.gov/Programs/CCDC/DEODC/OHB/HESIS/Pages/Publications.aspx#otherhazards>

⁷⁴ (USEPA, 1990)

⁷⁵ (IARC, 2020)

⁷⁶ (OEHHA, 2020a)

⁷⁷ (NTP, 2020)

⁷⁸ (CDPH, 2020b)

⁷⁹ (USEPA, 2020c). *Toxic Release Inventory (TRI) Program: Addition of Certain PFAS to the TRI by the National Defense Authorization Act*. Published January 1, 2020.

- b) 117 substances from the California Biomonitoring List of designated chemicals^{80,81}
- c) 114 substances from the American Conference of Governmental Industrial Hygienists (ACGIH)⁸²
- d) 90 substances from the IARC list of Group 3 carcinogens, which have other important health effects⁸³
- e) 64 substances from the National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry (SOCMI)⁸⁴
- f) 20 substances from the National Institute for Occupational Safety and Health (NIOSH)⁸⁵
- g) 93 other chemicals brought to CARB staff's attention through research and discussion, including:

Accessed August 23, 2020. <https://www.epa.gov/toxics-release-inventory-tri-program/list-pfas-added-tri-ndaa>

80 (CDPH, 2020a). *Biomonitoring California List of Designated Chemicals – June 2020*. California Department of Public Health, Department of Toxic Substances Control, Office of Environmental Health Hazard Assessment. Accessed August 13, 2020. https://biomonitoring.ca.gov/sites/default/files/downloads/DesignatedChemicalsList_June2020.pdf

81 (CDPH, 2019). *Biomonitoring California List of Designated Chemicals - February 2019*. California Department of Public Health, Department of Toxic Substance Control and Office of Environmental Health Hazard Assessment. Accessed August 10, 2020. <https://biomonitoring.ca.gov/downloads/list-designated-chemicals-february-2019>

82 (ACGIH, 2018). *2018 TLVs and BEIs based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*, American Council of Governmental Industrial Hygienists; Published 2018, pages 11-68.

<https://www.acgih.org/tlv-bei-guidelines/policies-procedures-presentations/overview>

83 (IARC, 2020). *IARC Monographs on the Identification of Carcinogenic Hazards to Humans*. International Agency for Research on Cancer; June 26, 2020. <https://monographs.iarc.fr/list-of-classifications/>

84 (USEPA, 2006). *National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry 40 CFR 63 Table 1 to Subpart F (Final Rule)*; Published December, 2006. Accessed August 20, 2020. https://www.ecfr.gov/cgi-bin/text-idx?node=sp40.10.63.f#ap40.11.63_1107.1

⁸⁵ CDC, 2020). *NIOSH Pocket Guide to Chemical Hazards – Index of CAS Numbers*. Accessed August 13, 2020. <https://www.cdc.gov/niosh/npg/npgdcas.html>

- i. Substances recommended for addition by the Scientific Review Panel on Toxic Air Contaminants.^{86,87, 88, 89}
- ii. Substances classified by U.S. EPA as “exempt from VOC” reporting but which are known to be highly toxic
- iii. PAHs and derivatives (including methyl-PAHs) known to have a National Air Toxics Assessment (NATA) unit risk estimate (URE) factor for cancer⁹⁰
- iv. Substances identified by the SRP and by HESIS as diacetyl substitutes.⁹¹
- v. Persistent and Bio-accumulative toxics from three agencies including U.S. EPA, EU Reach, and Stockholm Convention on Persistent Organic Pollutants (POP).^{92,93,94}

⁸⁶ (SRP, 2019a). *SRP Transcript: CARB 2588 Air Toxics Hot Spots Presentation*; June 28, 2019.

https://ww2.arb.ca.gov/sites/default/files/2020-07/19_06_28_arb_srp_ADA.pdf

⁸⁷ (SRP, 2019b). *SRP Transcript: AB 2588 EICG Proposed Revisions to Appendix A Chemical List*; October 4, 2019. https://ww2.arb.ca.gov/sites/default/files/2020-07/19_10_04_arb_srp_ADA.pdf

⁸⁸ (SRP, 2019c). *SRP Transcript: CARB Summary of SRP AB 2588 Discussion*; November 22, 2019.

https://ww2.arb.ca.gov/sites/default/files/2020-07/19_11_22_arb_srp_ADA.pdf

⁸⁹ (SRP, 2020b). *Interim Findings of the Scientific Review Panel on the proposed changes to the Chemical Substance List in the AB 2588 Air Toxics “Hot Spots” Emission Inventory Criteria and Guidelines (EICG) Regulation*. February 27, 2020.

https://ww2.arb.ca.gov/sites/default/files/classic/srp/SRP_draft_interim_findings.pdf

⁹⁰ (USEPA, 2014). *2014 National Air Toxics Assessment Supplemental Data Files: NATA_Pollutants.xlsx*. Accessed August 19, 2020.

⁹¹ (CDPH, 2020c). *HESIS Alerts and Advisories: Diacetyl (Butter Flavor Chemical) Use in Flavoring Manufacturing Companies*. Accessed August 18, 2020.

<https://www.cdph.ca.gov/Programs/CCDCPHP/DEODC/OHB/HESIS/CDPH%20Document%20Library/diacetyl.pdf>

⁹² (ECHA, 2020). *Persistent and Bioaccumulative Toxic (PBT) Assessment List*.

European Chemicals Agency. Accessed August 13, 2020. <https://echa.europa.eu/pbt>

⁹³ (UNEP, 2020). *All Persistent Organic Pollutants (POPs) listed in Stockholm Convention*, UN Environment Programme. Accessed August 13, 2020.

<http://chm.pops.int/TheConvention/ThePOPs/ListingofPOPs/tabid/2509/Default.aspx>

⁹⁴ (USEPA, 2020a). *EPA CompTox Dashboard. United States Environmental Protection Agency*. Accessed August, 10, 2020. <https://comptox.epa.gov/dashboard>

- vi. Nonylphenol ethoxylates added to the U.S. EPA TRI list, which are known to be important aquatic toxics, and also have health effects such as endocrine disruption, and developmental and reproductive effects.^{95, 96, 97}
- vii. *Ortho*-phthalates with potential developmental and reproductive effects, which are among the candidate chemicals identified from the Biomonitoring California list, which CARB staff then further reviewed.^{98,99}
- viii. Fumigation chemicals used at ports and other facilities, such as Sulfuryl fluoride, Sulfur dioxide, Methyl bromide, Phosphine¹⁰⁰, and Phosphine generating compounds that CARB staff identified as having registration and use in California, under the authority of the California Department of Pesticide Regulation (DPR) Phosphine generating compounds requested for addition by California Department of Pesticide Regulation (DPR).¹⁰¹

⁹⁵ (USEPA, 2020b). EPA Fact Sheet: Nonylphenols and Nonylphenol Ethoxylates. United States Environmental Protection Agency. Accessed August 22, 2020.

<https://www.epa.gov/sites/production/files/2016-11/documents/np-npefaq.pdf>

⁹⁶ (EHP, 2010). Environmental Levels of para-Nonylphenol Are Able to Affect Cytokine Secretion in Human Placenta. Bechi N. et al., Environmental Health Perspectives; Published March 1, 2010; doi: 10.1289/ehp.0900882.

<https://ehp.niehs.nih.gov/doi/10.1289/ehp.0900882>

⁹⁷ Safer Chemicals, (2020). *Get the Facts: NPEs (nonylphenol ethoxylates)*, Safer Chemicals, Healthy Families. Accessed August 10, 2020.

<https://saferchemicals.org/get-the-facts/toxic-chemicals/npes-nonylphenol-ethoxylates/>

⁹⁸ (CDPH, 2019). *Biomonitoring California List of Designated Chemicals - February 2019*. California Department of Public Health, Department of Toxic Substance Control and Office of Environmental Health Hazard Assessment. Accessed August 10, 2020.

<https://biomonitoring.ca.gov/downloads/list-designated-chemicals-february-2019>

⁹⁹ (CDPH, 2020a). *Biomonitoring California List of Designated Chemicals – June 2020*. California Department of Public Health, Department of Toxic Substances Control, Office of Environmental Health Hazard Assessment. Accessed August 13, 2020.

https://biomonitoring.ca.gov/sites/default/files/downloads/DesignatedChemicalsList_June2020.pdf

¹⁰⁰ (ACES, 2005). *Fumigating Agricultural Commodities with Phosphine*. Alabama Cooperative Extension System, Published August 2005; Accessed December 9, 2019.

http://nasdonline.org/static_content/documents/7243/d002470.pdf

¹⁰¹ ACES, (2005). *Fumigating Agricultural Commodities with Phosphine*. Alabama Cooperative Extension System, Published August 2005; Accessed December 9, 2019

http://nasdonline.org/static_content/documents/7243/d002470.pdf

- ix. Additional PFAS that CARB staff recognizes as being of concern based on literature research.^{102, 103, 104, 105, 106}

In evaluating the substances being added under CARB authority, carcinogens were given the highest priority for inclusion on the list, along with developmental and reproductive toxicants (DARTs). Reproductive toxicants can impair reproductive capabilities in men and/or women and interfere with proper growth or health of a child at any point from conception to puberty¹⁰⁷. DARTs cover a wide range of health effects such as infertility, genetic defects, stillbirth, low birth weight, and premature birth as well as childhood cancer or developmental disorders¹⁰⁸. Additional consideration was given to substances that have persistence in the environment and/or bio-accumulate in living tissue. Furthermore, many chemicals proposed for

¹⁰² (DTIC, 2017). *FAQs Regarding PFASs Associated with AFFF Use at U.S. Military Sites*, Dr. Field, J. et. al., Defense Technical Information Center, August 2017. Accessed August 19, 2020.

<https://apps.dtic.mil/dtic/tr/fulltext/u2/1044126.pdf>

¹⁰³ (Kwiatkowski, 2020). *Scientific Basis for Managing PFAS as a Chemical Class*. *Environ. Sci. Technol. Lett.* 2020, 7, 8, 532-543. Kwiatkowski et. al. Published June 30, 2020; doi: 10.1021/acs.estlett.0c00255. Accessed August 19, 2020.

<https://pubs.acs.org/doi/pdf/10.1021/acs.estlett.0c00255>

¹⁰⁴ (Nilsson, 2010). *Inhalation Exposure to Fluorotelomer Alcohols Yield Perfluorocarboxylates in Human Blood?* Nilsson H. et. al., *Environ. Sci. Technol.* 2010, 44, 19, 7717-7722, <https://doi.org/10.1021/es101951t>. Published September 9, 2020. Accessed August 19, 2020. <https://pubs.acs.org/doi/10.1021/es101951t>

¹⁰⁵ Rauert, 2018). *Atmospheric concentrations and trends of poly- and perfluoroalkyl substances (PFAS) and volatile methyl siloxanes (VMS) over 7 years of sampling in the Global Atmospheric Passive Sampling (GAPS) network*. Rauert C. et. al., *Environmental Pollution* 238 (2018) 94-102. Published March 13, 2018; doi: 10.1016/j.envpol.2018.03.017. Accessed August, 19, 2020.

<https://www.sciencedirect.com/science/article/pii/S0269749117352521?via%3Dihub>

¹⁰⁶ (Roth, 2020). *Release of Volatile Per- and Polyfluoroalkyl Substances from Aqueous Film-Forming Foam*. *Environ. Sci. Technol. Lett.* 2020, 7, 3, 164-170; <https://doi.org/10.1021/acs.estlett.0c00052>. Published February 20, 2020. Accessed August 19, 2020. <https://pubs.acs.org/doi/10.1021/acs.estlett.0c00052>

¹⁰⁷ (OEHHA, 2020a). *The Proposition 65 List*. Office of Environmental Health Hazard Assessment; Accessed August 13, 2020. <https://oehha.ca.gov/proposition-65/proposition-65-list>

¹⁰⁸ (OEHHA, 2020b). *Proposition 65: N-Methylpyrrolidone (NMP) Fact Sheet*. Posted March 2020; Accessed August 17, 2020. https://www.p65warnings.ca.gov/fact-sheets/n-methylpyrrolidone-nmp?utm_source=P65Warnings+-+NMP&utm_campaign=Proposition+65+Warnings+Web+Site+May+2019+-+Carbaryl&utm_medium=email

inclusion are on California's biomonitoring list, showing measurements in a person's body fluids or tissue, such as blood or urine.

All other substances proposed for addition underwent a chemical-by-chemical review process by CARB and OEHHA staff, who considered many factors to determine a chemical's potential for public health impacts, including the substance's potential toxicity, how the substance is used, and the potential for the substance to become airborne and travel beyond a facility or business. To evaluate whether a substance can become airborne, staff reviewed the chemical structure and properties of these chemicals – for example, if a chemical is relatively light (i.e., if it has a low molecular weight or it has a fairly low boiling point), this can be an indication that the chemical is likely to be airborne. Staff also considered special conditions under which heavier substances can become airborne – for example, if a product is designed to be sprayed on a hot surface or a hot engine, or if it's a byproduct of combustion, the chemical could become airborne, even if it is not necessarily volatile at room temperature.

During staff's review of candidate substances for inclusion and reporting considerations, including information regarding health effects including cancer, developmental/reproductive, and other health effects, their potential to be airborne, their persistence and bioaccumulation, and other parameters affecting their inclusion, their appropriate reporting degree of accuracy, their appropriate *de minimis* thresholds, their association with facility sectors, and their relative priority for phase-in provisions of chemical sets and sectors, staff relied on extensive references, which are collectively all listed in Section XII: 2-3, 10-27, 29-31, 33, 35-48, 50-55, 60-82, 85-89, 91-97, 99-101, 103, 106, and 108-116, rather than being repeated in their entirety in a large number of Purpose and Rationale entries. In addition to the specific references in this extensive list, CARB staff also conducted many chemical-by-chemical searches using widely accepted search tools including Google and the PubChem searchable information portal (<https://pubchem.ncbi.nlm.nih.gov/>) on individual chemicals.

Purpose of Reportable Group Totals in Substance Name Column

Appendix A-I is revised to add or amend the following reportable group totals:

- a) Cobalt compounds (insoluble)
- b) Cobalt compounds (soluble)
- c) Cyclosiloxanes
- d) Epoxy resins (monomers or oligomers)
- e) Indium and compounds
- f) Dinitrotoluenes (mixed isomers)
- g) Polybrominated biphenyls (PBBs)
- h) Tetrakis(hydroxymethyl)phosphonium salts

Rationale:

Reportable group totals are assigned an emittent ID in Appendix A-I to allow the reporting of substances that may not be quantifiable as individual compounds but

which may be quantifiable as a group; or for a group whose individual compounds are not listed in Appendix A-I. For example, a test method may only quantify a group of unspecified metal compounds as the amount of the metal atom equivalent. Using a reportable group emittent ID allows a facility to report the total emissions, which can be used for inventory and health risk assessment purposes, which is preferable to having the same facility not report these emissions because they cannot be linked to a specific emittent ID. Reportable groups are established by review of the source list(s) that are used when developing the chemical list, to determine whether it is acceptable to provide a group total, and if so, an emittent ID has been included.

Purpose of Organizational Group Headers in Substance Name Column

Appendix A-I is revised to add group headers for organizational purposes for the groups listed below:

- a) Acrylonitrile-butadiene-styrene copolymers
- b) Beryllium compounds
- c) Brominated and chlorinated organic compounds used as flame retardants
- d) Cadmium compounds
- e) Chloronitrobenzenes
- f) Manganese compounds
- g) Nitrotoluenes
- h) Parabens
- i) Phthalates, *ortho*-Phthalates
- j) Tin compounds

Rationale:

Organizational group headers are indicated with a double dash ("--") notation in the emittent ID field, and are not a reportable group. These headers are included for the convenience of the Appendix A users. For example, rather than searching alphabetically for all individual *ortho*-Phthalates throughout the entire list, a user would find them conveniently located in one place for ease of reporting purposes.

Purpose of Chemical Functional Groups in Substance Name Column

Appendix A is revised to include three types of chemical functional groups for which emissions of any substance having the functional group must be reported. These chemical functional groups include: 1) any chemical containing an isocyanate functional group, 2) derivatives and substituted versions of polycyclic aromatic compounds that contain any halogen atom, and 3) poly and per fluorinated chemicals

(or PFAS-related chemicals). The PFAS-related chemicals are further divided into the following eight subclasses^{109,110, 111}:

1. Perfluoroalkyl carbonyl, carboxylic acid, and alcohol compounds
2. Perfluoroalkyl sulfonyl, sulfonic acid, sulfonate and sulfonamide compounds
3. Perfluoroalkyl phosphate compounds
4. Fluorotelomer-related compounds
5. Per- and polyfluoroalkyl ether-based compounds
6. Other PFAA precursors and related compounds - perfluoroalkyl ones
7. Other PFAA precursors or related compounds - semifluorinated
8. Fluoropolymers

Rationale

Public health experts have raised concerns that many emerging chemicals go into commercial use only to be found later to pose significant public and environmental health threats. In addition, small chemical modifications may be made by producers, and then this results in a new Chemical Abstract Services (CAS) identifier being assigned that is not explicitly listed in the main body of the Appendix A chemical list. To address these concerns, the functional group categories have been added at the end of Appendix A-I, for three chemical types that are of particular concern: isocyanate-related, halogenated polycyclic aromatic hydrocarbons and related, and per- and poly-fluorinated chemicals (PFAS-related) in 8 specified subgroups of PFAS-related. The functional group categories serve to define applicability provisions that specify that when a chemical contains any of the those listed chemical functional groups inside the chemical's formula, then the chemical meets the definition of a chemical that is included in the Appendix A requirements. There is very strong evidence that chemicals containing one of the three functional group types above may pose chronic or acute health threats, and many are listed in the U.S. EPA's Significant New Use Rules (SNURs) as substances that could result in exposures or releases of concern¹¹². Moreover, each of these groups may consist of thousands of individual substances, and there would be unacceptable delays in protecting public health to wait for them to be formally included on one of the six lists cited by the Statute. A

¹⁰⁹ (OECD, 2020). *Portal on Per and Poly Fluorinated Chemicals*. Organization for Economic Cooperation and Development; Accessed August 13, 2020.

<https://www.oecd.org/chemicalsafety/portal-perfluorinated-chemicals/>

¹¹⁰ (Kwiatkowski, 2020). *Scientific Basis for Managing PFAS as a Chemical Class*.

Environ. Sci. Technol. Lett. 2020, 7, 8, 532-543. Kwiatkowski et. al. Published June 30, 2020; doi: 10.1021/acs.estlett.0c00255. Accessed August 19, 2020.

<https://pubs.acs.org/doi/pdf/10.1021/acs.estlett.0c00255>

¹¹¹ (CFR, 2019). 40 CFR 721. *Significant New Use Rules on Certain Chemical Substances (19.4.B)*. Environmental Protection Agency. July 31, 2019.

<https://www.federalregister.gov/documents/2019/08/14/2019-17148/significant-new-use-rules-on-certain-chemical-substances-19-4b>

¹¹² (CFR, 2019).

further consideration is that not all of the many thousands of possible chemicals on nationwide lists (such as the SNUR list) are actually used, produced, or present in California facilities that are subject to the Hot Spots program. If Appendix-A were to individually list all of the many thousands of nationwide chemicals from such lists, the California facility operators would need to search through a very long list including many that are not relevant to their operations, when in practice, the facility operators only need to address the specific chemicals in these defined functional group classes that they in fact use, produce, or have present at their facilities. Therefore, CARB staff is proposing this more versatile and timely functional group approach to address the reporting of a rapidly evolving list of new and slightly modified chemicals.

Under the existing model, chemicals in the main alphabetical portion of Appendix A are listed individually by their Chemical Abstract Service (CAS) number (or, in a few cases, as a group with a four-digit emittent ID number assigned by CARB). However, new and slightly modified chemicals do not usually have a CAS number that has been included on the six source lists in the Statute or other lists readily available to CARB staff, and are therefore would be overlooked in reporting requirements, even though they may have important potential toxicity, often equivalent or greater than listed chemicals. Using the chemical functional group as the defining parameter that makes a substance subject to reporting is necessary to give the air districts and CARB the ability to collect data on the air emissions of highly toxic chemicals without the need to explicitly list potentially tens of thousands of individual CAS numbers.

Purpose of Carcinogen Column

Appendix A-I was revised to add a "c" notation to new or existing substances identified as human carcinogens or potential human carcinogens.

Rationale

CARB staff conducted a comprehensive review of the six designated lists of substances referenced in the statute and identified about 200 new substances that have been classified as human carcinogens or potential human carcinogens. In addition, staff evaluated new and/or updated information that is now available regarding existing Appendix A-I substances with recognized cancer concerns, and identified 37 substances that are now known to be carcinogens. CARB staff primarily designated the "c" carcinogens based on the list of the International Agency for Research on Cancer (IARC) Group 1 or 2 chemical lists, and from the California Proposition 65 list of chemicals known to the state to cause cancer.

Purpose of the Applicable Degree of Accuracy Column

Appendix A-I was updated to include an applicable reporting degree of accuracy (RDOA) for all of the new substances on the list and revise some of the existing RDOAs.

Rationale

The Statute requires CARB to ensure that the level and accuracy of emission reporting

will be sufficient to be used for characterizing exposure and risk (HSC § 44342). For this reason, CARB staff developed the reporting degree of accuracy to communicate to facility operators how accurately they need to report their emissions. For example, for a highly potent metal like hexavalent Chromium, the emissions must be reported out to several decimal places in pounds per year, in order to have the reported emissions be useful enough to evaluate the possible public health implications for that facility. By contrast, the emissions of benzene are sufficiently accurate when reported to the nearest two pounds per year, and the emissions of toluene to the nearest 200 pounds per year. The RDOA serves as a practical limit for how emissions should be quantified in consideration of relative toxicity and acts as a *de minimis* consideration to communicate levels of emission reporting below which the risk should be minimal.

All the new substances were assigned an RDOA to ensure emissions data will be sufficient allow the evaluation of known health impacts. To the extent possible, the RDOAs are based on OEHHHA cancer potency or a Reference Exposure Level (REL) for chronic or acute effects (if they were available for a substance)^{113, 114}. If the new chemical substance fell into an existing group, it was generally given the same RDOA as other substances already in the group. When OEHHHA health effects value were not available for a substance, the proposed degree of accuracy is based on a method that utilizes other available health information.

For example, when available, the Permissible Exposure Limits (PELs) from the Occupational Safety and Health Administration (OSHA) were used and converted into a REL equivalent (or adjusted REL) that would be health protective for long-term residential exposures, spanning young and old (not only adult workers).¹¹⁵ A similar approach was followed with workplace Threshold Limit Values (TLVs) exposure limits data from the American Chemistry Government of Industrial Hygienists Association (ACGIH)¹¹⁶. For cases for which a PEL or a TLV value was not available, CARB staff

¹¹³ (OEHHHA, 2019b). *Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures. June 1, 2009*. Accessed August 13, 2020. Available at: <https://oehha.ca.gov/air/cnr/technical-support-document-cancer-potency-factors-2009>; including an update made to Appendix A: *Appendix A: Hot Spots Unit Risk and Cancer Potency Values (Updated May 2019)*, Accessed August 25, 2020. Available at: <https://oehha.ca.gov/media/CPFs042909.pdf>

¹¹⁴ (OEHHHA, 2019a). *Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary*, November 2019, located at: <https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary>

¹¹⁵ (OSHA, 2020). *Permissible Exposure Limits, Occupational Safety and Health Administration*. Occupational Safety and Health Administration. Accessed August 10, 2020. <https://www.osha.gov/dsg/annotated-pels/tablez-1.html>

¹¹⁶ (ACGIH, 2018). *2018 TLVs and BEIs based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure*

evaluated the substance's available toxicity data and compared it with substances with already established RDOAs.

Purpose of Appendix A Notes 7, 13 and 14

Appendix A Notes 7, 13 and 14 are revised to provide additional clarifying descriptions regarding use of the table which could not be placed within the table itself.

Rationale

The notes in Appendix A are provided to assist facility operators and other users of the appendix in understanding the reporting requirements.

- Note 7 was revised to further clarify the reporting of unspecified metal compounds and rare earth elements.
- Note 13 was revised to further clarify that reporting of individual PAHs is required, and to point to the relevant reporting form for details.
- Note 14 was revised to further clarify that reporting of individual PAH-Derivatives and PAH-related chemicals is required, and to point to the relevant reporting form for details.

Purpose of Appendix A Notes 19-23

Appendix A Notes 19, 20, 21, 22, and 23 are added to provide additional clarifying descriptions regarding use of the table which could not be placed within the table itself.

Rationale

The notes in Appendix A are provided to assist facility operators and other users of the appendix in understanding the reporting requirements.

- Note 19 is added to clarify when facilities are required to report pesticide-related emissions.
- Note 20 is added to point to an alternate location on the list where organophosphate flame retardants are listed.
- Note 21 is added to clarify that, when multiple CAS numbers are used for the same chemical, the various CAS numbers are included on the list.
- Note 22 is added to clarify that facility operators are required to report the CAS number and full chemical name for any substance they report that meets the definition of a functional group class.
- Note 23 is added to clarify the Effective Phase requirements for reporting of the chemicals in Appendix A-I.

Purpose of Appendix A Unnumbered Note

The unnumbered note at the bottom of the Appendix A Notes is deleted.

Indices, American Council of Governmental Industrial Hygienists; Published 2018, pages 11-68. <https://www.acgih.org/tlv-bei-guidelines/policies-procedures-presentations/overview>

Rationale

This change removes an obsolete note, and is necessary to avoid confusion should the proposed amendments be adopted. The unnumbered note was included in the current version to identify new substances being added when Appendix A was last updated. The note is no longer relevant, and if the proposed amendments are adopted, the reference to "11/06" as the "most recent" update will create confusion.

Purpose of Emittent ID Column

Appendix A was updated to include an emittent ID for all of the new substances being proposed for addition and to revise the emittent ID for some of the existing substances.

Additionally, for new substances where the emittent ID does not list a specific CAS registry number, the following notations are used:

- a) A dash ("-") is shown for substances which are alphabetized under a group header or synonym elsewhere on the list. A cross reference is indicated in parenthesis "(" next to the substance name.
- b) A double dash ("- -") is shown to indicate that the entry is a non-reportable group header for the substances immediately following it.
- c) An asterisk ("*") is shown to indicate that the emissions of unspecified metal compounds shall be reported as the metal atom equivalent. Emissions of unspecified metal compounds shall be reported as the amount of the metal atom equivalent, using the metal emittent identification number for the metal itself; (or using the emittent identification number indicated on the table, such as for reporting inorganic versus other-than-inorganic arsenic compounds), or for reporting soluble versus insoluble cobalt compounds.

Rationale:

The emittent identification number, also known as the emittent ID, is generally the widely accepted Chemical Abstract Service (CAS) number for a substance (when a CAS number has been assigned and is available), or it is a CARB-assigned 4-digit code, if no CAS number is available. A chemical substance may be known by many names or synonyms, all of which are typically linked to a single CAS number, providing a unique identifier. Since it would be very impractical to list all the chemical name synonyms in Appendix A, the emittent ID is provided as a standardized searchable index that allows users to determine whether a substance is on the list. When a CAS number cannot be found, CARB assigns a 4-digit code for ease of reporting and tracking data.

Some substances listed in Appendix A are groups or mixtures. Section VIII.F of the EICG discusses the reporting of emissions for mixtures and trade name products that have or do not have a numeric emittent ID. Generally, because the mixture is too diverse in its coverage and health effects to report as a lumped total, the facility operator must report the individual components of the mixture. Where a group

header has no numeric emittent ID but rather a "-" or "- -", it is intended to be a "convenience group header" for organization purposes on the Appendix A list, to make it easier to see closely related chemicals together to provide better context to facilities in evaluating their substances.

Purpose of Add Date Column

The add date column was a minor adjustment and it will be updated to include the date of the Board's adoption of the proposed new substances in Appendix A of the EICG. The notation "<new>" indicates the most recently substances being proposed for addition, whose add date will be updated upon adoption of the proposed amendments.

Rationale

The add date column serves as a way to identify which substances were added during which regulation amendment. The substances included on the original Appendix A list (original 1989 EICG) have a blank add date, while those from the May 30, 1996 rulemaking have a date indicating the month and year of the Board's adoption, and so forth for other EICG amendments.

Purpose of Source List Column

The source list column communicates to the Appendix A user which chemical substances came from which mandated source list pursuant to Health and Safety Code section 44321. The meaning of each of the source list numbers is specified in Note [6] in the notes at the end of Appendix A. Some existing substances were updated to include additional source lists if that particular substance has since been included on another of the mandated source lists, after the last 2007 EICG amendments. In addition, for all new substances, their respective source lists are identified in this column. The source lists are labeled in Appendix A as 1-7, and refer to the following sources cited in statute:

- a) Source list "1" refers to the California Air Resources Board list of Toxic Air Contaminants¹¹⁷.
- b) Source list "2" refers to the Environmental Protection Agency list of Hazardous Air Pollutants¹¹⁸.

¹¹⁷ CCR, 1993). 17 CCR 93000, *Substances Identified as Toxic Air Contaminants*. California Air Resources Board. <https://www.arb.ca.gov/resources/documents/carb-identified-toxic-air-contaminants>

¹¹⁸ (USEPA, 1990). *The Clean Air Act Amendments of 1990 List of Hazardous Air Pollutants*. United States Environmental Protection Agency. <https://www.epa.gov/airtoxics/orig189.html>

- c) Source list "3" refers to the International Agency for Research on Cancer chemical list¹¹⁹.
- d) Source list "4" refers to the Governor's list of Carcinogens and Reproductive Toxicants, also known as Proposition 65¹²⁰.
- e) Source list "5" refers to the National Toxicology Program¹²¹.
- f) Source list "6" refers to the Hazard Evaluation System and Information Service¹²².
- g) Source list "7" refers to chemicals added pursuant to HSC section 44321 which gives CARB explicitly authority to include additional substances.

Rationale

The Act requires CARB to compile and maintain a list of substances that are recognized as presenting a chronic or acute threat to public health in six designated lists of substances compiled by international, federal and State authoritative organizations and regulatory programs referenced in the statute¹²³. The statute also gives CARB explicit authority to include any additional substances recognized by the Board as presenting a chronic or acute threat to public health when present in the ambient air. The sources are referenced in the source list column and are listed in note "[6]" at the end of Appendix A.

Purpose of Substance Name Column

The new substances are listed in the substance name column, which identifies one chemical name the substance is known by and, in some cases, the column can include up to three chemical names. Additional names of a substance are included in curly braces "{ }" next to the main chemical name.

Additionally, the substance name column may also include a cross reference identified in parenthesis, using the notation "(see ...)". This cross reference refers to another row

¹¹⁹ (IARC, 2020). *IARC Monographs on the Identification of Carcinogenic Hazards to Humans*. International Agency for Research on Cancer; June 26, 2020.

<https://monographs.iarc.fr/list-of-classifications/>

¹²⁰ (OEHHA, 2020a). *The Proposition 65 List*. Office of Environmental Health Hazard Assessment; Accessed August 13, 2020. <https://oehha.ca.gov/proposition-65/proposition-65-list>

¹²¹ (NTP, 2020). *National Toxicology Program: Monographs*. Accessed August 19, 2020.

<https://ntp.niehs.nih.gov/publications/monographs/index.html>

¹²² (CDPH, 2020b). *Hazard Evaluation System and Information Service (HESIS) Publications*. Accessed August 18, 2020.

<https://www.cdph.ca.gov/Programs/CCDC/DEODC/OHB/HESIS/Pages/Publications.aspx#otherhazards>

¹²³ (Connolly, 1987) *Air Toxic Hot Spots Information and Assessment Act*. Published September, 1987. Accessed August 19, 2020.

<https://www.arb.ca.gov/ab2588/overview.htm>

in the chemical list where the same chemical name or chemical name synonym can be found.

Further, the substance name column may also include an alternate CAS number identified in parenthesis, using the notation “(see alt. CAS)”. This cross references refers to the substance’s most commonly known CAS number.

Rationale

A standardized chemical name is necessary to uniquely list each chemical substance on the Appendix A list. However, a chemical substance may be known by many names or synonyms, and CARB staff have used widely accepted data sources to identify the most official name and one or two of the most commonly used synonyms. In addition, all of the names are typically linked to a single CAS number (or 4-digit CARB code if no CAS is available), to provide a unique numeric identifier, as a standardized searchable index that allows users to determine whether a substance is on the list. The same chemical’s name may vary across industry and, in some cases, a particular industry may refer to a chemical by its acronym or synonym (e.g., PBCTF otherwise known as Parachlorobenzotrifluoride or 1-Chloro-4-(trifluoromethyl)benzene). In some instances, CARB staff placed substances alphabetically as well as under group headings (if applicable). The alphabetical placements could be more than one placement on the list. In the example of PCBTF, this substance can be found under “Ps” as Parachlorobenzotrifluoride and PCBTF as well as under “Cs” as 1-Chloro-4-(trifluoromethyl)benzene. This is where the cross references will be listed to direct the Appendix A user to the main or most commonly used chemical name.

Purpose of Cross References

The purpose of cross references in Appendix A is to direct the Appendix A user to the main chemical name listed, and which is the preferred name for emission reporting purposes. Table 4 below lists all the new substances in Appendix A-I which have a cross reference to the main chemical listing. Table 5 lists the existing substances in Appendix A-I where a minor change or new addition was made to the chemical name itself or where a new cross reference was added.

Entries were added to the Appendix A list of substances to provide a cross-reference from one alphabetical version of a chemical’s name to another alphabetical location on the list that serves as the preferred, main entry for that chemical. Tables 4 and 5 below show the lines where cross-reference entries have been added for synonyms for proposed new substances or for previously existing substances.

Table 4: List of new substances with cross references that exist in more than one location in the Appendix A chemical list.

Emittent ID	Substance Name
191264	Anthanthrene [PAH, POM] (see PAH)
91156	1,2-Benzenedicarbonitrile (see Phthalonitrile)
214175	Benzo[b]chrysene [PAH, POM] (see PAH)
203123	Benzo[g,h,i]fluoranthene [PAH, POM] (see PAH)
3296900	2,2-Bis(bromomethyl)propane-1,3-diol (see Brominated and Chlorinated Organic Compounds Used as Flame Retardants)
-	Bis(2-chloro-1-methylethyl) ether, Technical grade: mixture of CAS 108601 and 83270319 (see Bis(2-Chloro-1-methylethyl)ether)
1163195	Decabromodiphenyl ether (see Polybrominated diphenyl ethers: Decabromodiphenyl oxide)
-	PBDEs (see Polybrominated diphenyl ethers)
106945	1-Bromopropane (see n-Propyl Bromide)
57018527	1-tert-Butoxypropan-2-ol (see Glycol Ethers: Propylene glycol t-butyl ether)
1189851	tert-Butyl chromate(VI) (see Chromium, hexavalent (and compounds))
98566	4-Chlorobenzotrifluoride {PCBTF} (see 1-Chloro-4-(trifluoromethyl)benzene)
28407376	C.I. Direct Blue 218 [PAH-Derivative/Related, POM] (see Benzidine-based dyes)
27208373	Cyclopenta[cd]pyrene [PAH] (see PAH)
541026	Decamethylcyclopentasiloxane {D5} (see Cyclosiloxanes: Decamethylcyclopentasiloxane)
615587	2,4-Dibromophenol (see Brominated and Chlorinated Organic Compounds Used as Flame Retardants)
611063	2,4-Dichloro-1-nitrobenzene (see Chloronitrobenzenes)
84617	Dicyclohexyl phthalate {DCHP} (see Phthalates, ortho-Phthalates)
84753	Di-n-hexyl phthalate {DnHP} (see Phthalates, ortho-Phthalates)
84695	Di-isobutyl phthalate {DIBP} (see Phthalates, ortho-Phthalates)
26761400	Di-isodecyl phthalate (see Phthalates, ortho-Phthalates)
68515491	Di-isodecyl phthalate, C9-11 branched esters, C10 rich (see Phthalates, ortho-Phthalates)
89167	Di-isodecyl phthalate mixture {Bis(8-methylnonyl) phthalate} (see Phthalates, ortho-Phthalates)
119394455	Di-isodecyl phthalate mixture {1,2-Benzenedicarboxylic acid, 4,4'-carbonylbis-, 1,1',2,2'-tetraisodecyl ester} (see Phthalates, ortho-Phthalates)
28553120	Di-isononyl phthalate {DINP} (see Phthalates, ortho-Phthalates)
68515480	Di-isononyl phthalate {DINP}, C8-10 branched esters, C9 rich (see Phthalates, ortho-Phthalates)
612828	3,3'-Dimethylbenzidine dihydrochloride (see Benzidine-based dyes)
91930	3,3'-Dimethoxybenzidine-4,4'-diisocyanate (see Isocyanates-diisocyanates)
75605	Dimethylarsinic acid {Cacodylic acid} (see Arsenic compounds (inorganic))
573988	1,2-Dimethylnaphthalene [Methyl-PAH, POM] (see PAH, Methyl-PAH)

575439	1,6-Dimethylnaphthalene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
581420	2,6-Dimethylnaphthalene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
483874	1,7-Dimethylphenanthrene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
101257	Dinitrosopentamethylenetetramine (see N,N'-Dinitrosopentamethylenetetramine)
131180	Di-n-pentyl phthalate (see Phthalates, ortho-Phthalates)
56382	Ethyl parathion (see Parathion)
-	Flame retardants (see also Brominated and Chlorinated Organic Compounds Used as Flame Retardants)
1303000	Gallium arsenide (see Arsenic compounds (inorganic))
59080409	2,2',4,4',5,5'-Hexabromobiphenyl (see Brominated and Chlorinated Organic Compounds Used as Flame Retardants)
67774327	Hexabromobiphenyl mixture including Firemaster FF-1 (see Brominated and Chlorinated Organic Compounds Used as Flame Retardants)
36355018	Hexabromobiphenyls (see Brominated and Chlorinated Organic Compounds Used as Flame Retardants)
25637994	Hexabromocyclododecane {HBCD} (see also Brominated and Chlorinated Organic Compounds used as Flame Retardants)
77094112	MeIQ (see 2-Amino-3,4-dimethylimidazo[4,5-f]quinoline)
77500040	MeIQx (see 2-Amino-3,8-dimethylimidazo[4,5-f]quinoxaline)
111966	2-Methoxyethyl ether (see Glycol ethers: Diethylene glycol dimethyl ether)
26914181	Methylanthracene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
613127	2-Methylanthracene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
779022	9-Methylanthracene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
124583	Methylarsonic acid (see Arsenic compounds (other than inorganic): Methylarsonic acid)
2422799	12-Methylbenz(a)anthracene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
65357699	Methylbenzopyrene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
41637905	Methylchrysene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
3351313	3-Methylchrysene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
1705857	6-Methylchrysene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
25889605	1-Methylfluoranthene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
1706010	3-Methylfluoranthene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
90120	1-Methylnaphthalene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
832699	1-Methylphenanthrene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
2531842	2-Methylphenanthrene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
832713	3-Methylphenanthrene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
883205	9-Methylphenanthrene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
2381217	1-Methylpyrene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
3353126	4-Methylpyrene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
98839	alpha-Methylstyrene (see Styrene: Methylstyrene)
124583	Monomethylarsonic acid (see Arsenic compounds (other than inorganic): Methylarsonic acid)
3173726	1,5-Naphthalene diisocyanate (see Isocyanates: diisocyanates)

121733	3-Nitrochlorobenzene (see Chloronitrobenzenes: m-Chloronitrobenzene)
100005	4-Nitrochlorobenzene (see Chloronitrobenzenes: 1-Chloro-4 nitrobenzene)
99569	4-Nitro-o-Phenylenediamine (see 1,2-Diamino-4-nitrobenzene)
59080409	2,2',4,4',5,5'-Hexabromobiphenyl (see Brominated and Chlorinated Organic Compounds Used as Flame Retardants)
67774327	Hexabromobiphenyl mixture including Firemaster FF-1 (see Brominated and Chlorinated Organic Compounds Used as Flame Retardants)
98566	PCBTF (see 1-Chloro-4-(trifluoromethyl)benzene)
608719	Pentabromophenol {PBP} (see Brominated and Chlorinated Organic Compounds used as Flame Retardants)
2991506	N-Ethyl-N-((heptadecafluorooctyl)sulfonyl)glycine (see 2-(N-Ethyl-perfluorooctanesulfonamido) acetic acid)
178535234	Fatty acids, linseed-oil, gamma-omega-perfluoro-C8-14-alkyl esters
22398807	Indium phosphide (see Indium and compounds)
80057	4,4'-(Propane-2,2-diyl)diphenol (see Bisphenol A)
483658	Retene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
7803523	Stibine {Antimony hydride} (see Antimony Compounds)
79947	Tetrabromobisphenol A {TBBPA} (see Brominated and Chlorinated Organic Compounds Used as Flame Retardants)
634662	1,2,3,4-Tetrachlorobenzene (see Chlorobenzenes)
95943	1,2,4,5-Tetrachlorobenzene (see Chlorobenzenes)
12408105	Tetrachlorobenzene (mixed isomers) (see Chlorobenzenes)
78002	Tetraethyllead (see Lead (other than inorganic): Tetraethyllead)
50926119	Indium tin oxide (see Indium and compounds)
118796	2,4,6-Tribromophenol (see Brominated and Chlorinated Organic Compounds used as Flame Retardants)
78488	Tribufos (see S,S,S-Tributyl phosphorotrithioate)
87616	1,2,3 Trichlorobenzene (see Chlorobenzenes)
3380345	Triclosan (see Chlorophenols)
2245387	2,3,5-Trimethylnaphthalene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
118967	2,4,6-Trinitrotoluene (see Nitrotoluenes)
115968	Tris(2-chloroethyl) phosphate {TCEP} (see also Brominated and Chlorinated Organic Compounds used as Flame Retardants and Organophosphate Flame Retardants)
13674845	Tris(1-chloro-2-propyl)phosphate {TCPP} (see Brominated and Chlorinated Organic Compounds Used as Flame Retardants and Organophosphate Flame Retardants)
13674878	Tris(1,3-dichloro-2-propyl) phosphate {TCDP} {TDCPP} (see Brominated and Chlorinated Organic Compounds Used as Flame Retardants and Organophosphate Flame Retardants)

Table 5: List of existing substances with cross references that exist in more than one place on the Appendix A chemical list

Emittent ID	Substance Name
-	Anthracene [PAH, POM], (see PAH)
-	Asbestos (all forms; see Mineral fibers)
-	Benz[a]anthracene [PAH, POM], (see PAH)
-	Benzo[b]fluoranthene [PAH, POM], (see PAH)
-	Benzo[j]fluoranthene [PAH, POM] (see PAH)
-	Benzo[k]fluoranthene [PAH, POM] (see PAH)
-	Benzo[a]pyrene [PAH, POM], (see PAH)
108171262	Chlorinated paraffins (see Chlorinated Paraffins: average chain length, C12; approximately 60% Chlorine by weight) (This includes C10-13, chloro Short Chain Chlorinated Paraffins))
85687	Butyl benzyl phthalate {BBP} {BzBP} (see Phthalates, ortho-Phthalates)
115286	Chlorendic acid (see also Brominated and Chlorinated Organic Compounds used as Flame Retardants)
108171262	Chlorinated paraffins (average chain length, C12; approximately 60% Chlorine by weight; this includes C10-13, chloro Short Chain Chlorinated Paraffins; see also Brominated and Chlorinated Organic Compounds used as Flame Retardants)
-	Chrysene [PAH, POM], (see PAH)
-	Decabromodiphenyl oxide [POM] (see Polybrominated diphenyl ethers, see also Brominated Flame Retardants)
-	Dibenz[a,h]anthracene [PAH, POM], (see PAH)
-	Dibenzo[a,e]pyrene [PAH, POM], (see PAH)
-	Dibenzo[a,h]pyrene [PAH, POM], (see PAH)
-	Dibenzo[a,i]pyrene [PAH, POM], (see PAH)
-	Dibenzo[a,l]pyrene [PAH, POM], (see PAH)
-	Dibenzofurans (chlorinated) (see Polychlorinated dibenzofurans) [POM]
84742	Dibutyl phthalate {Di-n-butyl phthalate} {DBP} {DnBP} (see Phthalates, ortho-Phthalates)
-	p-Dichlorobenzene (1,4-Dichlorobenzene) (see Chlorobenzenes)
84662	Diethyl phthalate (see Phthalates, ortho-Phthalates)
57976	7,12-Dimethylbenz[a]anthracene [Methyl-PAH-Derivative, POM] (see PAH, Methyl-PAH)
131113	Dimethyl phthalate {DMP} (see Phthalates, ortho-Phthalates)
-	Dioxins (Chlorinated dibenzodioxins) (see Polychlorinated dibenzo-p-dioxins) [POM]
-	Ethyl carbamate (see Urethane)
-	Ethyl-4,4'-dichlorobenzilate (see Chlorobenzilate)
-	Hydrocyanic acid (see Cyanide compounds)
-	Indeno[1,2,3-cd]pyrene [PAH, POM], (see PAH)
-	Toluene-2,4-diisocyanate (see Toluene diisocyanates)
-	Toluene-2,6-diisocyanate (see Toluene diisocyanates)
80057	4,4'-Isopropylidenediphenol [POM] {BPA} (see Bisphenol A)

-	Lead chromate (see Chromium, hexalent)
56495	3-Methylcholanthrene [Methyl-PAH-Derivative, POM] (see PAH, Methyl PAH)
3697243	5-Methylchrysene [Methyl-PAH-Derivative, POM] (see PAH, Methyl PAH)
101688	4,4'-Methylene bisphenyl diisocyanate {4,4'-diphenylmethane diisocyanate} {4,4'-MDI} (see Isocyanates, Diisocyanates: Methylene diphenyl diisocyanate)
91576	2-Methylnaphthalene [Methyl-PAH, POM] (see PAH, Methyl-PAH)
-	Naphthalene [PAH, POM], (see PAH)
*	Oleum (see Sulfuric acid and oleum)
126738	Tri-n-butyl phosphate {TBuP} (see Phosphorus compounds: Tributyl phosphate)
82688	Pentachloronitrobenzene {Quintobenzene} (see Chloronitrobenzenes)
-	1,2-Propyleneimine (see 2-Methylaziridine)
-	Tetrachlorophenols (see Chlorophenols)
-	2,4-Toluenediamine (see 2,4-Diaminotoluene)
126738	Tributyl phosphate (see Phosphorus compounds: Tributyl phosphate)
-	1,1,1-Trichloroethane (see Methyl chloroform)
-	2,4,6-Trichlorophenol (see Chlorophenols)

Rationale

The cross-reference entries in Appendix A are necessary because some chemicals are known by more than one name or synonym. To ensure that someone looking alphabetically in the list for a chemical will find it under its synonym, but the main entry may be alphabetized elsewhere, either under a more official name or in some cases within the name of a chemical group, which provides clearer context for closely related chemicals by putting them under a group header.

The use of cross-references lines ensures that a person or facility operator can find a chemical of interest to them and be comprehensive in their reporting, respectively, even if that chemical might have synonyms that would put it in different places on the alphabetical listing in Appendix A.

Purpose of Alternate CAS Numbers

An Alternate CAS number has been added as a new row in Appendix A with the same substance name for substances where more than one CAS could serve as an identifier for the same chemical. In some cases, these could be deprecated CAS numbers that may still be used by a facility.

Table 6: List of chemicals that include alternate CAS numbers

Emittent ID	Substance Name
1314609	Antimony trioxide {Antimony oxide} (alt. CAS, see CAS 1309644)
353424	Boron trifluoride ethers (alt. CAS, see CAS 109637)
203210699	2-Hydroxypropyl 2-(2-hydroxyethyl)ethyl tetrabromophthalate (alt. CAS No. 1, see CAS 20566352)
1150314503	2-Hydroxypropyl 2-(2-hydroxyethyl)ethyl tetrabromophthalate (alt. CAS No. 2, see CAS 20566352)
1429904277	2-Hydroxypropyl 2-(2-hydroxyethyl)ethyl tetrabromophthalate (alt. CAS No. 3, see CAS 20566352)
37769316	Tetrabromobisphenol A diallyl ether (alt. CAS, see CAS 25327893)
75790691	Tetrabromophthalic acid, mixed esters (alt. CAS, see CAS 75790691)
1689320	Tris(1-chloro-2-propyl)phosphate {TCPP} (alt. CAS No. 1, see CAS 13674845)
98112324	Tris(1-chloro-2-propyl)phosphate {TCPP} (alt. CAS No. 2, see CAS 13674845)
56362017	2,4,6-Tris(2,4,6-tribromophenoxy)-1,3,5-triazine (alt. CAS No. 1, see CAS 25713604)
157971545	2,4,6-Tris(2,4,6-tribromophenoxy)-1,3,5-triazine (alt. CAS No. 2, see CAS 25713604)
136991021	2,4,6-Tris(2,4,6-tribromophenoxy)-1,3,5-triazine (alt. CAS No. 3, see CAS 25713604)
341972314	Hydrogen cyanide {HCN} {Hydrocyanic acid} (alt. CAS No. 1, see CAS 74908)
191234227	Hydrogen cyanide {HCN} {Hydrocyanic acid} (alt. CAS No. 2, see CAS 74908)
13149003	Hexahydrophthalic anhydride, all isomers (alt. CAS, see CAS 85427)
14166213	Hexahydrophthalic anhydride, all isomers (alt. CAS, see CAS 85427)
5118343	Methylhydrazine sulfate (alt. CAS 5118343, see 302158)
66733219	Erionite (alt. CAS, see CAS 12510428)
1689320	Tris(1-chloro-2-propyl)phosphate {TCPP} (alt. CAS No. 1, see CAS 13674845)
98112324	Tris(1-chloro-2-propyl)phosphate {TCPP} (alt. CAS No. 2, see CAS 13674845)
1341453	2,3-Pentanedione (alt./deprecated CAS, see CAS 600146)
51810709	Zinc Phosphide (alt. CAS No. 1., see CAS 1314847)
12037795	Zinc Phosphide (alt. CAS No. 2., see CAS 1314847)
68515480	Di-isononyl phthalate {DINP}, C8-10 branched esters, C9 rich (alt. CAS, see CAS 28553120)
1395217	Subtilisins (alt. CAS, see CAS 9014011)
136323	2,4,5-Trichlorophenol sodium salt (see Chlorophenols)

Rationale

The alternate CAS entries in Appendix A are necessary because some chemicals are known by more than one CAS number. To ensure comprehensive reporting by facility operators who are comparing the Appendix A list to their own databases and purchase records, it is essential that the Appendix A list include all CAS numbers by which the chemical might be designated on material safety data sheets or purchase forms.

Purpose of Effective Phase Column

This column was added to indicate the Phase-In approach described in Section II.H of the EICG for newly added substances, as well as to denote the existing substances that do not have any delayed phase-in provisions. Each notation used in the Effective Phase column is discussed separately in the following items.

Rationale

Because of the large number of new substances being proposed for inclusion into Appendix A, a phase-in process is proposed to create a more manageable schedule to balance workload over several years, to assist affected facilities as well as the air districts. Each notation used in the Effective Phase column is discussed separately in the following items.

In addition, further specific details regarding the rationales for choosing which proposed new chemicals are assigned the ExistGrp, ChemSet-1, or ChemSet-2 notations in the Effective Phase column are discussed in the corresponding Purpose and Rationale entries in this Staff Report for EICG Sections II.H.(1) through II.H.(3), which have already been included in this Staff Report.

Purpose of the "see cross-ref" Notation in the Effective Phase Column

A cross reference ("see cross-ref") is shown for Effective Phase for a substance that is listed in more than one place within the Appendix A list structure, to notify the reader to refer to the main listing of the chemical for the appropriate Effective Phase designation.

Rationale

Many chemicals are known by more than one chemical name or synonym or acronym. Entries were added to the Appendix A list of substances to provide a cross-reference from one alphabetical version of a chemical's name to another alphabetical location on the list that serves as the preferred, main entry for that chemical. The notation for Effective Phase column shows the specific Effective Phase (e.g., ChemSet-1, ExistGrp, ChemSet-2) on the chemical line entry that is the main, preferred alphabetical location on the Appendix A list. To avoid confusion, and avoid cross-references becoming out of synchrony, the notation "see cross-ref" is shown on the lines under other synonyms that are **not** the main entry, to refer the user to look at the main, preferred entry for the applicable Effective Phase designation.

Purpose of "ChemSet-1" in the Effective Phase Column

The notation "ChemSet-1" is shown for Effective Phase to indicate newly added chemical substances that must be reported starting with the 2022 emission inventory data year for facilities in District Group A, or 2023 data year for facilities in District Group B. The 191 new substances designated as "ChemSet-1" in Appendix A-I were given priority to be reported during the first phase based on known toxicity information and carcinogenic and other concerns.

Rationale

Because of the large number of new substances being proposed for inclusion into Appendix A, a phase-in process is being proposed to create a more manageable schedule to balance workload over several years, to assist affected facilities as well as the air districts.

Further specific details regarding the rationales for choosing which proposed new chemicals are assigned the ChemSet-1 notations in the Effective Phase column are discussed in the corresponding Purpose and Rationale entries in this Staff Report for EICG Section II.H., particularly section II.H.(2) regarding ChemSet-1, previously addressed in this Staff Report. (The Staff Report Purpose and Rationale discussion regarding section II.H. is very lengthy, so it is referenced here rather than repeated here in its entirety).

Purpose of "ChemSet-2" in the Effective Phase Column

The "ChemSet-2" notation is shown for Effective Phase to indicate newly added chemical substances that must be reported starting with the 2026 emission inventory data year for facilities in District Group A, or 2027 data year for facilities in District Group B. The new substances identified as "ChemSet-2" were all remaining new substances that CARB staff did not identify as a priority in the first phase of reporting.

Rationale

Because of the large number of new substances being proposed for inclusion into Appendix A, a phase-in process is proposed to create a more manageable schedule to balance workload over several years, to assist affected facilities as well as the air districts. The substances having the highest priority for public health impacts are included in the ExistGrp and ChemSet1 categories. The remaining 753 chemicals in Appendix A-I with the Effective Phase designation of "ChemSet-2" are to be reported starting with the 2026 emission inventory data year for facilities in District Group A, or 2027 data year for facilities in District Group B. Even though there is a larger number of substances in ChemSet2, the workload is reasonably balanced across the years covered by the phases, because there is a gap of several years between the effective date for the ChemSet-1 vs. ChemSet-2 substances, which gives the affected industries and districts considerable additional time to prepare for reporting of the ChemSet-2 substances. Moreover, much of the ChemSet-2 subset consists of either chemicals that are not widely used (e.g., fairly unique to only a few very specific industries)

and/or they are the remaining instances from large groups (such as the PFAS-related group or the flame retardants group) where the most commercially used instances have already been addressed by ChemSet-1, and the remaining instances are chemicals that are far less likely to be in use by most California businesses.

Purpose of "ExistGrp" in the Effective Phase Column

Existing group or "ExistGrp" is shown for Effective Phase to indicate any substance already under or proposed to be added under an existing grouping in Appendix A that was already on the list prior to the current proposed regulation amendments. These are required to be reported without special phasing provisions.

Rationale:

Existing chemicals and chemical groups including existing metals, will already have to be reported under the Appendix A-I list, and now staff provides more examples of CAS numbers to report under this type of existing grouping. This will make it easier for companies to search their databases, especially in cases where it may not be obvious from the chemical name that the substance contains the listed compound.

In particular, the "ExistGrp" is used for existing metals, where the metals "and their metal compounds" have already been included on the existing Appendix A list. The metals and their metal compounds are already reportable, generally using the metal atom equivalent in each compound as an acceptable reportable amount. Many individual cases of metal compounds (chemicals that contain the metal) are already on the existing Appendix A, and having their CAS number in the Emittent ID column is helpful to facility operators when searching their data systems and purchase records for instances of these metal-containing compounds, particularly in cases where the chemical name may not be obvious. Therefore, for the proposed new chemicals that are also additional instances of metal-containing compounds, we include these under the appropriate existing metal group, and the Effective Phase is designated as "ExistGrp". As an example, the chemical "Cacodylic acid" is an Arsenic-containing compound, but it might not be obvious to a non-chemist that it should always have been reported as one of the metal compounds included under the Arsenic and compounds header for Arsenic metal-containing compounds. Now the CAS number will be readily apparent and searchable for the Appendix A user.

Purpose of Letter e ("e") in the Effective Phase Column

A letter e ("e") is shown for Effective phase to indicate an existing Appendix A chemical substance that was already included in the substance list prior to the current proposed regulation amendment. The existing chemicals are required to be reported without phasing.

Rationale

Leaving blank cells for the Effective Phase column where a substance is already existing may be confusing to the user. Adding the letter "e" for the existing chemicals ensures that every cell is identified with a particular notation in the Effective Phase column.

Purpose of Dash ("-") in the Effective Phase Column

A dash ("-") is shown for Effective Phase as described in footnote [1] of Appendix A, which is shown for substances which are nonreportable group headers and/or are already alphabetized under a group header or synonym elsewhere on the list.

Rationale

Putting a dash in the cells for Effective Phase is needed to make clear that the line is not a reportable substance, but rather a group header and/or a chemical synonym name whose main entry is alphabetized elsewhere on the list.

Appendix B. Reporting Formats and Instructions

Purpose of Appendix B-I, VI. Supplemental Use Production Information

Appendix B-I is revised to add additional fields to the electronic data dictionary to report amount and units.

Rationale

The previous Supplemental Use, Production Information (S-UP) format and form only included a check-off regarding whether a substance was used or produced or present at a facility. The previous S-UP form was needed only to collect qualitative information on chemicals in Appendix A-II to find out whether they might have use in California. In the current proposed amendments, the S-UP form is being modified to include fields that can collect information on the amounts that are used or produced or present at the facility. This is necessary for the proposed changes to the Appendix A-I provisions that will allow reporting quantities used, produced, or presence as an alternative to reporting emission quantities in cases where there is not an available emission quantification method for some of the proposed new chemicals for a given type of facility or process that might have the chemical is use or present, but the operator would not have methods available to quantify how much of those amounts in use might become airborne as actual emission releases. Collecting usage amounts will provide a valuable but less resource-intensive alternative for these cases for the proposed new chemicals, and will provide a basis for setting priorities for technical method development for those chemicals that are reported to be used in large amounts and/or by many facilities.

Purpose of Appendix B-I, Building Downwash information

Appendix B-I is revised provide an electronic data dictionary as a means to convey the information needed to evaluate building downwash.

Rationale

When emissions to the air from diesel engines on a facility's property interact with the wind's speed and direction and with building profiles on the site, the dispersion of the airborne plume can be greatly changed, and sometimes cause much higher ground level concentrations to occur than if there had been no buildings. Because the effect of building downwash can dramatically increase potential exposures and risk, it is necessary to collect data on building heights and related parameters that are within the zone of influence defined in the U.S. EPA's approved air dispersion models (sometimes referred to as the "5L" zone of impact, referring to the building's effective length and its distance away from a stack or release)^{124,125}. Reporting of the height and other information for all buildings within the applicable zone of influence is necessary in order to ensure that the building downwash impacts can be properly evaluated during air dispersion modeling and very important public health implications are not overlooked.

Purpose of Appendix B-II, Supplemental Use and Production Information Form

Appendix B-II is revised to provide an updated Supplemental Use and Production Information form, by striking out the old form and adding the new form, which includes two additional fields ("Amount" and "Units") added into each of the three repeating sections of the form. These two additional fields are added to the companion instructions for reporting information about the amount present, used, or produced, for substances in Appendix A-I for which a quantification method does not exist.

Rationale

Appendix B-II contains the specifications for reporting formats and instructions for reporting data by facility operators subject to the regulation, and includes samples of forms that can be filled out for reporting the required data fields and parameters.

¹²⁴ (USEPA, 2019a). Air dispersion models: *AERMOD* (19191) modeling system, August 2019, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod>; specifically the *AERSCREEN* (16216) model, December 2016, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models#aerscreen>; *BPIPPRM* (19191) model, November 2019, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-related-model-support-programs#bpipprm>. Accessed August 20, 2020

¹²⁵ (CARB, 2020) CARB's *HotSpots Analysis and Reporting Program (HARP)*, located at: <https://www.arb.ca.gov/our-work/programs/hot-spots-analysis-reporting-program>; *Air Dispersion Modeling and Risk Tool* version 19121, May 1 2019, located at: <https://www.arb.ca.gov/sites/default/files/classic/toxics/harp/software2/harp2admrt19121.zip>, *Emission Inventory Module* version 2.1.4, August 7, 2020, located at: <https://www.arb.ca.gov/toxics/harp/software2/harp2eim20200807.zip>. Accessed August 20, 2020.

Most air districts currently require electronic reporting, but the sample form is being updated to illustrate the proposed amendment outlined in Section II.H.(5) of the EICG Report. Adding the "Amount" field (to both the form and its companion instructions) is necessary to provide for reporting of the quantity of the substance that is present, used, or produced, if the facility is required to report the amount. Adding the "Units" field (to both the form and its companion instructions) is necessary to provide for reporting of the dimensional units for the Amount field reported, including the per unit of time for the units (which should generally be on a "per year" basis, because the emission reporting is also on a per year basis, e.g., "pounds per year").

Appendix C. Facility Guideline Index (Facility "Look-Up" Table)

Purpose of General Changes to Appendix C

Appendix C is revised to replace the table-like structure of Appendix C-I and Appendix C-II with a more conventional tabular format with distinct rows, columns, column headings, and gridlines. Appendix C is also reorganized to present a single section on Notes Appendix C. Some notes that were previously numbered have been moved to the area of opening notes at the top.

Rationale

Appendix C-I and Appendix C-II were previously formatted with tabs and spaces, which often resulted in ambiguous or unclear positioning of information. The appendices are being converted to a true tabular format with rows, columns, column headings, and gridlines. In addition, the formatting, spacing, and punctuation are fixed to improve accessibility and readability.

Additionally, in the current version of Appendix C, the tables for Appendix C-I and C-II are both preceded by a repetitive set of notes. Staff are proposing to include only a single set of notes preceding Appendices C-I and C-II to reduce redundancy. Referring to these as "Notes for Appendix C" is adequate to indicate that the notes apply to both appendices. These non-substantive changes are necessary to improve clarity and uniformity.

Purpose of Title Page for Appendix C-I

The title page containing the text "APPENDIX C-I, RESPONSIBILITIES OF ALL FACILITIES" is moved to precede the Appendix C-I table.

Rationale

In the current version of Appendix C, the title page precedes a set of notes for Appendix C-I that is identical to the notes for Appendix C-II. Since the notes are being combined into a single section to reduce redundancy, the title page is being relocated to immediately precede the Appendix C-I table. This non-substantive change is necessary to improve clarity and uniformity.

Purpose of Notes for Appendix C

This section is revised to consolidate the notes for Appendix C in a single location. The section is renamed “Notes for Appendix C” and the references to Appendix C-I are deleted.

Rationale

In their current version, Appendix C-I and C-II both include a repetitive set of notes. Staff are proposing to consolidate the notes in a single location to reduce redundancy. Referring to these as “Notes for Appendix C” is adequate to indicate that the notes apply to both appendices. The text referencing Appendix C-I is no longer necessary and is being deleted to avoid confusion.

Purpose of Unnumbered Notes to Appendix C

The text that was previously contained in notes 3 and 5 has been moved to a more visible place near above the numbered notes. In addition, a new note was added to explain how Standard Industrial Classification (SIC) codes are used in Appendix C-II.

Rationale

The appendix C notes were rearranged to keep the notes related to chemical groups together and in alphabetical order, and to put more general notes at the top of the list. These non-substantive changes are incorporated for clarity and uniformity.

The note regarding SIC codes was added to explain the purpose for including SIC codes in the table.

Purpose of Appendix C Note 1

Note 1 is revised to add new abbreviations used in Appendix C and to delete others that are no longer used.

Rationale

With the addition of new substances to Table A-1 and their use and reference in Appendix C, it was necessary to add abbreviations so that operators of facilities subject to the requirements will be able to understand which substance is referred to when the abbreviation is used in appendices C-I or C-II. The new abbreviations added are self-explanatory. Abbreviations for “BaP” and “Perc” are deleted because they are no longer used in the appendix.

Purpose of Appendix C Notes 2 to 39

Notes 2 to 23, and 25 to 39 are added to list the chemical substances that are included in the definitions of chemical groups that are used throughout Appendix C.

Note 24 (previously numbered as Note 3) was renumbered to keep the notes related to chemical groups together and in alphabetical order.

Rationale

Chemical group names are used in Appendix C for brevity and to reduce repetitiveness in the listing of chemical substances. Notes 2 to 39 are provided to identify the list of chemical substances included when a chemical group name is used in the appendix.

Appendix C-I. Responsibilities of All Facilities

Purpose of Appendix C-I

The table-like structure of Appendix C-I is being replaced with a more conventional tabular format with distinct rows, columns, column headings, and gridlines.

Rationale

Appendix C-I is intended to provide technical guidance on air toxic chemicals expected to be associated with broad overarching processes that occur across all types of facilities, such as combustion and solvent use. Appendix C-I was previously formatted with tabs and spaces, which often resulted in ambiguous or unclear positioning of information within the appendix. The appendix is being converted to a true tabular format with rows, columns, column headings, and gridlines. In addition, the formatting, spacing, and punctuation are fixed to improve accessibility and readability. These non-substantive changes are necessary to improve clarity and uniformity.

Purpose of Appendix C-I "Device/Process" Column Heading

The column heading "Device/Process" is replaced with three headings for "Device/Process Level 1"; "Device/Process Level 2"; and "Device/Process Level 3"

Rationale

The column headings "Device/Process Level 1"; "Device/Process Level 2"; and "Device/Process Level 3" are being added to differentiate and better illustrate the hierarchical level of the emitting process descriptions. These non-substantive changes are necessary to improve clarity and uniformity.

Purpose of Appendix C-I "Specific Substances" Column Heading

The column heading "Specific Substances (see Note 3)" is revised to read "Some Specific Substances – Gaseous, aerosol, and particulate releases including but not limited to (see note 40)".

Rationale

This revision is necessary to provide clarification to facility operators that, when conducting an assessment of the emissions at their facility, they need to consider

emissions in the form of gases, aerosols and solid particulate matter. The referenced note was revised from 3 to 40 to reflect the note's new place on the list after a large number of other notes were added.

Purpose of Appendix C-I, "Specific Substances" Column Revised Entries

Appendix C-I is revised to add specific substances that may be emitted by the various devices/processes listed. New substances added are depicted in underlined bold text, and the new and existing chemicals are presented in alphabetical order.

Rationale

Appendix C-I is intended to provide technical guidance on air toxic chemicals expected to be associated with broad overarching processes that occur across all types of facilities, such as combustion and solvent use. The list of specific substances that must be accounted for if they are used, manufactured, formulated, or released by a facility has been revised to include chemicals newly added to Appendix A which may be associated with the specific devices/processes listed in Appendix C-I. This update is necessary to ensure consistency between the requirements of Appendix A and Appendix C.

Purpose of Appendix C-I, Heat Transfer Fluids Row

A row for Heat Transfer Fluids was added to Appendix C-I under OTHER PROCESSES.

Rationale

This update is necessary to assist facilities in knowing what substances to report.

Purpose of Appendix C-I, FUEL/WASTE COMBUSTION; Boilers, Heaters, Kilns, IC Engines, Furnaces Row

A substance list is added to the Boilers, Heaters, Kilns, IC Engines, Furnaces row under FUEL/WASTE COMBUSTION.

Rationale

Appendix C-I is intended to provide technical guidance on air toxic chemicals expected to be associated with specific processes that may occur across all types of facilities, such as combustion and solvent use. Listing the substances at an overarching, higher-level process definition allows for a more efficient search of the substances that may be associated with a particular process covered by the broader definition.

Purpose of Appendix C-I, OTHER PROCESSES, Pesticide Use Row

A substance list is added to the OTHER PROCESSES, Pesticide Use Row

Rationale

To clarify those situations under which pesticide emissions must be reported. A significant number of pesticide substances occur on the six source lists CARB is required to consider, and many of them meet the criteria to be included in

Appendix A. However, the Act grants a reporting exemption for emissions that occur during the “pesticidal use” of a substance. A note is included to clarify that “for facilities that are subject to Hot Spots applicability provisions, reporting is required except during the time it is acting as a pesticide at an operation which is not a facility subject to the Hot Spots program.”

Purpose of Combining Substance lists under OTHER PROCESSES, Cooling Towers
The two substance lists under OTHER PROCESSES, Cooling Towers are being combined into a single list.

Rationale

To clarify that all substances apply across all related processes and improve the readability and accessibility of the information.

Appendix C-II. Further Responsibilities for Specific Facility Classes

Purpose of Notes Section for Appendix C-II

The Notes section for Appendix C-II is deleted.

Rationale

Appendix C-I and C-II both include a repetitive set of notes; therefore, staff are proposing to consolidate the notes in a single section at the beginning of Appendix C to reduce redundancy. Referring to those as “Notes for Appendix C” is adequate to indicate that the notes apply to both appendices, and a notes section for Appendix C-II is no longer necessary.

Purpose of Appendix C-II

The table-like structure of Appendix C-II is being replaced with a more conventional tabular format with distinct rows, columns, column headings, and gridlines.

Rationale

Appendix C-II is intended to provide technical guidance on air toxic chemicals expected to be associated with classes of facilities in specific industrial sectors. Appendix C-II was previously formatted with tabs and spaces, which often resulted in ambiguous or unclear positioning of information within the appendix. The appendix is being converted to a true tabular format with rows, columns, column headings, and gridlines. In addition, the formatting, spacing, and punctuation are fixed to improve accessibility and readability. These non-substantive changes are necessary to improve clarity and uniformity.

Purpose of Appendix C-II “Industry Emitting Process” Column Heading

The column heading “Industry/Emitting Process” is replaced with three headings for “Industry/Emitting Process Level 1”; “Industry/Emitting Process Level 2”; and “Industry/Emitting Process Level 3”.

Rationale

The column headings “Industry/Emitting Process Level 1”; “Industry/Emitting Process Level 2”; and “Industry/Emitting Process Level 3” are being added to differentiate and better illustrate the hierarchical level of the emitting process descriptions. In addition, broad industry category headings that were previously listed only once are now repeated on subsequent rows corresponding to narrower subcategories. These non-substantive changes are necessary to improve clarity and uniformity.

Purpose of Appendix C-II “Some Specific Substances” Column Heading

The column heading “Some Specific Substances (see Note 3)” is revised to read “Some Specific Substances – Gaseous, aerosol, and particulate releases including but not limited to (see note 40)”.

Rationale

This revision is necessary to provide clarity to facility operators that, when conducting an assessment of the emissions at their facility, they need to consider emissions in the form of gases, aerosols and solid particulate matter. The referenced note was revised from 3 to 40 to reflect the note’s new place on the list after a large number of other notes were added.

Purpose of Appendix C-II “Some Specific Substances” Column Revised Entries

Appendix C-II is revised to add specific substances that may be emitted by the various industrial sector processes listed. New substances added are depicted in underlined bold text, and the new and existing chemicals are presented in alphabetical order.

Rationale

Appendix C-II is intended to provide technical guidance on air toxic chemicals expected to be associated with classes of facilities in specific industrial sectors. The list of specific substances that must be accounted for if they are used, manufactured, formulated, or released by a facility has been revised to include chemicals newly added to Appendix A which may be associated with the specific industrial sectors listed in Appendix C-II. This update is necessary to ensure consistency between the requirements of Appendix A and Appendix C.

CARB staff relied on extensive search of many resources to compile information on the expected uses of each of the hundreds of proposed new chemicals in order to associate the usage and likely emissions of substances and classes/sectors. Hundreds of chemical-by-chemical searches were conducted using Google search tools and other commonly available resources such as PubChem web pages available through the National Institutes of Health (NIH) for each individual chemical. Basic background information about PubChem, and a starting point to search for individual chemicals can be found at this link: <https://pubchem.ncbi.nlm.nih.gov/>

Purpose of Replacing Abbreviations in the Sector Names

The following abbreviations that were used throughout Appendix C-II have been replaced with their full spelling:

Existing Abbreviation	Proposed Revision
Advert	Advertisement
Aero	Aerosol
Ammun	Ammunition
Bld	Building
Bldg	Building
Carry	Carrying
cat	catalytic
Cat'd Ray Pict'r Tubes	Cathode Ray Picture Tubes
Chem	Chemical
compon	components
Comprsr	Compressors
Condens & Evap	Condensed & Evaporated
Confec	Confectionery
cont'l	control
Corrug	Corrugated
Ctgs	Coatings
Devel	Development
D'grs	Degreasers
Distrib	Distribution
Elec	Electric
Emis	Emissions
Equip	Equipment
exc	except
Fab	Fabrication
Facil's	Facilities
Furn	Furniture
Gen'l	General
Guid Mis'ls	Guided Missiles &
Indstl	Industrial
Indus	Industry
Indust Inorg	Industrial Inorganic
Inorgan	Inorganic
Inhib	Inhibitor
Inst	Instruments
Instr	Instruments
Mach	Machinery
Machin	Machinery

Existing Abbreviation	Proposed Revision
mat'l	material
Mat'ls	Materials
Meas	Measuring
Measur & Dispens	Measuring & Dispensing
Mech	Mechanical
Med	Medical
Mfg	Manufacturing
Misc	Miscellaneous
Nat'l	Natural
Oper	Operations
partic	particulate
Prep	Preparation
Prim	Primary
Pro	Products
Pro	Production
Proc	Process
Prod	Product
Prod	Production
Prod	Products
Prods	Products
Prod's	Products
Product'n	Production
Rec'ving	Receiving
Refrig & Htg	Refrigeration & Heating
Refrigrat'n	Refrigeration
Rpr	Repair
Shorten & Cook Oils	Shortening & Cooking Oils
Smelt	Smelting
Spc	Space
Sport	Sporting
Supp	Supplies
Svc	Service
Svcs	Services
Svc's	Services
Transfr	Transfer
Veh	Vehicle

Rationale

The abbreviation used in the current Appendix C-II are often unclear and vague, and can create confusion. For example, the abbreviation "Pro" is used for both Products

and Production, and the abbreviation "Prod" used for Product, Products, and Production. The proposed revisions are necessary for clarity and consistency.

Purpose of New Sector Rows added to Appendix C-II

Appendix C-II was revised to add new rows for the following sectors:

- Agricultural Services, Crop Preparation Services for Market
- Beauty Shops
- Chemical Reagents & Intermediates was added under Chemical Manufacturing
- Crematories, Human and Veterinary, and Funeral Service
- Dental Laboratories
- Dentists
- Eating Places (Restaurants, Fast Food, Cafeterias, Grills, Caterers, etc.)
- Miscellaneous was added under Electrical & Electronic Equipment, Electronic Components & Accessories
- Flavoring Agents was added under Food Products Manufacturing
- Mattresses, Foundations, and Convertible Beds was added under Furniture & Fixture Manufacturing, Household Furniture
- Water Filtration & Reverse Osmosis Equipment was added under Machinery Manufacturing, Except Electrical, Refrigeration & Service Machinery
- Manufacturing Industries, Not Elsewhere Classified
- Mining of Metals was added under Metal Smelters & Foundries
- Miscellaneous was added under Mining of Non-Metals
- Scrap and Waste Materials Recycling
- Service Establishment Equipment and Supplies
- Auto and Truck Manufacturing was added under Transportation Equipment Manufacturing/Repair

Rationale

Appendix C-II is intended to provide technical guidance on air toxic chemicals expected to be associated with classes of facilities in specific industrial sectors. However, inclusion in Appendix C does not imply or directly impose any reporting requirements for facilities in these sectors. While all of the listed sectors have the potential to emit toxic air pollutants, the determination of which facilities are actually subject to reporting is established by specific applicability criteria. The purpose of adding these sectors to Appendix C-II is to assist facility operators identify the pollutants that they might need to report if they were subject to reporting.

Purpose of Cross-references Added to Appendix C-II

Appendix C-II was revised to add the following cross-references:

- "Pottery & Related (China, Plumbing, Porcelain, Earthenware) - see Clay, Glass & Stone Products, Pottery & Related Products, Appendix C-II" was added under Ceramic Plants

- "Also see Landfills, Appendix C-II" was added under Electric, Gas, & Sanitary Services, Sanitary Services, Refuse Systems
- "Also see Publicly Owned Treatment Works (POTWs), Appendix C-II" was added under Electric, Gas, & Sanitary Services, Sewerage Systems
- "Fumigation of Agricultural Products - see Agricultural Services, Crop Preparation Services for Market, Appendix C-II" was added as a stand-alone cross-reference
- "Manufacturing of Chemicals and Allied Products - see Chemical Manufacturing, Appendix C-II" was added as a stand-alone cross-reference
- "Manufacturing of Leather & Leather Products - see Leather & Leather Products, Appendix C-II" was added as a stand-alone cross-reference
- "Manufacturing of Metal Products - see Metal Product Fabrication, Appendix C-II" was added as a stand-alone cross-reference
- "Manufacturing of Plastics - see Rubber & Misc Plastics Products and Chemical Manufacturing, Appendix C-II" was added as a stand-alone cross-reference
- "Manufacturing of Stone, Clay, Glass, And Concrete Products - see Clay, Glass & Stone Products, Appendix C-II" was added as a stand-alone cross-reference
- "Manufacturing of Transportation Equipment - see Transportation Equipment Manufacturing/Repair, Appendix C-II" was added as a stand-alone cross-reference
- "Also see Metal Smelters & Foundries, Secondary Aluminum, Appendix C-II" was added under Metal Forming, Aluminum Forming
- "Mortuaries - see Crematories, Human and Veterinary, and Funeral Service, Appendix C-II" was added as a stand-alone cross-reference
- "Paper & Allied Products Manufacturing - see Paper & Allied Products Manufacturing, Appendix C-II" was added under Wood Products Manufacturing
- "Also see Rubber & Misc Plastics Products, Appendix C-II" was added under Plastic Products Manufacturing

Rationale

Appendix C-II is intended to provide technical guidance on air toxic chemicals expected to be associated with classes of facilities in specific industrial sectors. In many cases, the industrial sectors are part of a larger, overarching sector category, and cross-references are used as a way to link a narrow sub-category to the broader industrial sector.

Purpose of Reordering Sectors and Cross References

Appendix C-II was revised to reorder the following sectors and cross-references:

- Cotton Ginning was moved from under Agricultural Production to under Agricultural Services
- The cross-reference "Combustion Processes - see Combustion, Appendix C-I" under Chemical Manufacturing was moved from before Chemical Preparations to after Chlorine (Electrolytic) Production

- The row for Cyclic Crudes & Intermediates in the Chemical Manufacturing section was moved from Industrial Inorganic Chemical Manufacturing to Organic Chemical Manufacturing
- The rows for Gum & Wood Chemicals in the Chemical Manufacturing section were moved from Industrial Inorganic Chemical Manufacturing to Organic Chemical Manufacturing
- The row for Solvents Manufacturing under Chemical Manufacturing was moved from before Soap, Cleaners, & Toilet Goods to after Soap & Detergent Manufacturing
- The cross-references "Combustion Processes - see Combustion, Appendix C-I" and "Cooling Towers - see Other Processes, Appendix C-I" previously listed under Elec. or Natural Gas Service were moved to under Electric, Gas, & Sanitary Services and the separate listing for Elec. or Natural Gas Service was removed
- Instruments & Related Products, Photographic Equipment & Supplies, which was previously listed under Medical Instruments & Supplies, was moved out a level and listed following Optical Instruments & Lenses
- Machinery Manufacturing, Except Electrical, Industrial Patterns was moved from General Industrial Machinery to Metalworking Machinery
- Paper & Allied Products Manufacturing, including Pulp Mill Manufacturing, which was previously listed as a subcategory under Wood Products Manufacturing, was moved out from under Wood Products Manufacturing to be its own separate category listed alphabetically following the cross-reference "Paint & Allied Products Manufacturing - see Chemical Manufacturing, Appendix C II"

Rationale

The sectors in Appendix C-II are organized in alphabetical order (by common sector names and/or by SIC group name), followed by SIC structure within SIC groups, to assist facility operators in quickly determining the substances they need to report based on their sector name or SIC. Reordering of the sectors and cross-references above is necessary to maintain the correct alphabetical order and SIC structure.

Purpose of Adding Substance Lists to Sector Category Headers

Substance lists were added to the following rows that were previously used only as headers or partial/miscellaneous portions of a process:

- Aerospace Products Manufacturing (SIC 372x, 376x)
- Asphalt Materials Manufacturing (SIC 295x)
- Chemical Manufacturing (SIC 28xx), Agricultural Chemical Manufacturing (SIC 287x)
- Chemical Manufacturing (SIC 28xx), Inks (SIC 2893)
- Chemical Manufacturing (SIC 28xx), Plastics Materials & Synthetic Resins (SIC 282x), Rubber Production & Compounding, Gaseous, Aerosol, & Particulate releases

- Chemical Manufacturing (SIC 28xx), Soap & Detergent Manufacturing (SIC 2841-2844)
- Clay, Glass & Stone Products (SIC 32xx), Asbestos Mill/Processing (SIC 3292), Cement Products, Floor Tile, Friction Material, Textiles
- Clay, Glass & Stone Products (SIC 32xx), Concrete, Gypsum, & Plaster Products (SIC 327x)
- Dyeing of Textiles (SIC 226x), Gaseous, aerosol, and particulate releases, including but not limited to:
 - Electrical & Electronic Equipment (SIC 36xx)
 - Electrical & Electronic Equipment (SIC 36xx), Electronic Components & Accessories (SIC 367x, 3691, 3692), Batteries (SIC 3691, 3692)
 - Electrical & Electronic Equipment (SIC 36xx), Integrated Circuit Board Manufacturing (SIC 3672, 3674), Wet Chemical Stations
 - Electrical & Electronic Equipment (SIC 36xx), Integrated Circuit Board Manufacturing (SIC 3672, 3674), Manufacturing Process Reactors (Siliconizing)
 - Electrical & Electronic Equipment (SIC 36xx), Integrated Circuit Board Manufacturing (SIC 3672, 3674), Chemical Vapor Deposition
 - Electrical & Electronic Equipment (SIC 36xx), Integrated Circuit Board Manufacturing (SIC 3672, 3674), Photoresist Lines
 - Electrical & Electronic Equipment (SIC 36xx), Household Appliances (SIC 363x)
 - Electrical & Electronic Equipment (SIC 36xx), Electric Lighting & Wiring Equipment (SIC 364x), Lighting Fixtures (SIC 3645, 3646)
 - Electrical & Electronic Equipment (SIC 36xx), Electric Lighting & Wiring Equipment (SIC 364x), Wiring Devices (SIC 3643, 3644)
- Food Products Manufacturing (SIC 20xx), Grain Mill Products (SIC 204x)
- Food Products Manufacturing (SIC 20xx), Sugar & Confectionery Products (SIC 206x)
- Furniture & Fixture Manufacturing (SIC 25xx), Household Furniture (SIC 251x)
- Jewelry, Silverware, & Plated Ware (SIC 391x, 396x)
- Leather & Leather Products (SIC 31xx)
- Machinery Manufacturing, Except Electrical (SIC 35xx), Construction & Related Machinery (SIC 353x)
- Machinery Manufacturing, Except Electrical (SIC 35xx), Engines & Turbines (SIC 351x)
- Metal Product Fabrication (SIC 34xx), Metal Forgings & Stampings (SIC 346x)
- Metal Smelters & Foundries (SIC 33xx, 10xx), Iron & Steel Foundries (SIC 332x)
- Military Bases (SIC 9711)
- Monofilament Fiber Manufacturing (SIC 2823, 3089), Wet Spin, Dry Spin, Filter-tow Dry Spin, Filament Yarn Dry Spin, Gaseous and particulate releases including but not limited to: From: polymer and solvent storage, open preparation (blending), filtration, spin cell, lubrication, drawing, finish application, and drying
- Office Supplies Manufacturing (SIC 395x)

- Paper & Allied Products Manufacturing (SIC 26xx), Gaseous/aerosol/particulate releases including but not limited to:
- Paper & Allied Products Manufacturing (SIC 26xx), Paperboard Containers & Boxes Manufacturing (SIC 265x)
- Paper & Allied Products Manufacturing (SIC 26xx), Converted Paper Products (SIC 267x)
- Paper & Allied Products Manufacturing (SIC 26xx), Pulp Mill Manufacturing (SIC 2611)
- Paper & Allied Products Manufacturing (SIC 26xx), Pulp Mill Manufacturing (SIC 2611), Groundwood/Mechanical Pulp Manufacturing
- Petroleum & Coal Products (SIC 29xx)
- Petroleum & Coal Products (SIC 29xx), Paving & Roofing Materials (SIC 295x)
- Petroleum & Coal Products (SIC 29xx), Petroleum Refineries (SIC 2911)
- Printing & Publishing (SIC 27xx)
- Rubber & Misc Plastics Products (SIC 30xx)
- Rubber Cement Application/Manufacture (SIC 2891)
- Space Research & Technology (SIC 9661)
- Textile Mill Products Manufacturing (SIC 22xx, 23xx)
- Tobacco Manufacturing (SIC 21xx)
- Toy & Sporting Good Manufacturing (SIC 394x)
- Transportation Equipment Manufacturing/Repair (SIC 37xx, 753x, 7699), Auto Repair/Auto Body Repair (SIC 753x, 7699, 371x)
- Transportation Equipment Manufacturing/Repair (SIC 37xx, 753x, 7699), Auto Parts Manufacturing (SIC 3714)
- Transportation Equipment Manufacturing/Repair (SIC 37xx, 753x, 7699), Guided Missiles, Space Vehicles, & Parts (SIC 376x)
- Transportation Equipment Sales (SIC 501x, 5088, 55xx)
- Wood Products Manufacturing (SIC 24xx)
- Wood Products Manufacturing (SIC 24xx), Millwork, Plywood, & Structural Members (SIC 243x)
- Wood Products Manufacturing (SIC 24xx), Wood Furniture Manufacturing (SIC 25xx)

Rationale

Appendix C-II is intended to provide technical guidance on air toxic chemicals expected to be associated with classes of facilities in specific industrial sectors. Listing the substances at a broader, higher-level industrial sector definition allows for a more efficient search of the substances that may be associated with a particular sector covered by the broader definition.

Purpose of Combining Process and Substance Lists

The chemical substance lists for related processes that share a common substance list are being consolidated into single lists as follows:

- The rows for Blender, Drying Ovens, Formulator, and Other Process Reactors under Chemical Manufacturing, Drug/Pharmaceutical Manufacturing were moved to and combined with the row for Miscellaneous, and the words "Any/all operations, especially" were added
- Two substance lists for Gum & Wood Chemicals, Wood Chemical Manufacturing under Chemical Manufacturing, Organic Chemical Manufacturing were combined into one
- Two substance lists for Rubber, Non-Vulcanized, Manufacturing under Chemical Manufacturing were combined into one
- The substance list for Ceramic Plants was moved to and combined with the list for Clay, Glass & Stone Products, Pottery & Related Products
- Two substance lists under Metal Smelters & Foundries, Primary Aluminum Production were combined into one
- Two substance lists under Metal Smelters & Foundries, Secondary Aluminum were combined into one
- Three substance lists under Metal Smelters & Foundries, Metallurgical Coke were combined into one
- Three substance lists under Metal Smelters & Foundries, Primary Copper Smelting were combined into one
- Two substance lists under Metal Smelters & Foundries, Ferroalloy Production were combined into one
- Two substance lists under Metal Smelters & Foundries, Steel Foundries were combined into one
- Four process lists for Gas Stripping Fugitive Losses, Oil Production Fugitive Losses, Tertiary Oil Production, and Heavy Oil Test Stations corresponding to a single substance list under Oil and Gas Extraction were combined and the repeated words "Gaseous and aerosol releases from" were removed
- The separate process lists under Publicly Owned Treatment Works (POTWs) were combined into "Any/all operations, especially Raw Sewage Offgases, Combustion from exhaust gases of digester gas burning engines modified to lower NO_x emissions, Sludge Composting, Sawdust used as bulking agent (sawdust from lumber obtained at structural demolition projects), Sludge Dewatering, Sludge Treatment, Chlorinator Discharge, Digesters, Headworks" and the substance lists were combined
- The separate substance list for Sporting & Athletic Goods Manufacturing was replaced with the cross-reference "Sporting & Athletic Goods Manufacturing - see Toy & Sporting Good Manufacturing, Sporting & Athletic Goods, Appendix C-II" and the two substance lists were combined into one under Toy & Sporting Good Manufacturing, Sporting & Athletic Goods
- The listings for Gas Recovery and Refuse Landfills under Landfills were replaced with the wording "Any/all operations, especially gas recovery and open fugitives" and the two substance lists were combined

Rationale

To clarify that all substances apply across all related processes and improve readability and accessibility of the information.

Purpose of Adding "Any/all" Qualifier to the Sector Descriptions

The qualifier "Any/all" is being added to sectors where a list of substances applies to all operations as follows:

- The process list under "Bulk Plants and Terminals" was changed to "Any/all operations, especially Barrel Breathing, Barrel Filling, Barrel Standing, Barrel Withdraw, Valves, Vapor Collection/Control. Gaseous, aerosol, and particulate releases including but not limited to: From fixed roof tanks, variable vapor space tanks, floating roof tanks, flanges, pumps, and tank trucks"
- The process list under Chemical Manufacturing, Ethylene dichloride Production was changed to "Any/all operations, especially Oxychlorination, Air & Oxygen Process, Vents, Storage"
- The process list under Chemical Manufacturing, Fluorocarbon Manufacturing was changed to "Any/all operations, especially Reactor Venting, Distillation, Vents, Storage"
- The process list at the beginning of the Metal Plating section was changed to "Gaseous, aerosol, and particulate releases from any/all operations, especially plating, polishing, anodizing, spraying, grinding, coloring, cleaning, pickling"
- The words "Any/all operations, especially" were added to 24 process lists within the Metal Smelters & Foundries section
- The words "any/all sectors and product types" were added to the rows for 14 processes under Paper & Allied Products Manufacturing

Rationale

To clarify that the listed processes are example operations, but are not the only operations that take place at these facilities and emit listed substances.

Purpose of expanding Chemical Manufacturing Sector to Include Appendix A-III

The text referring to Appendix A in the overarching substance list at the beginning of the Chemical Manufacturing section is being revised to require the reporting of chemical substances in Appendices "A-I, A-II, or A-III"

Rationale

The previous version of Appendix C requires facilities in the chemical manufacturing sector to report only substances in Appendix A-I or A-II. However, the Appendix A-III list of chemicals refers to "Substances Which Need Not Be Reported Unless Manufactured By the Facility". The chemical manufacturing sector is the particular sector that could involve manufacturing of one or more of the chemicals on Appendix A-III, and therefore would be required to report such Appendix A-III chemicals. Thus, it is necessary to revise the sentence in the header row to include Appendix A-III along with Appendices A-I and A-II wording.

Purpose of Miscellaneous Minor Wording Changes

Several sectors descriptions have been updated to reflect minor changes as follows:

- The cross-reference "Box Mfg (folding paperboard type) - see Wood Product Mfg, Paper, Paperboard Containers & Boxes, Appendix C-II" was changed to "Box Manufacturing (folding paperboard type) - see Paper & Allied Products Manufacturing, Appendix C-II"
- The words "Alkalies & Chlorine" were added to the cross-reference for Alkali Manufacturing under Chemical Manufacturing, Agricultural Chemical Manufacturing
- "Methionide Analogs Prod (poultry feed supp.)" under Chemical Manufacturing was changed to "Methionide/Methionine Analogs Production (animal/poultry feed supplement)"
- "Plastics Materials & Synthetics" under Chemical Manufacturing was changed to "Plastics Materials & Synthetic Resins"
- "Plastics/Resins" under Chemical Manufacturing, Plastics Materials & Synthetic Resins, was changed to "Plastics Materials, Synthetic Resins, and Nonvulcanizable Elastomers"
- The missing sector label "Pressed and Blown Glass and Glassware, Not Elsewhere Classified" was filled in under Clay, Glass & Stone Products, Glass & Glassware, Pressed & Blown
- "Metal" was changed to "Metal & Other Than Wood" under Furniture & Fixture Manufacturing, Household Furniture
- "Upholstered" was changed to "Wood, Upholstered" under Furniture & Fixture Manufacturing, Household Furniture
- "Wood" was changed to "Wood, Except Upholstered" under Furniture & Fixture Manufacturing, Household Furniture
- "Metal" was changed to "Other Than Wood" under Furniture & Fixture Manufacturing, Office Furniture
- "Metal" was changed to "Other Than Wood" under Furniture & Fixture Manufacturing, Partitions & Fixtures
- "Dry Battery Production" under Metal Smelters & Foundries was changed to "Dry-Cell Battery Production"
- The cross-reference "Pulp Mills - see Wood Product Manufacturing, Appendix C-II" was changed to "Pulp Mills - see Paper & Allied Products Manufacturing, Appendix C-II"
- "Textile Mill Product'n Mfg." was replaced with "Textile Mill Products Manufacturing"
- The word "Wood" was removed from the cross-reference "Labeling/Packaging - see Printing and Wood (Paper) Products, Appendix C II" under Toy & Sporting Good Manufacturing

- The cross-reference "Wood Chem Mfg - see Chem Mfg, Indus Inorgan, Gum & Wood" was changed to "Wood Chemical Manufacturing - see Chemical Manufacturing, Organic Chemical Manufacturing, Gum & Wood Chemicals"

Rationale

The minor text changes described above are being made to align the process descriptions with their SIC code descriptors

Appendix D. Source Testing: Summary of Requirements for Measurement and Alternatives

Purpose of Appendix D, Note (4)

Note (4) is added to provide a clarifying description regarding the use the phrase "two-step test" in the table to mean the protocol specified in EICG Section IX.E. for specified classes of facilities.

Rationale

The purpose of this revision is to make clear that the requirement for "two-step test" which appears in the Appendix D matrix means the two-step protocol that is specified in Section IX.H. of the EICG pertaining to the specified classes of facilities.

Purpose of Appendix D, Note (5)

Note (5) is added to provide a clarifying description regarding the use of a single dash ("-") notation in the Appendix D table, under the column for "Alternative (if any)".

Rationale

The purpose of this revision is to make clear that when a dash (" _ ") symbol is used in the column for "Alternative (if any)", it means that no alternative to the specified testing requirement is available for that row of the table.

Purpose of Appendix D, Note (6)

Note (6) is added to provide clarifying descriptions regarding the use of the double dot ("..") notation and the double dash ("- -") notation in the Appendix D table.

Rationale

The purpose of this revision is to aid in making the document accessible by providing a visual indication that the content of certain cells in the table is intended to be the same as the cell above or the same across cells. The symbol ".." in the table indicates "same as above." The symbol "- -" in the table means "same across cells." These two symbols are used to clarify column content and row header content information that simply repeats from table cells above or across, respectively.

Purpose of Appendix D, Header Lines

Two header lines are added under the title line of the Appendix D table referring to the notes preceding the table for explanation of terms and symbols, and to state with the symbols “..” and “- -” mean.

Rationale

The purpose of the first of the two header lines is to refer the user to the more detailed notes section that precedes the table for further explanation of terms and symbols used in the table itself. The purpose of the second of the two header lines is to provide a short summary of the meaning of the notations for double dot (“..”) and double dash (“- -”) used in the table, consistent with the longer Note 6, and quickly visible on the table page itself.

Purpose of Appendix D Table

The table-like structure of Appendix D is replaced with a more conventional tabular format with distinct rows, columns, and gridlines.

Rationale

Appendix D was previously formatted with tabs and spaces, which made it inaccessible to anyone using a screen reader. The appendix is being converted to a true table with rows, columns, and gridlines to improve readability and accessibility. The old column headers and cell content are shown in strikeout. The new column headers and cell content are shown in underline. Previous footnotes are repositioned to match the new table.

Purpose of Text "a-c above"; "a-d above"; or "a-e above" in Substance and Type of Test Column

The text “a-c above”; “a-d above”; or “a-e above” is added to five previously empty cells in the Substance and Type of Test Column.

- “a-e above” was added for Coal and coke combustion including incineration
- “a-e above” was added for Residual and crude oil combustion and incineration
- “a-c above” was added in two places for Distillate and diesel combustion and incineration
- “a-d above” was added for Wood, wood waste, and agricultural waste combustion and incineration

Rationale

These revisions are necessary to make the document accessible by allowing screen readers to correctly associate these cells with the adjacent cells in the “Alternatives (if any)” column.

Purpose of Moving and Revising Footnote on First Page of Table

The footnote “See notes preceding the table for further explanation of terms used in the table” at the bottom of page D-2 is revised to “(See notes preceding the table for

further explanation of terms and symbols used in the table)” and is moved to just below the table header, with the asterisks removed.

Rationale

The Appendix D table spans several pages. Moving the note to just below the table header is necessary to avoid dividing the table in the middle and to position the note where it will most readily be noticed by readers. The asterisks are removed because they are no longer needed now that the note is positioned where it is meant to be read. The words “and symbols” are added for completeness because the notes section now includes a note about a symbol used several times in the table.

Purpose of the Symbols used in Notation, including the Double Dot (“..”) the Double Dash (“- -”), and a Single Dash (“-”) Notation.

The double dot (“..”) was added to empty cells in the “Emitting Process, Device or Facility Activity” column of the table to indicate “same as above.” The double dash (“- -”) notation was added to indicate “same as across”. The single dash (“-”) in the “Alternative (if any)” column is used to indicate that there is no alternative available to the required testing.

Rationale

The content of some cells in the “Emitting Process, Device or Facility Activity” column is the same as the cell above. The symbol “..” is added to these cells to indicate this without needing to either merge the cells, which could confuse a screen reader, or copy the content to the cells below, which could make the page appear cluttered.

Purpose of Moving and Renumbering Footnotes on Second and Later Pages of Table

The footnotes on the second and later pages of the Appendix D table were moved to the end of the table and the number of asterisks was adjusted.

Rationale

The Appendix D table spans several pages. Moving the footnotes for individual cells to the end of the table is necessary to avoid dividing the table in the middle. With all the footnotes at the end of the table, it is necessary to adjust the number of asterisks for each note to ensure that the different footnotes are marked differently so readers can distinguish between them.

Purpose of Appendix D Table Item 8, Waste water treatment facilities - including Publicly Owned Treatment Works (POTWs)

Appendix D, item 8, Waste Water Treatment Facilities – Including Publicly Owned Treatment Works (POTWS) is revised to add “Unit processes (including preliminary treatment, primary treatment, secondary treatment, basins, solids and sludge handling, filtration, and chlorination), or as proposed” as an emitting process, device or facility activity subject to a two-step source test for substances listed in Appendix A-I.

Rationale

The operation of these facilities is unique in that it involves accepting waste streams from other sources for processing, which could potentially contain and emit almost any substance listed in Appendix A-I. Therefore, to adequately characterize the types of substances that may be present in the waste stream, a two-step testing protocol is proposed for these facilities.

The first step of the proposed two-step testing protocol involves a qualitative test; this step would be used to identify potential listed substances of concern for the specific emitting process, device, or facility activity. From the results of the first-step qualitative test, a testing program protocol would be developed to perform the quantitative testing required by the second-step of the proposed two-step testing protocol. These quantitative results would be used to develop representative emission factors for the emitting process, device, or facility activity. These procedures may be used for both the qualitative and quantitative phases of testing. The two-step testing protocol is proposed under section IX.H of the EICG.

Purpose of Appendix D Table Item 11.(c), Secondary Aluminum Production

Appendix D, item 11 is revised to add "(c) Secondary Aluminum Production" as a subcategory of facilities subject to specific source tests. Further revisions include the following:

- Add "Thermal chip dryers and secondary aluminum processing units processing material other than clean charge" as an emitting process, device or facility activity subject to a dioxins stack test.
- Add "Scrap dryers/delacquering kilns/decoating kilns, sweat furnaces" as an emitting process, device or facility activity subject to a dioxins stack test and a hydrogen chloride stack test.
- Add "In-line fluxers using reactive flux materials and secondary aluminum processing units processing clean charge" as an emitting process, device or facility activity subject to a hydrogen chloride stack test.

Rationale

Secondary aluminum production facilities are significant sources of dioxins and furans and other air toxics. Emissions from these sources vary based on the amount of oil and coatings present with the materials fed to the furnace. Oils and coatings can contain precursors to dioxin and furan emissions. Testing of thermal chip dryers, scrap dryers/delacquering kilns/decoating kilns, sweat furnaces, and secondary aluminum processing units processing material other than clean charge is necessary to adequately characterize and assess the emissions of dioxins and furans. Furthermore, testing of scrap dryers/delacquering kilns/decoating kilns, in-line fluxers using reactive flux materials, and secondary aluminum processing units processing clean charge are necessary to measure emissions of hydrogen chloride, a toxic air contaminant that also

serves as a proxy for other inorganic emissions, including hydrogen fluoride and chlorine.

Purpose of Appendix D Table Item 21, Landfills

Appendix D is revised to add item 21, Landfills, as a category of facilities subject to source test requirements. Furthermore, the revision adds “Active areas (e.g., daily and intermediate cover), final covered areas, or as proposed” as an emitting process, device or facility activity subject to a two-step source test for specified substances.

Rationale

The operation of these facilities is unique in that it involves accepting waste streams from other sources for processing, which could potentially contain and emit almost any substance listed in Appendix A-I. Therefore, to adequately characterize the types of substances that may be present in the waste stream, a two-step testing protocol is proposed for these facilities.

The first step of the proposed two-step testing protocol involves a qualitative test; this step would be used to identify potential listed substances of concern for the specific emitting process, device, or facility activity. From the results of the first-step qualitative test, a testing program protocol would be developed to perform the quantitative testing required by the second-step of the proposed two-step testing protocol. These quantitative results would be used to develop representative emission factors for the emitting process, device, or facility activity. These procedures may be used for both the qualitative and quantitative phases of testing. The two-step testing protocol is proposed under section IX.H of the EICG.

Purpose of Appendix D Table Item 22, Composting

Appendix D is revised to add item 22, Composting, as a category of facilities subject to source test requirements. Furthermore, the revision adds “Unit processes (including feedstock and receiving, composting, mixing, finished product, uncomposted feedstock, and fugitive emissions locations), or as proposed” as an emitting process, device or facility activity subject to a two-step source test for specified substances.

Rationale

The operation of these facilities is unique in that it involves accepting waste streams from other sources for processing, which could potentially contain and emit almost any substance listed in Appendix A-I. Therefore, to adequately characterize the types of substances that may be present in the waste stream, a two-step testing protocol is proposed for these facilities.

The first step of the proposed two-step testing protocol involves a qualitative test; this step would be used to identify potential listed substances of concern for the specific emitting process, device, or facility activity. From the results of the first-step qualitative test, a testing program protocol would be developed to perform the quantitative testing required by the second-step of the proposed two-step testing protocol. These

quantitative results would be used to develop representative emission factors for the emitting process, device, or facility activity. These procedures may be used for both the qualitative and quantitative phases of testing. The two-step testing protocol is proposed under section IX.H of the EICG.

Purpose of Appendix D Table Item 23, Scrap Metal Recycling and Recovery

Appendix D is revised to add item 23, Scrap Metal Recycling and Recovery, as a category of facilities subject to source test requirements. Furthermore, the revision adds “Metal shredders” as an emitting process, device or facility activity subject to a two-step source test for specified substances.

Rationale

The operation of these facilities is unique in that it involves accepting waste streams for processing that could potentially contain and emit almost any substance listed in Appendix A-I. Therefore, to adequately characterize the types of substances that may be present in the waste stream, a two-step testing protocol is proposed for these facilities.

The first step of the proposed two-step testing protocol involves a qualitative test; this step would be used to identify potential listed substances of concern for the specific emitting process, device, or facility activity. From the results of the first-step qualitative test, a testing program protocol would be developed to perform the quantitative testing required by the second-step of the proposed two-step testing protocol. These quantitative results would be used to develop representative emission factors for the emitting process, device, or facility activity. These procedures may be used for both the qualitative and quantitative phases of testing. The two-step testing protocol is proposed under section IX.H of the EICG.

Appendix E. Requirements for Classes of Facilities Emitting Less Than 10 Tons Per Year of Criteria Pollutants

Purpose of General Changes to Appendix E

Appendix E is revised to replace the table-like structure with a more conventional tabular format with distinct rows, columns, column headings, and gridlines. The notes that previously preceded the table have been incorporated into the body of the table.

Rationale

Appendix E was previously formatted with tabs and spaces, which made it inaccessible to anyone using a screen reader. The appendix is being converted to a true table with rows, columns, and gridlines to improve readability and accessibility. The notes that previously preceded the table are no longer necessary, because their contents have been incorporated directly into the table.

Purpose of Appendix E, Table E-1

Table E-1, Phase-in Schedule for Reporting by District Group and Sector Phase, is added to identify the initial data year in which facilities become subject to the amended reporting requirements, based on the air district in which the facility is located.

Rationale

Table E-1 establishes a staggered schedule for the initial year of reporting for facilities subject to the amended reporting E requirements. Considering the many new chemical substances and additional sources subject to reporting, this staggered schedule is necessary to distribute the resources needed to implement the amended requirements over time so they would not burden facilities and air districts within a narrow time horizon.

Purpose of Appendix E, Table E-2

Table E-2, District Group for Appendix E Phase-in Schedule, is added to create two lists that subdivide California Air Districts into separate groups. These groups are used in conjunction with Table E-1 for establishing when certain facilities or sources become subject to the amended reporting requirements.

Rationale for Table E-2

Because there was a need and desire to phase in over time the number of facilities and sectors subject to reporting under the proposed additional applicability requirements, emissions reporting is phased-in by year, by air district, and by permitted process. This was done to distribute the resources needed to implement the program requirements over time so they would not burden facilities and air districts within a narrow time horizon.

One mechanism for spreading out the implementation was to subdivide the districts into those that included communities selected during 2018 for a community air monitoring program or a community emissions reduction program under AB 617, and those that did not have a “selected community” identified during 2018. The selected communities are defined geographic area selected and approved by the CARB Governing board, pursuant to H&SC 42705.5 or 44391.2. In general, these communities are substantially disproportionately affected by air pollution when compared to other communities, which makes it very important to identify the sources of air pollution within these selected communities, and the magnitude of emissions associated these sources as soon as possible.

Purpose of Table E-3 Sector Phase

The definition of “Sector Phase” describes the reporting schedule for three groups of processes, which are used to phase-in the additional reporting requirements over a period of time for sources subject to the applicability requirements. Sector Phases 1 through 3 specify when facilities are required to submit emissions reports, with Sector Phase 1 being included in the first years of reporting.

Rationale for Sector Phase

The definition is provided to establish the terminology needed to label distinct groups of processes. The Sector Phases are provided to introduce the additional new sectors and help even out workload for air districts, reporters, and CARB. The Sector Phase is used in conjunction with an Initial Data Year and a District Group to determine when a facility engaging in a specific process initially becomes subject to the amended reporting requirements.

Purpose of Sector Phases 1, 2, and 3.

The term Sector Phase indicates when a facility within a certain sector or engaging in a specified process becomes subject to the reporting schedule. In general, those sectors that are of greatest concern with regards to toxicity and potential health impacts are included in Sector Phase 1 and other sources are included in later phases, specifically Sector Phases 2 and 3.

Rationale for Sector Phases 1, 2, and 3.

Processes in Sector Phase 1 are included in the first years of reporting, generally because of the potential high health risk associated with the sector emissions and the need to receive timely emissions data to inform the public and provide data on reducing air pollution impacts on environmental justice and other communities. This does not mean that emissions from other processes in other sector phases are not potentially harmful; however, it was not practical to initiate reporting for all sectors within a single year, so sectors were subdivided into Sector Phases. The number of facilities within each sector phase was also considered when establishing the sector assignments, to include roughly similar quantities of facilities within each phase to help balance resources over the program implementation.

Purpose of Sector No. 0: Facilities that emit greater than 4 tons per year of total organic gases, particulate matter, nitrogen oxides, or sulfur oxides

This sector is added to establish a new applicability threshold of greater than 4 tons per year (tpy) of any criteria pollutant emissions (except carbon monoxide) for facilities with any SIC or NAICS code. This sector is included under Sector Phase 1.

Rationale for Addition of Sector No. 0

Generically, the new requirement is needed to include more facilities under the EICG reporting requirements. The 4 tpy reporting threshold aligns with several districts' criteria pollutant permit thresholds for stationary sources. Part of the rationale for the 4 tpy threshold is that it is used for the majority of permitted sources across the state. Many other districts have a 5 tpy permitting threshold, therefore establishing a 4 tpy threshold would not be a substantial difference or workload variation for such districts, when compared to a higher threshold. The implementation of a 4 tpy threshold increases statewide equity in reporting across regions, industry sectors and sources, in which the focus is not only on the very largest or most toxic facilities. Collecting more accurate and disaggregated facility-based emissions data from stationary sources will

aid in the evaluation of the relative contribution of these facilities to impaired ambient air quality, and is necessary to support CARB, district, and community priorities in reducing exposure to harmful air pollutants.

Purpose of Sector No. 1: Metal plating, anodizing, or grinding using cadmium or chromium

This sector is revised to include metal anodizing and grinding using cadmium or chromium at any activity level and occurring at facilities classified with any SIC or NAICS code. This sector is included under Sector Phase 1.

Rationale for Modification of Sector No. 1

This sector was expanded to include metal anodizing and grinding using cadmium or chromium because, in addition to the potential emissions from the chemical baths used during the plating process, these types of metal working activities have the potential to release cadmium or chromium into the atmosphere, which can have detrimental health effects, including increased cancer risk.

Setting an activity level reporting threshold or limiting the SIC or NAICS codes for this activity category would not provide confidence in the completeness of emissions data required for community right-to-know under AB 197 and the actions and requirements for reducing air pollution impacts on environmental justice communities as required by AB 2588.

Purpose of Sector No. 2: Plating, polishing, coating, engraving, and allied services, including thermal spraying, using chromium, cadmium, or nickel

The description of this sector is modified slightly to clarify the definition of the process or activity. It includes “plating, polishing, coating, engraving, and allied services, including thermal spraying, using chromium, cadmium, or nickel” at any activity level at facilities classified with SIC code(s) 347x or NAICS code(s) 3328xx or 33991x. This sector is included under Sector Phase 1.

Rationale for Modification of Sector No. 2

This sector is consistent with an equivalent class of facilities listed in the 2007 version of Appendix E. This process has the potential to release metal emissions of the toxic air contaminants chromium, cadmium, and nickel.

As opposed to Sector No. 1, this sector focuses on the “fabricated metal products” industry, as specified by the SIC and NAICS categories listed in the table. The range of SIC codes for this sector have been limited to the “coating, engraving, and allied services” sector of the “fabricated metal products” SIC category, and the range of NAICS codes have been limited to the “coating, engraving, heat treating, and allied activities” and “jewelry and silverware manufacturing” NAICS categories. These ranges limit the number of potentially affected facilities to those with the potentially largest toxics emissions, and therefore the greatest need for annual emission reporting.

Purpose of Sector No. 3: Petroleum refining and industries related to petroleum refining

The description of this sector is modified slightly to clarify the definition of the process or activity. It includes “petroleum refining and industries related to petroleum refining” at any activity level at facilities classified with SIC code(s) 2911 through 2999 or NAICS code(s) 3241xx, 325110, or 325194. This sector is included under Sector Phase 1.

Rationale for Modification of Sector No. 3

This sector is consistent with the equivalent class of facilities listed in the 2007 version of the Appendix E. This process has the potential to emit many types of toxic air contaminants, including benzene, toluene, ethylbenzene, xylene, and many others, that range from low OEHA cancer unit risk factors to high. The large number of different air pollutants emitted do not allow for a *de minimis* activity level reporting threshold to be established, which is why an “Any activity threshold” is applied. Facilities that are subject to this category due to the SIC and NAICS codes listed include those engaged in petroleum refining, asphalt paving mixtures and blocks manufacturing, asphalt felts and coatings manufacturing, lubricating oils and greases manufacturing, other products of petroleum and coal manufacturing, petrochemical manufacturing, and cyclic crude and cyclic intermediate manufacturing, which are included based on their known potential to release toxic air contaminants.

Purpose of Sector No. 4: Industrial machinery manufacturing

Appendix E is revised to add a new sector for “industrial machinery manufacturing” at any activity level at facilities classified with SIC code(s) 353x or 356x or NAICS code(s) 333xxx. This sector is included under Sector Phase 1.

Rationale for Addition of Sector No. 4

This process has the potential to release carcinogenic toxic air contaminants including metals and solvents. Limiting the activity level reporting threshold for this category would not provide the complete emissions data required for community right-to-know requirements under AB 197. Facilities listed in the permitted process description and classified in one of the SIC or NAICS codes are subject to the requirements.

Purpose of Sector No. 5: Release of fumigant or fumigation of crops for market using ethylene oxide, propylene oxide, methyl bromide, sulfuryl fluoride, or phosphine and phosphine-generators

This sector is revised to expand the list of fumigants that are released or used in the fumigation of crops for market to include sulfuryl fluoride or phosphine and phosphine-generators at any activity level at facilities classified with SIC code(s) 0723, 2033, 2034, 2068, 2099, or 5148; or NAICS code(s) 115111, 115114, 3111xx through 3114xx, 3118xx, or 3119xx. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 5

This sector is expanded to include methyl bromide replacement sulfuryl fluoride, phosphine or phosphine-generators. These chemicals are of concern due to their toxicity. Sulfuryl fluoride is used to fumigate closed structures and their contents for termites, beetles, bedbugs, moths, cockroaches, and rodents¹²⁶. Phosphine fumigants are sold in solid form, and when exposed to water vapor in air, a chemical reaction occurs releasing phosphine gas. Phosphine gas is highly toxic, reactive, and potentially explosive¹²⁷.

This process releases toxic air contaminants that are neurotoxins, carcinogens and teratogens. Ethylene oxide, propylene oxide, and methyl bromide are consistent with the equivalent class of facilities listed in the 2007 version of Appendix E.

Purpose of Sector No. 6: Rubber and miscellaneous plastics products manufacturing if styrene, butadiene, phthalates, carcinogenic solvents, or isocyanates are used

This sector is revised to expand the list of substances that make facilities subject to reporting (i.e., styrene, butadiene, phthalates, carcinogenic solvents, or isocyanates). It includes the permitted process of “rubber and miscellaneous plastics products manufacturing if styrene, butadiene, phthalates, carcinogenic solvents, or isocyanates are used” at any activity level and at facilities classified with SIC code(s) 3011 through 3089, 3293, or 3555; or NAICS code(s) 31332x, 31491x, 3162xx, 3252xx, 325991, 3261xx, 3262xx, or 339113. This sector is included under Sector Phase 1.

Rationale for Modification of Sector No. 6

This sector is consistent with the equivalent class of facilities listed in the 2007 version of the Appendix E; however, it no longer specifies applicability for listed substances used in a blowing agent, plasticizer, or diluent, or present as a free monomer. This process releases carcinogenic toxic air contaminants. Limiting the activity level reporting threshold for this category would not provide the complete emissions data required for community right-to-know requirements under AB 197. Facilities listed in the permitted process description and classified in one of the SIC or NAICS codes are subject to the requirements.

Purpose of Sector No. 7: Processes emitting 1,4-dioxane in reverse osmosis equipment manufacturing, water treatment filtration systems, manufacturing of paints, lacquers, cosmetics, and cleaning agents; manufacturing or processing of petroleum, pulp and paper, explosives; commercial printing, electroplating/polishing;

¹²⁶ (NPIC, 2017). *Sulfuryl Fluoride General Fact Sheet*. National Pesticide Information Center, Oregon State University Extension Services. Accessed December 9, 2019. <http://npic.orst.edu/factsheets/sfgen.html>

¹²⁷ (ACES, 2005). *Fumigating Agricultural Commodities with Phosphine*. Alabama Cooperative Extension System, Published August 2005; Accessed December 9, 2019. http://nasdonline.org/static_content/documents/7243/d002470.pdf

manufacturing of pesticides, dyes, fibers, pharmaceuticals, adhesives, semiconductors, electronic components, photographic equipment, magnetic recording media, polymers, plastics, rubber, and organic and inorganic chemicals; and degreasing solvent use containing 1,4-dioxane

This sector is revised to include permitted processes “emitting 1,4-dioxane in reverse osmosis equipment manufacturing, water treatment filtration systems, manufacturing of paints, lacquers, cosmetics, and cleaning agents; manufacturing or processing of petroleum, pulp and paper, explosives; commercial printing, electroplating/polishing; manufacturing of pesticides, dyes, fibers, pharmaceuticals, adhesives, semiconductors, electronic components, photographic equipment, magnetic recording media, polymers, plastics, rubber, and organic and inorganic chemicals; and degreasing solvent use containing 1,4-dioxane” at an activity level of 10 pounds of 1,4-dioxane emitted per year at facilities classified with SIC code(s) 13xx, 22xx, 26xx, 27xx, 28xx, 29xx, 30xx, 35xx, 36xx, 37xx, 38xx, 49xx, 50xx, 51xx, 73xx, 75xx, 76xx, or 97xx; or NAICS code(s) 211xxx, 221xxx, 236xxx, 2371xx, 2389xx, 3115xx, 3121xx, 3149xx, 3222xx, 3231xx, 325xxx, 326xxx, 331xxx, 332xxx, 333xxx, 334xxx, 3361xx, 3364xx, 3399xx, 4881xx, 5311xx, 5417xx, 5622xx, 61xxxx, 8111xx, or 92811x. This sector is included under Sector Phase 1.

Rationale for Modification of Sector No. 7

This sector was modified with updated SIC codes and to include a list of facilities in the permitted process description. Due to revised methodology affecting inhalation risk estimates, the threshold for this sector was reduced from 85 pounds of 1,4-dioxane emitted per year to 10 pounds emitted per year to account for: 1) a reduction in the amount of exposure presenting a risk to infants and children, and 2) the potential for multiple sources or facilities to present a health risk to persons living or working at nearby locations.

The substance 1,4-dioxane is a toxic air contaminant and a carcinogen. It may be released to air during its production, the processing of other chemicals (e.g., pharmaceuticals and pesticides), and its use as a solvent. 1,4-dioxane remaining as a byproduct in end-use products (e.g., domestic detergents and personal care products) may be released to publicly owned treatment works (POTWs). In air, 1,4-dioxane is subject to photooxidation with an estimated half-life of 1-3 days.¹²⁸ Facilities equal to or exceeding the activity level reporting threshold include those engaged in the activities listed in the permitted process descriptions (and classified in one of the SIC or NAICS codes listed).

Purpose of Sector No. 8: Combustion of crude, residual, distillate, or diesel oil, except for the agricultural operations and medical-related industry sectors as defined in the SIC and NAICS columns

¹²⁸ (ATSDR, 2012). *Toxicological Profile for 1,4-Dioxane*. Agency for Toxic Substances & Disease Registry. Published April 2012; Accessed December 9, 2019. <https://www.atsdr.cdc.gov/toxprofiles/tp187-c6.pdf>

This sector was revised to include the permitted process “combustion of crude, residual, distillate, or diesel oil, except for the agricultural operations and medical-related industry sectors as defined in the SIC and NAICS columns” at an activity level of 100 gallons of fuel combusted per year, or over 5 hours per year of operation for Tier 4 or higher diesel engines; or 30 gallons of fuel combusted per year or 5 hours per year of operation for Tier zero through tier 3 diesel engines; or 100 gallons of fuel combusted per year for combustion devices other than compression ignition engines. This applies to facilities classified with any SIC code (except SIC codes 0110 through 0762 or 8011 through 8099); or any NAICS code (except NAICS codes 111xxx, 112xxx, 1151xx, 1152xx, or 621xxx through 623xxx). This sector is included under Sector Phase 1.

Rationale for Modification of Sector No. 8

This sector was modified from the 2007 version of Appendix E by limiting the SIC and NAICS codes of the equivalent facilities to only those classified outside of the agricultural or medical-related sectors (facilities classified as agricultural or medical-related sectors are now part of Sector No. 46). For this sector, the activity data threshold is split into three categories: (a) whether the engine is Tier 4 or higher and diesel-fueled, (b) Tier zero through tier 3 diesel engines, or (c) other combustion devices other than compression ignition engines. The proposed activity level reporting thresholds are based on CARB staff health risk assessments, using the current OEHHA¹²⁹ unit risk and cancer potency values to evaluate the potential inhalation health risk of diesel particulate matter emitted near sensitive and other receptors. Reporting applicability for facilities in the medical and agricultural production sectors have been delayed to Phases 2 and 3, respectively, to allow extra time for facility operators and air districts to develop data collection practices for these facilities. Also, facilities in the agricultural production sector tend to have engines placed in locations that are not in close proximity to human living spaces.

Diesel particulate matter is a toxic air contaminant and a carcinogen. Diesel engine emissions are believed to be responsible for about 70% of California’s estimated known cancer risk attributable to toxic air contaminants¹³⁰. As a significant fraction of PM_{2.5}, diesel particulate matter contributes to a number of health impacts that have been attributed to particulate matter exposure. All facilities equal to or exceeding the

¹²⁹ (OEHHA, 2019b). *Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures*. June 1, 2009. Accessed August 13, 2020. Available at: <https://oehha.ca.gov/air/cnr/technical-support-document-cancer-potency-factors-2009>; including an update made to Appendix A: *Appendix A: Hot Spots Unit Risk and Cancer Potency Values (Updated May 2019)*, Accessed August 25, 2020. Available at: <https://oehha.ca.gov/media/CPFs042909.pdf>

¹³⁰ (CARB, 2019a). *Summary: Diesel Particulate Matter Health Impacts*. Accessed December 9, 2018. <https://www.arb.ca.gov/resources/summary-diesel-particulate-matter-health-impacts>

activity level reporting threshold are subject, except for those in the agricultural operations and medical-related sectors.

Purpose of Sector No. 9: Processes emitting styrene, in boat and ship building and repair; rubber products manufacturing; plastics, resins, and foams manufacturing; utility vault manufacturing; cultured marble and stone manufacturing and wholesale; fiber cans and drums manufacturing; manufacturing and installation of polystyrene products; and furniture and fixtures manufacturing

This sector was revised to include permitted processes “emitting styrene, in boat and ship building and repair; rubber products manufacturing; plastics, resins, and foams manufacturing; utility vault manufacturing; cultured marble and stone manufacturing and wholesale; fiber cans and drums manufacturing; manufacturing and installation of polystyrene products; and furniture and fixtures manufacturing” at an activity level of 1 pound of styrene emitted per year at facilities classified with SIC code(s) 17xx, 22xx, 23xx, 24xx, 25xx, 26xx, 28xx, 30xx, 32xx, 34xx, 35xx, 37xx, 38xx, 44xx, 45xx, 49xx, 50xx, 51xx, 75xx, or 97xx; or NAICS codes 211xxx, 2123xx, 213xxx, 221xxx, 236xxx, 237xxx, 311xxx, 3121xx, 313xxx, 314xxx, 315xxx, 316xxx, 321xxx, 322xxx, 32311x, 324xxx, 325xxx, 326xxx, 327xxx, 331xxx, 332xxx, 333xxx, 334xxx, 336xxx, 337xxx, 339xxx, 441xxx, 443xxx, 4441xx, 445xxx, 447xxx, 448xxx, 481xxx, 484xxx, 485xxx, 486xxx, 4881xx, 4883xx, 493xxx, 562xxx, 62xxx, 722xxx, 8111xx, 8114xx, 8122xx, or 92811x. This sector is included under Sector Phase 1.

Rationale for Modification of Sector No. 9

Compared to the equivalent class of facilities listed in the 2007 version of Appendix E, this sector limits the SIC and NAICS codes to those sectors that previously reported emissions of styrene to CEIDARS, or for which emissions of styrene can generally be expected. Based on the current OEHHA methodology affecting inhalation risk estimates, to be health protective, the threshold for this sector was established at 1 pound of styrene emitted per year.

Styrene is a toxic air contaminant and a carcinogen. Styrene volatilizes from water readily and photodegrades in the atmosphere, with a half-life ranging from 7 to 16 hours. Typical sources of styrene emissions are those facilities producing styrene, polystyrene, other plastics, synthetic rubber, and resins. Concentrations of styrene greater than rural air concentrations have been identified in urban and industrial source areas.¹³¹ All facilities equal to or exceeding the activity level reporting threshold are subject to reporting, if the facility is classified in one of the SIC or NAICS codes listed.

Purpose of Sector No. 10: Methylene chloride use for paint or coating removal, printing or print shop cleaning, or aircraft maintenance or repair

¹³¹ (ATSDR, 2010). *Toxicological Profile for Styrene*. Agency for Toxic Substances & Disease Registry. Published November, 2010; Accessed December 9, 2019. <https://www.atsdr.cdc.gov/ToxProfiles/tp53.pdf>

This sector was revised to include “methylene chloride use for paint or coating removal, printing or print shop cleaning, or aircraft maintenance or repair,” at an activity level of 1 gallon of methylene chloride use per year at facilities classified with any SIC or NAICS code. This sector is included under Sector Phase 1.

Rationale for Modification of Sector No. 10

Compared to the equivalent class of facilities listed in the 2007 version of Appendix E, this sector was expanded to include “printing or print shop cleaning” and “aircraft maintenance or repair” in the description. The specified use threshold is based on consideration of toxicity using the most recent OEHHA guidelines and risk values. The one gallon threshold for methylene chloride use represents a level below which health impacts would likely be negligible.

Methylene chloride is a toxic air contaminant and a carcinogen and volatilizes rapidly. Methylene chloride has a lifetime of six months in the atmosphere and will degrade by reaction with photochemically produced hydroxyl radicals. Most atmospheric releases of methylene chloride result from industrial and consumer uses of the solvent.¹³²

An activity level reporting threshold of 1 gallon of methylene chloride use per year provides a *de minimis* exemption for low-use emitters, while still providing the level of emissions data needed to evaluate neighborhood impacts. Due to the ubiquitous use of methylene chloride for paint or coating removal, limiting the SIC or NAICS codes for this category would not provide confidence in the coverage of emissions data required for community right-to-know under AB 197. The industries of “printing or print shop cleaning” and “aircraft maintenance or repair” are specifically mentioned because of the historically common use of the solvent in those industries.

Purpose of Sector No. 11: Paint stripping and varnish stripping

This sector was added to include the permitted process “paint stripping and varnish stripping” at any activity level and at facilities with SIC code 7641 or NAICS code 811420. This sector is included under Sector Phase 1.

Rationale for Addition of Sector No. 11

This sector was added because paint stripping and varnishing have the potential to release toxic air contaminants and Proposition 65-categorized carcinogens such as methylene chloride, chromium, lead, manganese, nickel, and cadmium.

There may be other solvents with U.S. EPA exempt VOC status used in large amounts in addition to the solvent sector categories specified, such as tert-butyl acetate,

¹³² (ATSDR, 2019). *Toxicological Profile for Methylene Chloride*. Agency for Toxic Substances & Disease Registry. Published September 2000; Accessed December 9, 2019. <https://www.atsdr.cdc.gov/ToxProfiles/tp14.pdf>

PCBTF, and methylene chloride. The paint stripping Maximum Achievable Control Technology standard reduced usage of methylene chloride, which may result in increased usage of other VOC exempt solvents¹³³.

Purpose of Sector No. 12: Use of N-methyl pyrrolidone

This sector was added to include the permitted process “use of N-methyl pyrrolidone” at a activity level of 1 gallon of N-methyl pyrrolidone per year and at facilities classified with any SIC or NAICS code. This sector is included under Sector Phase 1.

Rationale for Addition of Sector No. 12

N-methyl pyrrolidone is currently listed as a developmental and reproductive toxic by Proposition 65¹³⁴. HESIS published a Health Hazard Advisory detailing its reproductive and nervous system toxicity, in addition to irritation to the eyes, nose, throat and skin¹³⁵. Facilities have the potential to emit thousands of pounds a year of N-methyl pyrrolidone based on activity reports and solvent usage. Due to its toxic effects, 1 gallon per year could be a potential health risk and would lead to comprehensive reporting of n-methyl pyrrolidone.

Purpose of Sector No. 13: Dry cleaning facilities, except facilities that only use water or carbon dioxide based cleaning systems

This sector was revised to include “dry cleaning facilities, except facilities that only use water or carbon dioxide based cleaning systems” at any activity level and at facilities classified with SIC code(s) 7216 or 7217; or NAICS code(s) 812320 or 561740. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 13

This sector was modified to more broadly include all dry cleaning facilities (not just those using perchloroethylene), with the exception of those only using water or carbon dioxide based cleaning systems. Some dry cleaning solvents, notably

¹³³ (USEPA, 2020d). *National Emission Standards for Hazardous Air Pollutants (NESHAP)*. United States Environmental Protection Agency; Accessed August 25, 2020. <https://www.epa.gov/stationary-sources-air-pollution/national-emission-standards-hazardous-air-pollutants-neshap-9>

¹³⁴ (OEHHA, 2020b). *Proposition 65: N-Methylpyrrolidone (NMP) Fact Sheet*. Posted March 2020; Accessed August 17, 2020. https://www.p65warnings.ca.gov/fact-sheets/n-methylpyrrolidone-nmp?utm_source=P65Warnings+-+NMP&utm_campaign=Proposition+65+Warnings+Web+Site+May+2019+-+Carbaryl&utm_medium=email

¹³⁵ (CDPH, 2020e). *HESIS Alerts and Advisories: N-Methylpyrrolidone (NMP)*. Accessed August 18, 2020. <https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/HESIS/CDPH%20Document%20Library/nmp.pdf>

perchloroethylene and n-propyl bromide (also known as 1-Bromopropane) are carcinogenic toxic air contaminants. N-propyl bromide is occasionally used in dry cleaning and its use has increased as a substitute for other carcinogens (i.e., perchloroethylene).¹³⁶ Water and carbon dioxide based cleaning systems do not emit toxic air contaminants. With the phase-out of dry cleaning using perchloroethylene by 2023, CARB staff do not expect the use of perchloroethylene at dry cleaners to be applicable to any permitted source. The SIC and NAICS codes listed cover the range of industry classifications among which CARB staff expect emissions to occur, thereby limiting the breadth of facilities. To include comprehensive reporting for all identified sources, which may be located near population centers, the “Any activity level” threshold is applied to this source category.

Purpose of Sector No. 14: Tert-butyl acetate use in, aerospace manufacturing and maintenance; fabricated metal products manufacturing; manufacture or use of coatings, inks, adhesives, cleaners and degreasers; and military facilities. Tert-butyl acetate from auto body repair and coating operations are reported under the Phase 2 category for that process

This sector was added to include the permitted process “tert-butyl acetate use in, aerospace manufacturing and maintenance; fabricated metal products manufacturing; manufacture or use of coatings, inks, adhesives, cleaners and degreasers; and military facilities” at an activity level of 20 pounds of tert-butyl acetate used per year and at facilities classified with SIC code(s) 28xx, 32xx, 33xx, 34xx, 37xx, 37xx, 49xx, 50xx, or 97xx; or NAICS codes 325xxx, 327xxx, 331xxx, 332xxx, 3362xx, 3363xx, 3369xx, 3364xx, 5417xx, 5629xx, or 92811x. This sector is included under Sector Phase 1.

Rationale for Addition of Sector No. 14

This sector was added because tert-butyl acetate (TBAC) is a chemical of concern, a toxic air contaminant and a carcinogen. TBAC was granted exempt VOC status by the U.S. EPA. The exempt VOC status has led to increased use. TBAC has been identified as a carcinogen and the Office of Environmental Health Hazard Assessment (OEHHA) has adopted a cancer unit risk factor for this chemical (see tertiary-butyl acetate)¹³⁷. An

¹³⁶ (CDPH, 2016). *Hazard Evaluation System and Information Service (HESIS), 1-Bromopropane Background*. California Department of Public Health. Published December, 2016.
<https://www.cdph.ca.gov/Programs/CCDCPHP/DEODC/OHB/HESIS/CDPH%20Document%20Library/SB193-1-BP-Background.pdf>.

¹³⁷ (OEHHA, 2019b). *Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures*. June 1, 2009. Accessed August 13, 2020. Available at: <https://oehha.ca.gov/air/cmr/technical-support-document-cancer-potency-factors-2009>; including an update made to Appendix A: Appendix A: Hot Spots Unit Risk and

activity level reporting threshold of the use of 20 pounds of tert-butyl acetate used per year provides a *de minimis* exemption for low-use emitters, while still providing the level of emissions data needed. The SIC and NAICS codes listed cover the range of industry classifications among which CARB staff expect emissions of tert-butyl acetate to occur, thereby limiting the breadth of facilities. This will allow districts, CARB, and regulated entities to focus on those industries with the most potential to emit tert-butyl acetate.

Purpose of Sector No. 15: Use of parachlorobenzotrifluoride (PCBTF) in cleaning or degreasing solvents, adhesives, printing inks, or coating operations. PCBTF from auto body repair and coating operations are reported under the Phase 2 category for that process.

This sector was added to include the permitted process "use of parachlorobenzotrifluoride (PCBTF) in cleaning or degreasing solvents, adhesives, printing inks, or coating operations. PCBTF from auto body repair and coating operations are reported under the Phase 2 category for that process" at an activity level of 5 pounds or 0.5 gallons of parachlorobenzotrifluoride used per year and at facilities with any SIC or NAICS code. This sector is included under Sector Phase 1. Any facilities classified as auto body repair and coating operations and the associated SIC(s) 5511 through 5521, 7532, 7535 are reported under Sector Phase 2.

Rationale for Addition of Sector No. 15

This sector was added because parachlorobenzotrifluoride (PCBTF) has been categorized as a Proposition 65 carcinogen and granted exempt VOC status by the U.S. EPA. The exempt VOC status has led to extensive use of PCBTF, especially in coatings and adhesives. An activity level reporting threshold of 5 pounds or 0.5 gallons of PCBTF used per year is based on the high level of use and recently adopted cancer potency values by OEHHA.

Purpose of Sector No. 16: Solvent cleaning and degreasing

This sector was revised to include the permitted process "solvent cleaning and degreasing" at any activity level for carcinogenic solvents or at an activity level of 55 gallons used per month (annual average) for non-carcinogenic solvents at facilities classified with SIC code(s) 13xx, 17xx, 22xx, 25xx, 26xx, 27xx, 28xx, 29xx, 30xx, 32xx, 33xx, 34xx, 35xx, 36xx, 37xx, 38xx, 39xx, 45xx, 49xx, 509x, 519x, 75xx, 7623, 7641, 8071, 822x, or 9711; or NAICS code(s) 211xxx, 212xxx, 213xxx, 221xxx, 238xxx, 322xxx, 323xxx, 324xxx, 325xxx, 326xxx, 327xxx, 332xxx, 333xxx, 334xxx, 335xxx, 336xxx, 337xxx, 339xxx, 423xxx, 425xxx, 441xxx, 447xxx, 451xxx, 486xxx, 488xxx, 541xxx, 562xxx, 611xxx, 811xxx, or 928xxx. This sector is included under Sector Phase 2.

Cancer Potency Values (Updated May 2019), Accessed August 25, 2020. Available at: <https://oehha.ca.gov/media/CPFs042909.pdf>

Rationale for Modification of Sector No. 16

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. The process or activity description was modified slightly to clarify the definition of the sector.

Cleaning and degreasing solvents include many compounds that are toxic air contaminants and some that are carcinogens. The reporting threshold of any activity level for carcinogenic solvents is based on potential health risk to nearby sensitive receptors. All facilities classified in one of the SIC or NAICS codes listed and with an activity level equal to or exceeding the reporting threshold are subject.

Purpose of Sector No. 17: Isocyanate compound use, in print shops and commercial printing; aerospace manufacturing and maintenance; adhesive and sealants manufacturing; plastics foam products manufacturing; military facilities; manufacture of flexible and rigid foams, fibers, coatings such as paints and varnishes, and elastomers; spraying of polyurethane coatings on cement, wood, fiberglass and metals; surface coating of appliances; surface coating of magnetic tape; manufacture or use of blowing agents; and production of polyurethane foam. Isocyanates from auto body repair and coating operations are reported under the Phase 2 category for that process

This sector was added to include “isocyanate compound use, in print shops and commercial printing; aerospace manufacturing and maintenance; adhesive and sealants manufacturing; plastics foam products manufacturing; military facilities; manufacture of flexible and rigid foams, fibers, coatings such as paints and varnishes, and elastomers; spraying of polyurethane coatings on cement, wood, fiberglass and metals; surface coating of appliances; surface coating of magnetic tape; manufacture or use of blowing agents; and production of polyurethane foam” at an activity level where use of materials contains 3 or more pounds of isocyanates per year and at facilities classified with SIC code(s) 24xx, 25xx, 26xx, 27xx, 28xx, 30xx, 33xx, 347x, 36xx, 37xx, 38xx, 39xx, 45xx, 50xx, 51xx, or 97xx; or NAICS codes 321xxx, 322xxx, 32311x, 324xxx, 325xxx, 326xxx, 3279xx, 331xxx, 334xxx, 335xxx, 3361xx, 3364xx, 3366xx, 339xxx, 481xxx, 4881xx, 4883xx, 5417xx, 8114xx, or 92811x. This sector is included under Sector Phase 1.

Rationale for Addition of Sector No. 17

This sector was added because isocyanate compounds are toxic enough to warrant a separate category focused on the use of isocyanate containing materials. Isocyanate compounds are toxic air contaminants and are carcinogens. Toluene diisocyanate (TDI) and methylenediphenyl diisocyanate (MDI) are two such isocyanate compounds that are extremely reactive and widely used in the production of polyurethane

materials. Exposure of the general population to diisocyanates could potentially result from industrial exposures.¹³⁸

An activity level reporting threshold of the use of materials containing 3 pounds or more of isocyanates per year provides a *de minimis* exemption for low-use emitters, while still providing the level of emissions data needed to understand the quantities and sources of airborne emissions and their impact. The SIC and NAICS codes listed cover the range of industry classifications that CARB staff expects emissions of isocyanates to occur.

Purpose of Sector No. 18: Printing and publishing including print shops and miscellaneous commercial printing

This sector was modified to include the permitted process "printing and publishing including print shops and miscellaneous commercial printing" at an activity level of 2 gallons used per day (annual average) for graphic arts materials with no isocyanates or 0.5 gallons per day (annual average) for graphic arts materials with isocyanates and at facilities classified with SIC code(s) 2711 through 2771, or 2782; or NAICS code(s) 313310, 32311x, 5111xx, 51223x, 561439, or 81292x. This sector is included under Sector Phase 1.

Rationale for Modification of Sector No. 18

The reporting threshold for graphic arts materials with no isocyanates is similar to the threshold in the 2007 version of Appendix E; however, the reporting threshold for graphic arts materials with isocyanates is lower due to the high toxicity of isocyanates. Printing and publishing has the potential to emit many types of toxic air contaminants, including isocyanates. The activity level reporting threshold is based on assessment of the potential health risk of toxic air contaminants released from printing and publishing operations near sensitive receptors. All facilities equal to or exceeding the activity level and classified in one of the SIC or NAICS codes listed are subject.

Purpose of Sector No. 19: Hazardous waste treatment, storage, disposal and recycling at a hazardous waste treatment, storage, disposal and recycling facility

This sector was revised to include the permitted process "hazardous waste treatment, storage, disposal and recycling at a hazardous waste treatment, storage, disposal and recycling facility" at any activity level and at facilities classified with any SIC or NAICS code. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 19

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. The process or activity description was modified slightly to clarify the

¹³⁸ (ATSDR, 2018a). *Toxicological Profile for Toluene Diisocyanate and Methylenediphenyl Diisocyanate*. Agency for Toxic Substances & Disease Registry. Published June 2018; Accessed December 9, 2019. <https://www.atsdr.cdc.gov/ToxProfiles/tp206.pdf>

definition of the sector. Emissions from hazardous waste treatment, storage, disposal, and recycling facilities include toxic air contaminants and carcinogens. The types and variability of emissions of air pollutants potentially emitted by the processes do not allow for establishing a *de minimis* activity level reporting threshold. While the range of SIC and NAICS industry classifications are listed as “any”, the definition of “hazardous waste treatment, storage, disposal, and recycling facility” limits the types of facilities subject to this sector.

Purpose of Sector No. 20: Welding, laser cutting and plasma cutting of metal materials

This sector was added to include “welding, laser cutting and plasma cutting of metal materials” at any activity level and occurring at facilities classified with SIC code(s) 1799, 3356, 3496, 3541, 3542, 3544, 3548, 3699, or 7692; or NAICS code(s) 325998, 331491, 332313, 333514, 333517, 333922, 335311, or 811310. This sector is included under Sector Phase 2.

Rationale for Addition of Sector No. 20

This sector was added because welding, laser cutting and plasma cutting of metal materials has the potential to emit metal and other toxic air contaminants. The activity threshold is “Any activity level” because limiting the activity level threshold for this category would not provide the complete emissions data required for the community right-to-know requirements under AB 197. Facilities with the applicable SIC and NAICS codes are subject to the reporting requirements and will give a comprehensive inventory.

Purpose of Sector No. 21: Construction aggregate processing, if asphalt products are also used or produced

This sector was revised to include the permitted process “construction aggregate processing, if asphalt products are also used or produced” at any activity level and at facilities classified with SIC code(s) 1442 through 1446 or NAICS code(s) 212321 or 212322. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 21

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. This process has the potential to release emissions of toxic air contaminants, including metals, benzene, formaldehyde, toluene, xylenes, and various polycyclic aromatic hydrocarbons. Limiting the activity level reporting threshold for this category would not provide the confidence in coverage of emissions data required for community right-to-know under AB 197. Facilities listed in the permitted process description and classified in one of the SIC or NAICS codes are subject to the requirements.

Purpose of Sector No. 22: Chemicals and allied products manufacturing

This sector was revised to include the permitted process “chemicals and allied products manufacturing” at any activity and at facilities classified with SIC code(s) 2812

through 2899; or NAICS code(s) 211112, 311942, 331311, or 325xxx. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 22

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. This process has the potential to emit many types of carcinogenic toxic air contaminants, ranging from low OEHHA cancer unit risk factors to high. This is a “no threshold” or “any activity level” category because the sector activities and emissions are extremely diverse, so there is not a specific activity level reporting threshold for the category that would provide the confidence in coverage or completeness of emissions data required for community right-to-know under AB 197. Facilities classified in one of the SIC or NAICS codes are subject to the requirements.

Purpose of Sector No. 23: Bulk petroleum storage and loading, bulk benzene storage and loading, and related wholesalers

This sector was revised to include the permitted process “bulk petroleum storage and loading, and related wholesalers” at any activity level and at facilities classified with SIC code(s) 5171 or 5172; or NAICS code(s) 4247xx. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 23

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. The process or activity description was modified slightly to clarify the definition of the sector.

This process releases multiple carcinogenic toxic air contaminants such as benzene, ethyl benzene, and polycyclic aromatic hydrocarbons. The activity threshold is, “Any activity level” because limiting the activity level threshold for this category would not provide the complete emissions data required for the community right-to-know requirements under AB 197. Facilities listed in the permitted process description and classified in one of the SIC or NAICS codes are subject to the requirements.

Purpose of Sector No. 24: Polybrominated biphenyl compounds (PBBs), and any brominated diphenyl ethers, manufacture or use

This sector was added to include the permitted process “polybrominated biphenyl compounds, and any brominated diphenyl ethers, manufacture and use” at any activity level and at facilities classified with any SIC or NAICS code. This sector is included under Sector Phase 1.

Rationale for Addition of Sector No. 24

This sector was added because polybrominated biphenyl compounds (including brominated diphenyl ethers) are synthetic, persistent, and bioaccumulative compounds associated with adverse effects on the thyroid and brain development.

The widespread use of polybrominated diphenyl compounds as fire retardants since the late 1970s has resulted in their presence in the environment.¹³⁹ Although the penta- and octa-formulations of polybrominated diphenyl ethers are banned and no longer manufactured in California (California State Senate, 2003–2004. Bill # AB 302), the deca-brominated products are still used in most types of synthetic materials, including textiles and polyester used for printed circuit boards and in high-impact plastics used in consumer electronics.¹⁴⁰ Moderate to highly brominated congeners are found in air samples relatively close to the source of pollution, while less brominated congeners travel greater distances from the source.¹⁴¹

Limiting the activity level reporting threshold or the SIC or NAICS codes for this category would not provide confidence in the coverage of emissions data required for community right-to-know under AB 197.

Purpose of Sector No. 25: Use of ethylene oxide for sterilization

This sector was modified to include the permitted process "use of ethylene oxide for sterilization" at any activity level and at facilities classified with any SIC or NAICS code. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 25

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. The process or activity description was modified slightly to clarify the definition of the sector. Ethylene oxide is a toxic air contaminant and a carcinogen. The activity level is similar to the 2007 threshold, which is consistent with the ethylene oxide ATCM, and serves to screen out facilities with *de minimis* risk. Facilities equal to or exceeding the activity level reporting threshold are subject and include those listed in the permitted process description.

Purpose of Sector No. 26: Leather and hide tanning and finishing, processing and fabricated goods

This sector was added to include the permitted process "leather and hide tanning and finishing, processing and fabricated goods" at any activity level and at facilities

¹³⁹ (ATSDR, 2017). Toxicological Profile for Polybrominated Diphenyl Ethers. Agency for Toxic Substances & Disease Registry. Published March, 2018; Accessed December 9, 2019.

<https://www.atsdr.cdc.gov/toxprofiles/tp207.pdf>

¹⁴⁰ (UCD, 2005). *Near-Source Ambient Air Monitoring of Polybrominated Diphenyl Ethers. Report Prepared for the California Air Resources Board Project # 01-407*, University of California Davis, October 2005.

<https://www.arb.ca.gov/toxics/pbde%20final%20report%202005.pdf>

¹⁴¹ (NIH, 2003). *Polybrominated Diphenyl Ethers (PBDEs): New Pollutants-Old Diseases*. Siddiqui, M.A., et. al., Clin Med Res. 2003 Oct; 1(4) 281-290, doi: 10.3121/cmr.1.4.281. Accessed August 19, 2020.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1069057>

classified with SIC code 3111 or NAICS code 316110. This sector is included under Sector Phase 2.

Rationale for Addition of Sector No. 26

This sector was added because it has the potential to emit hazardous air pollutants including glycol ethers, toluene and xylene.

The U.S. EPA has a Maximum Achievable Control Technology (MACT) standard of 6.8 pounds of HAP per 1,000 square feet of leather processed for existing upholstery leather operations and 2.5 pounds of HAP per 1,000 square feet of leather processed for new sources. The MACT emission limit for existing sources with water-resistant/specialty leather product process operations is 5.6 pounds of HAP per 1,000 square feet of leather processed. The MACT emission limit for existing sources with nonwater-resistant leather product process operations is 3.7 pounds of HAP per 1,000 square feet of leather processed. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 27: Retail sale of gasoline

This sector was added to include the permitted process "retail sale of gasoline" at an activity level of 25,000 gallons of gasoline sold per year and at facilities classified with any SIC or NAICS code. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 27

This sector was modified to include an activity level reporting threshold of 25,000 gallons per year to screen out gas stations with minimal emissions. Additionally, the process or activity description was modified slightly to clarify the definition of the sector.

This process releases benzene and other carcinogenic toxic air contaminants, and is commonly located near sensitive receptors. The activity level reporting thresholds are based on health risk and serve to screen out facilities with *de minimis* risk. The activity level reporting threshold for retail sale of gasoline is expected to include, or nearly all, retail gasoline dispensing facilities in California under the reporting requirements. Limiting the SIC and NAICS codes for this category would not provide the complete data needed to help protect public health. This is partially because gasoline sales may occur at businesses that are primarily classified as convenience stores, grocery stores, or other sectors, and including SIC or NAICS limitations potentially would not fully capture businesses dispensing gasoline.

Purpose of Sector No. 28: Auto body repair and coating operations at auto body shops, including new and used car dealers

This sector was revised to include the permitted process "auto body repair and coating operations at auto body shops, including new and used car dealers" at an activity level of 50 gallons of paint used per year and at facilities classified with SIC

code(s) 5511 through 5521, 7531, 7532, or 7535; or NAICS code(s) 4411xx, 44121x, 441228, 44131x, 811111, or 811121. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 28

This sector was modified to include an activity level reporting threshold of 50 gallons of paint used per year as this process has the potential to emit many types of toxic air contaminants, including metals and isocyanates. The activity level reporting threshold is based on assessment of the potential health risk of toxic air contaminants released from auto body repair and coating operations near sensitive receptors. All facilities equal to or exceeding the activity level reporting threshold and classified in one of the SIC or NAICS codes listed are subject.

Purpose of Sector No. 29: Medical services, hospitals, and related facilities which use formaldehyde (or formalin), glutaraldehyde, ethylene oxide, or diesel engines

This sector was revised to include the permitted process "medical services, hospitals, and related facilities which use formaldehyde (or formalin), glutaraldehyde, ethylene oxide, or diesel engines" at an activity level of 110 pounds of formaldehyde emitted per year, or 110 pounds of glutaraldehyde emitted per year, or 4 pounds of ethylene oxide used per year, or 30 gallons of diesel fuel burned per year, or 5 hours of engine operation per at facilities classified with SIC code(s) 8011 through 8099; or NAICS code(s) 62xxxx. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 29

This sector was modified from the 2007 version of Appendix E to include formalin, formaldehyde, glutaraldehyde, and diesel fuel combusted. Additionally, the sector now includes an activity level reporting threshold for sterilization using ethylene oxide instead of relying on the separate class listing of "Facilities using ethylene oxide for sterilization."

Formaldehyde, glutaraldehyde, ethylene oxide, and diesel particulate matter are toxic air contaminants, and formaldehyde, ethylene oxide, and diesel particulate matter are carcinogens. Medical services, hospitals, and related facilities are sensitive receptors, and therefore require its own specific category. The activity level reporting thresholds are based on health risk and serve to screen out facilities with *de minimis* risk.

Facilities equal to or exceeding any of the activity level reporting thresholds are subject and include those listed in the permitted process description and classified in one of the SIC or NAICS codes listed.

Purpose of Sector No. 30: Wastewater treatment at wastewater treatment plants, including incineration of sludge

This sector was revised to include the permitted process "wastewater treatment at wastewater treatment plants, including incineration of sludge" at an activity level of 10 million gallons annual average daily flow for covered systems, 5 million gallons annual average daily flow for uncovered systems, or any activity level for facilities that incinerate sludge. It applies to facilities with SIC code 4952 or NAICS code 221320. This sector is included under Sector Phase 2.

Rationale for Modification of Sector No. 30

This sector was modified to decrease the activity level reporting threshold from 10 million to 5 million gallons of annual average daily flow for uncovered systems. The decrease is based on recent OEHHA guidelines and childhood risk science. The reporting threshold for covered systems remains at 10 million gallons of annual average daily flow because pooled source testing, previously done for wastewater treatment plants, found that having a covered primary treatment area reduced emissions significantly compared to those without covered primary treatment.

Wastewater treatment has the potential to emit toxic air contaminants. The activity level reporting threshold is based on assessment of the potential health risk of toxic air contaminants released from wastewater treatment operations near sensitive receptors. All facilities equal to or exceeding the activity level reporting threshold and classified in the SIC code or NAICS code listed are subject.

Purpose of Sector No. 31: Flat glass manufacturing

This sector was added to include the permitted process "flat glass manufacturing" at an activity level of 100 pounds of glass production and at facilities classified with SIC code 3211 or NAICS code 327211. This sector is included under Sector Phase 2.

Rationale for Addition of Sector No. 31

This sector was added because flat glass manufacturing has the potential to emit hazardous air pollutants including arsenic, cadmium, lead, manganese, nickel and other metals.

The U.S. EPA has a Maximum Achievable Control Technology standard for glass manufacturing operations is 0.2 pounds of HAP/PM per ton of glass. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 32: Pressed and blown glassware manufacturing

This sector was added to include the permitted process of "pressed and blown glassware manufacturing" at an activity level of 100 pounds of glass production and at facilities classified with SIC code(s) 3229 or 3221; or NAICS code(s) 327212 or 327213. This sector is included under Sector Phase 2.

Rationale for Addition of Sector No. 32

This sector was added because pressed and blown glassware manufacturing has the potential to emit hazardous air pollutants including arsenic, cadmium, lead, manganese, nickel and other metals.

The U.S. EPA has a Maximum Achievable Control Technology standard for glass manufacturing operations of 0.2 pounds of HAP/PM per ton of glass. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 33: Clay ceramics manufacturing

This sector was added to include the permitted process of "clay ceramics manufacturing" at an activity level of 1 ton of product manufactured at facilities classified with SIC code(s) 3253 or 3261; or NAICS code(s) 327120 or 327110. This sector is included under Sector Phase 2.

Rationale for Addition of Sector No. 33

This sector was added because emissions from clay ceramics manufacturing includes hazardous air pollutants such as chromium, lead, manganese, nickel and other metallic hazardous air pollutants.

The U.S. EPA has multiple Maximum Achievable Control Technology standards for this sector including temperature limits, fuel restrictions, controls on spray operations, glaze composition limits and more. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 34: Hexavalent chromium use in cooling towers

This sector was revised to include the permitted process "hexavalent chromium use in cooling towers" at any activity level and at facilities classified with any SIC or NAICS code. This sector is included under Sector Phase 3.

Rationale for Modification of Sector No. 34

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. The process or activity description was modified slightly to clarify the definition of the sector.

The use of hexavalent chromium in cooling towers has the potential to emit the highly toxic air contaminant hexavalent chromium. While the Chromate Treated Cooling Towers Airborne Toxic Control Measure (ATCM) bans hexavalent chromium-containing compounds in cooling tower recirculation water, this sector remains part of

the EICG¹⁴². Additionally, the activity level reporting threshold and the SIC or NAICS codes for this category were not limited.

Purpose of Sector No. 35: Incineration of hazardous, municipal, or biomedical waste, or tires

This sector was revised to include the permitted process “incineration of hazardous, municipal, or biomedical waste, or tires” at any activity level and at facilities classified with any SIC or NAICS code. This sector is included under Sector Phase 3.

Rationale for Modification of Sector No. 35

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E, except for animal cremation, which is included as a separate sector (Sector No. 36: “Cremation of humans or animals”). Additionally, the process or activity description was modified slightly to clarify the definition of the sector.

Emissions from the incineration of hazardous, municipal, or biomedical waste, or tires include toxic air contaminants and carcinogens. The variety of air pollutants emitted do not allow for a specific *de minimis* activity level reporting threshold, therefore the “Any activity level” designation is applied. Staff has not limited the SIC or NAICS codes for this category, because regardless of the overarching business type performing the incineration, toxic emissions would still be produced. Therefore, limiting the SIC or NAISC categories, would not provide the complete coverage of emissions data required for community right-to-know under AB 197.

Purpose of Sector No. 36: Cremation of humans or animals

This sector was revised to include the permitted process “cremation of humans or animals” at any activity level and at facilities classified with SIC code(s) 7261, 6531, or 8699; or NAICS code 812220. This sector is included under Sector Phase 3.

Rationale for Modification of Sector No. 36

This sector has two equivalent classes of facilities listed in the 2007 version of Appendix E. In the proposed EICG, animal crematories are classified under the equivalent class of facilities for “Incineration of hazardous, municipal, or biomedical waste, or tires,” which affect all SIC categories. The other equivalent class of facilities in the EICG is “Funeral services with crematories”. That class affects SIC code 7261.

The cremation of humans or animals produces toxic air contaminants and carcinogens. The complex variety and types of air pollutants emitted by the process does not lend

¹⁴² (CARB, 2020b). *Section 93103, Subchapter 7.5, Chapter 1, Part III, Titles 17 and 26, Code of California Regulations: Regulation for Chromate Treated Cooling Towers*. Accessed August 25, 2020.

<https://ww2.arb.ca.gov/resources/documents/chromate-treated-cooling-towers-airborne-toxic-control-measure?corr>

itself to establishing a *de minimis* activity level reporting threshold. Limiting the activity level reporting threshold or the SIC or NAICS codes for this category would also not provide the complete emissions data needed for the community right-to-know provisions under AB 197.

Purpose of Sector No. 37: Fiberglass and various fiberglass materials and product manufacturing

This sector was revised to include the permitted process “fiberglass and various fiberglass materials and product manufacturing” at any activity level and at facilities classified with SIC codes(s) 2221 or 3229; or NAICS code(s) 326191, 326199, or 337125. This sector is included under Sector Phase 3.

Rationale for Modification of Sector No. 37

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. The process or activity description was modified slightly to clarify the definition of the sector.

Fiberglass and various fiberglass materials and product manufacturing have the potential to release toxic air contaminants and carcinogens, including styrene, formaldehyde, and hexavalent chromium. Limiting the activity level reporting threshold for this category would not provide emissions data needed for community right-to-know requirements under AB 197. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 38: Pulp and paper manufacturing

This sector was revised to include the permitted process “pulp and paper manufacturing” at any activity level and at facilities classified with SIC codes(s) 2611, 2621, or 2631; or NAICS code(s) 3221xx. This sector is included under Sector Phase 3.

Rationale for Modification of Sector No. 38

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. The process or activity description was modified slightly to clarify the definition of the sector.

Pulp and paper manufacturing has the potential to release toxic air contaminants and carcinogens, including hexachlorobenzene, dioxins/furans and polycyclic aromatic hydrocarbons. Limiting the activity level reporting threshold for this category would not provide the complete and comprehensive emissions data required for community right-to-know under AB 197. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 39: Semiconductors and related devices manufacturing

This sector was revised to include the permitted process “semiconductors and related devices manufacturing” at any activity level threshold and at facilities classified with SIC code 3674 or NAICS code 334413. This sector is included under Sector Phase 3.

Rationale for Modification of Sector No. 39

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. Semiconductors and related device manufacturing have the potential to release toxic air contaminants, including hydrochloric acid, hydrofluoric acid, glycol ethers, methanol, and xylene. Limiting the activity level reporting threshold for this category would not provide the complete statewide emissions data required for meeting the community right-to-know provisions under AB 197. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 40: Oil and gas extraction or production

This sector was added to include the permitted process “oil and gas extraction or production” at any activity level and at facilities classified with SIC code(s) 1311 through 1389; or NAICS code(s) 211xxx, 213111, or 213112. This sector is included under Sector Phase 3.

Rationale for Addition of Sector No. 40

This sector was added because oil and gas extraction and production has the potential to release toxic air contaminants, including benzene, toluene, ethylbenzene, xylenes, styrene, hydrogen sulfide, and n-hexane.

Due to the quantity and complexity of compounds emitted, establishing an activity level reporting threshold for this category would not provide the emissions data needed for the community right-to-know provisions under AB 197. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 41: Melting, smelting, recovery, reclamation, or recycling of lead-containing materials, including but not limited to lead batteries

This sector was added to include the permitted process “melting, smelting, recovery, reclamation, or recycling of lead-containing materials, including but not limited to lead batteries” at any activity level and at facilities classified with SIC code(s) 3300 through 3499, 3690 through 3699, 3714, 3728, 5051, 5093, or 9711; or NAICS code(s) 331410, 331492 or 423930. This sector is included under Sector Phase 3.

Rationale for Addition of Sector No. 41

This sector was added because melting, smelting, recovery, reclamation, or recycling of lead-containing materials, including but not limited to lead batteries have the potential to release the criteria air pollutant and toxic air contaminant, lead.

Due to the toxicity of lead, and community concern with associated emissions, it was not possible to establish a credible lower-limit reporting threshold under which emissions would not be a concern. Therefore the sector does not have a reporting threshold, and all identified sources are subject to reporting. This sector applies to only those SIC and NAICS codes listed, which are expected to include the majority of the emissions from this process.

Purpose of Sector No. 42: Primary or secondary metal melting, smelting, refining, alloying, forging, or foundry/casting operations

This sector was added to include the permitted process “primary or secondary metal melting, smelting, refining, alloying, forging, or foundry/casting operations” at any activity level and at facilities classified with SIC code(s) 3300 through 3499, 3690 through 3699, 3714, 3728, 5051, 5093, or 9711; or NAICS code(s) 331410, 331492, 33151x, 33152x, or 423930. This sector is included under Sector Phase 3.

Rationale for Addition of Sector No. 42

This sector was added because primary or secondary metal melting, smelting, refining, alloying, forging, or foundry/casting operations have the potential to release toxic air contaminants, including hazardous metals such as lead, zinc, nickel, copper, cadmium, chromium, mercury, selenium, arsenic, and cobalt.

Because of the potential toxicity of the metals listed above for this sector, all sources must be subject to reporting, to provide an overall assessment of all associated facilities within California, for use in comparing emissions from facilities, and to effectively meet the community right-to-know, and public protection provisions of AB 197. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 43: Prepared feed manufacturing

This sector was added to include the permitted process “prepared feed manufacturing” at an activity level of one ton of product manufacturing and at facilities classified with SIC code 2048 or NAICS code 32119. This sector is included under Sector Phase 3.

Rationale for Addition of Sector No. 43

This sector was added because prepared feed manufacturing has the potential to emit toxic air contaminants including chromium and manganese compounds.

The U.S. EPA has set Maximum Achievable Control Technology standards for this sector on facility operations and control technologies to control for those compounds and particulate matter. The specified SIC and NAICS codes, and the activity level reporting threshold, will capture a comprehensive inventory of the sector.

Purpose of Sector No. 44: Wood preserving

This sector was revised to include the permitted process “wood preserving” at any activity level and at facilities classified with SIC code 259x or NAICS code(s) 321114 or 3212xx. This sector is included under Sector Phase 3.

Rationale for Addition of Sector No. 44

This sector was added because wood preserving has the potential to emit toxic air contaminants such as chromium, arsenic, dioxins, and methylene chloride.

The U.S. EPA has Maximum Achievable Control Technology standards for pressure and thermal treatment processes, including requirements to apply preservatives only within enclosed vessels or process treatment tanks equipped with an air scavenging system.

Purpose of Sector No. 45: Long term asbestos removal on a routine and predictable basis

This sector was revised to include the permitted process “long term asbestos removal on a routine and predictable basis” at an activity level of one year duration at facilities classified with any SIC or NAICS code. This sector is included under Sector Phase 3.

Rationale for Modification of Sector No. 45

This sector is consistent with the equivalent class of facilities listed in the 2007 EICG. The process or activity description was modified slightly to clarify the definition of the sector.

Removal of asbestos-containing materials have the potential to release asbestos, a toxic air contaminant and carcinogen. Long-term asbestos removal has a potentially greater amount of emissions of asbestos to the environment. Due to the previously ubiquitous use of asbestos, limiting the SIC or NAICS codes for this category would not provide the confidence in coverage of emissions data required for community right-to-know under AB 197. However, as emission reporting affects permitted processes (unless the air district requires quantification of an unpermitted emissions source), CARB staff does not anticipate this category to solely make any facility subject to the emission reporting requirements.

Purpose of Sector No. 46: Combustion of residual, distillate, or diesel oil, in agricultural operations-related industry sectors

This sector was revised to include the permitted process “combustion of residual, distillate, or diesel oil, in agricultural operations-related industry sectors” at an activity level of 100 gallons of fuel combusted per year; or over 5 hours per year of operation for Tier 4 or higher diesel engines; or 30 gallons of fuel combusted per year or 5 hours per year of operation for Tier zero through tier 3 diesel engines; or 100 gallons of fuel combusted per year for combustion devices other than compression ignition engines at facilities classified with SIC code(s) 0110 through 0762; or NAICS code(s) 1111xx,

1112xx, 1113xx, 1114xx, 1119xx, 1121xx, 1122xx, 1123xx, 1124xx, 1125xx, 1129xx, 1151xx, or 1152xx. This sector is included under Sector Phase 3.

Rationale for Modification of Sector No. 46

This sector was modified from the 2007 version of Appendix E by limiting the SIC and NAICS codes to only those that may be classified as agricultural operations or in a medical-related industry sector (facilities classified outside of the agricultural or medical-related sectors are now part of Sector No. 8). For this sector, the threshold has been split into two conditions: whether the engine is Tier 4 and diesel-fueled, or non-Tier 4 engines (i.e., all other engines combusting crude, residual, distillate, or diesel oil). The activity level reporting thresholds proposed are based on health risk assessment using revised OEHA methodology affecting inhalation risk estimates of the potential health risk of diesel particulate matter emitted near sensitive receptors.

Diesel particulate matter is a toxic air contaminant and a carcinogen. Sector No. 8 made all facilities equal to or exceeding the activity level reporting threshold subject to emission reporting requirements, except for those in the agricultural operations and medical-related sectors. This sector makes applicable those engines operating in the agricultural and medical-related sectors. The split between the applicable SIC and NAICS codes for this sector is to give those sectors more time to prepare for reporting and to reduce the workload on air districts.

Purpose of Sector No. 47: Boat and ship building and repair

This sector was revised to include "boat and ship building and repair" at an activity level of 1 gallon of coatings used per year at facilities classified with SIC code(s) 3731 or 3732; or NAICS code(s) 336611, 336612, 488390, or 811490. This sector is included under Sector Phase 3.

Rationale for Modification of Sector No. 47

This sector was modified to decrease the reporting threshold from 20 gallons to 1 gallon per year of coatings. Additionally, all coating operations performed using handheld non-refillable aerosol cans only are excluded.

Boat and ship building and repair has the potential to release toxic air contaminants, including styrene, methylene chloride, toluene, xylene, and methyl chloroform. Facilities equal to or exceeding the activity level reporting threshold are subject. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 48: Collection and disposal of refuse

This sector was revised to include the permitted process "collection and disposal of refuse" at an activity level of 1 pound of vinyl chloride emitted per year or 1 pound of benzene emitted per year at facilities classified with SIC code 4953 or NAICS code(s) 5622xx or 562920. This sector is included under Sector Phase 3.

Rationale for Modification of Sector No. 48

This sector was modified to decrease the reporting threshold from 8.5 pounds of vinyl chloride gas emitted per year to either 1 pound of vinyl chloride or 1 pound of benzene emitted per year.

Collection and disposal of refuse have the potential to release toxic air contaminants and carcinogens, including vinyl chloride and benzene. Facilities equal to or exceeding the activity level reporting threshold are subject. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 49: Composting of organic waste

This sector was added to include the permitted process “composting of organic waste” at an activity level of emissions of over one ton of particulate matter or total organic gases including methane at facilities classified with SIC code(s) 2875 or 4953; or NAICS code(s) 325314, 562212, or 562219. This sector is included under Sector Phase 3.

Rationale for Addition of Sector No. 49

This sector was added because the process “composting of organic waste” has the potential to emit toxic air contaminants and other pollutants, including hydrogen sulfide and formaldehyde. Facilities that equal or exceed the activity level reporting threshold are subject to the reporting requirements. This sector only applies to facilities classified with the SIC or NAICS codes listed. This is expected to cover the majority of the emissions from this process.

Purpose of Sector No. 50: Recycling facilities, and material recovery facilities that separate organic waste from recyclable materials

This sector was added to include the permitted process “recycling facilities, and material recovery facilities that separate organic waste from recyclable materials” at an activity level of emissions of over one ton of particulate matter or total organic gases including methane at facilities with SIC code 4953 or NAICS code(s) 562212 or 562920. This sector is included under Sector Phase 3.

Rationale for Addition of Sector No. 50

This sector was added because recycling facilities and material recovery facilities that separate organic waste from recyclable materials have the potential to emit toxic air contaminants and other pollutants, including hydrogen sulfide, formaldehyde, other solvent materials and metals. Facilities that equal or exceed the activity level reporting threshold are subject to the reporting requirements. This sector only applies to facilities classified with the SIC or NAICS codes listed. This is expected to cover the majority of the emissions from this process.

Purpose of Sector No. 51: Scrap and waste wholesale handling and recycling, including but not limited to junk metals, shredding operations, and auto dismantling

This sector was added to include the permitted process “scrap and waste wholesale handling and recycling, including but not limited to junk metals, shredding operations, and auto dismantling” at an activity level of 40,000 tons of metal shredded per year or 1,000 tons of metal recycled per year at facilities classified with SIC code 5093 or NAICS code 423930. This sector is included under Sector Phase 3.

Rationale for Addition of Sector No. 51

This sector was added because scrap and waste wholesale handling and recycling, including but not limited to junk metals, shredding operations, and auto dismantling, have the potential to release toxic air contaminants, including metals. Facilities equal to or exceeding the activity level reporting threshold are subject. This sector applies to only those SIC and NAICS codes listed, which are expected to cover the majority of the emissions from this process.

Purpose of Sector No. 52: Combustion of natural gas or propane

This sector was added to include the permitted process “combustion of natural gas or propane” at an activity level of 75 million standard cubic feet or 77,000 MMBtu combusted per year at facilities classified with any SIC or NAICS code are subject to the emission reporting requirements. This sector is included under Sector Phase 3.

Purpose for Sector No. 53, Facilities Identified by Districts as Posing Concern to Public Health

Sector 53 is added to include facilities identified by districts pursuant to EICG Section II.E.(3).

Rationale for Sector No. 53, Classes Identified by Districts as Posing Concern to Public Health

Sector No. 53 is necessary to include an existing provision in EICG section II.E.(3) under which districts may identify facilities posing a concern to public health. Because this existing provision is also relevant to the less than 10 ton per year facilities, it is added to Table E-3 to ensure that Table E-3 provides one comprehensive location for all the applicable less than 10 ton per year provisions.

Rationale for Addition of Sector No. 52

This sector was added because combustion of natural gas or propane have the potential to release toxic air contaminants, including benzene, formaldehyde, and toluene. An activity level reporting threshold of 75 million standard cubic feet or 77,000 MMBtu combusted per year was determined based on cancer risk evaluation using currently accepted emission factors¹⁴³.

¹⁴³ (USEPA, 2020e). AP-42: *Compilation of Air Emission Factors. United States Environmental Protection Agency*; Accessed August 25, 2020.
<https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors>

Facilities equal to or exceeding the activity level reporting threshold are subject. Limiting the SIC or NAICS codes for this category would not provide the confidence in coverage of emissions data required for community right-to-know under AB 197.

Purpose of Sector No. 53: Facilities identified by districts under section II.E.(3)(a).

This sector is consistent with the equivalent class of facilities listed in the 2007 version of Appendix E. This sector is included under any Sector Phase.

Rationale for Inclusion of Sector No. 53

This sector is an existing provision of EICG Section II.E.(3) for classes of facilities that districts identify as posing concern to public health. This class is added to the sector table in Table E-3 for completeness and consistency and to make clear that it may occur in any Sector Phase on the schedule specified in Section II.E.(3).

Appendix F. Criteria and Protocol for Inputs for Risk Assessment Using Screening Air Dispersion Modeling

Purpose of updating title of Appendix F

The title of Appendix F is revised to add the term Protocol in addition to Criteria for inputs for risk assessment using screening air dispersion modeling approaches.

Rationale

Appendix F is revised to include several stepwise protocols, which work in conjunction with criteria for acceptable input parameters, in order to evaluate whether risks are below significance levels.

Because the content of Appendix F is revised to include both criteria and stepwise protocols, the title has been updated as well to better reflect inclusion of both criteria and protocols.

Purpose of including stepwise flow diagrams for risk screening in Appendix F, section (C).

Appendix F, section (C) is revised to include stepwise flow diagrams and associated input criteria, which specify a range of approaches from highly conservative to progressively more refined risk screening approaches.

Rationale

Screening risk modeling approaches are intended to be conservative (health-protective) assessments that provide a high level of confidence that potential cancer and noncancer health impacts would not exceed an adverse level, and they incorporate uncertainty in a precautionary manner. Instead of developing and running highly refined and site-specific modeling inputs and tools to characterize a facility's risk (which can be very resource-intensive for facilities and districts), a screening approach is intended to be simpler to prepare, and to use more basic but highly

conservative inputs, to demonstrate that estimated risks are confidently below a level of significance. There are multiple ways to design screening assessments, ranging from very conservative to more refined.

If a facility's emissions can be shown to be below significance using very conservative screening approaches, there is no need for further, more refined analysis protocols. In other cases, progressively more refined analysis might be needed to evaluate whether risks are below significance, if the conservative approach shows there may be a significant risk.

There are multiple ways to design acceptable screening risk assessments, so Appendix F is expanded to address multiple approaches involving air dispersion modeling as well as the use of pre-computed risk screening tables and related approaches.

For each approach, a hierarchical or "stepwise" approach is summarized. The concept in all cases is to establish steps that begin with evaluating screening measures that are very conservative (protective of public health) by making simple but overly conservative assumptions about the pollutant releases and their air dispersion, and if the conservative approach shows potentially significant risks, then evaluating progressively more resource-intensive approaches that build in more site-customized and refined parameters that must still be protective of public health, but are more representative of the particular site and its actual parameters.

Two main overarching types of screening approaches are widely used for air toxics assessments. One overarching type of approach uses air dispersion models (from screening to more refined) to model how the emissions disperse through the air around a facility and to what extent surrounding residents could be exposed. The other overarching type of approach uses pre-calculated "look-up" tables or spreadsheet-like tools to estimate the surrounding levels based on looking up or inputting a series of parameters regarding the source and its release(s). Appendix F includes a separate flow diagram and description of protocols for each of these two overarching types of screening approaches. Both approaches generally rely on air dispersion modeling, either directly, or to prepare the pre-computed "look-up" information.

These approaches include use of the most recent U.S. EPA models and also need to specify the appropriate conservative inputs such as for meteorology.

Air dispersion modeling results are highly dependent on the meteorology datasets that are used to represent the location being modeled. To ensure conservative (health-protective) risk modeling results, the selection of meteorological datasets must adequately characterize the full range of atmospheric conditions at a location that could contribute to the greatest potential lifetime risk to surrounding residents (receptors).

When the U.S. EPA changed its acceptable regulatory air dispersion modeling tool from the Industrial Source Complex (ISC) model to the AERMOD modeling system, it changed the way meteorology data could be used for conservative screening approaches¹⁴⁴. ISC previously allowed a simple, worst-case meteorology dataset to be used to ensure conservative risk screening. The AERMOD modeling system does not have an equivalent, worst-case meteorology dataset capability. The AERMOD modeling system includes the main AERMOD model, and also now includes a new tool called the AERSCREEN model. AERSCREEN is designed to provide conservative screening risk estimation, and a module known as BPIPPRM to account for the effect of building downwash in a specified zone around an emission release point, which can increase potential cancer and noncancer health impacts significantly.

Appendix F, section (C) is revised to include stepwise flow diagrams for acceptable risk screening, which range from simpler approaches that use more basic (less site-specific) but more conservative (health-protective) inputs and modeling tools, toward progressively more refined (site-specific) but more resource-intensive inputs and tools.

Figure F-1 provides a stepwise flow diagram where air dispersion modeling tools can be used to model the impacts of the facility's emissions.

Figure F-2 provides a stepwise flow diagram where pre-calculated risk screening tables or the use of other screening documents can be used to estimate the impacts of the facility's emissions. These pre-calculated screening tables and documents are usually derived from the same types of modeling approaches addressed by Figure F-1, but have been pre-calculated so that for a given set of input parameters, there is a "look-up" relationships to a conservative potential risk estimate (rather than conducting modeling for the facility).

If a facility's emissions can be shown to be below significance thresholds using very conservative screening approaches, there is no need for further, more refined analysis protocols. In other cases, progressively more refined analysis might be needed to evaluate the risk.

¹⁴⁴ (USEPA, 2019a). Air dispersion models: *AERMOD (19191) modeling system*, August 2019, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod>; specifically the *AERSCREEN (16216) model*, December 2016, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models#aerscreen>; *BPIPPRM (19191) model*, November 2019, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-related-model-support-programs#bpipprm>. Accessed August 20, 2020

The stepwise protocols in Appendix F work in conjunction with criteria for acceptable input parameters (including specifications for acceptable meteorology), in order to evaluate whether risks are confidently below significance levels. The specifications ensure that reasonably worse-case parameters and tools are used for screening assessments, to ensure that the resultant potential risk estimates would not underestimate the risks to surrounding residents and workers.

Purpose of requiring building downwash provisions in Appendix F, section (C).
Appendix F, section (C) is revised to add requirements to incorporate the effect of building downwash in screening risk assessment, if there are buildings within the specified zone of influence of the source.

Rationale

Screening risk modeling approaches are intended to be conservative (health-protective) assessments that provide a high level of confidence that risks would not exceed an adverse level. Screening must therefore incorporate uncertainty in a precautionary manner. When there are buildings near an emission release point, the flow of air is disrupted, and therefore the dispersion of the emitted pollutants can be significantly altered, and the concentrations and risk can be significantly increased for affected receptors. Recognizing this effect, the U.S. EPA AERMOD modeling system includes a module known as BPIPPRIM (which uses the BPIP algorithm) to account for the effect of building downwash in a specified zone around an emission release point, because the downwash can increase risk significantly.

Therefore, to ensure conservative (health-protective) screening results, Appendix F requires that the effect of building downwash must be included in the screening approaches, if there are buildings within the zone of influence incorporated in the U.S. EPA's modeling system.

The zone of influence occurs where the downwind distance between the emission stack and a building is less than five times the width or height of the building structure, whichever is less (also known as 5L); or where the upwind distance between the stack and a building is less than two times the width or height of the building structure, whichever is less (also known as 2L). In these situations where downwash must be considered, the analysis must include buildings that are in the zone of influence, and must set the appropriate BPIP switch to incorporate building downwash effects, or alternatively, the screening approach can apply a conservative downwash multiplier of

100 to the modeled concentration, to ensure that the screening risk assessment will not underestimate the potential risk^{145,146}.

The multiplier of 100 is based on modeling which the CARB staff conducted including hundreds of AERMOD modeling runs for many types and scenarios of diesel engines (as well as many gasoline service station scenarios), using different meteorology and different building configurations. The modeling was conducted to evaluate the sensitivity of the risk screening results to various effects, including time-of-day of emissions, building downwash, rural vs. urban parameters, and other variations. These sensitivity analyses indicated that building downwash could increase the risk estimates by well over a factor of 100 in some scenarios. Therefore, to ensure that screening risk approaches specified in Appendix F are conservative (health-protective of surrounding residents), Appendix F requires either that building downwash modules be utilized explicitly in conducting screening modeling, or alternatively a conservative multiplier of 100 be applied, when there are buildings present within the zone of influence.

Purpose of revising Appendix F, section (D).

Appendix F, section (D) is revised to add the words “In all cases”, and to update and add references for acceptable modeling tools and appropriate meteorology data.

Rationale

The words “In all cases” are added make clear that the stated models and parameters are intended to be applied in all of the Appendix F flow diagram approaches that have been added.

The references that are incorporated for acceptable modeling tools have been updated to the U.S. EPA AERMOD modeling system, because U.S. EPA has replaced ISC with AERMOD as the acceptable regulatory air dispersion modeling tool, and the AERMOD modeling system includes not only the AERMOD model, but also the AERSCREEN model, and the BPIPPRM module for building downwash.

¹⁴⁵ (USEPA, 2019a). Air dispersion models: *AERMOD (19191) modeling system*, August 2019, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod>; specifically the *AERSCREEN (16216) model*, December 2016, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-screening-models#aerscreen>; *BPIPPRM (19191) model*, November 2019, located at: <https://www.epa.gov/scram/air-quality-dispersion-modeling-related-model-support-programs#bpipprm>. Accessed August 20, 2020

¹⁴⁶ (CARB, 2020) CARB’s *HotSpots Analysis and Reporting Program (HARP)*, located at: <https://www.arb.ca.gov/our-work/programs/hot-spots-analysis-reporting-program>; *Air Dispersion Modeling and Risk Tool version 19121*, May 1 2019, located at: <https://www.arb.ca.gov/sites/default/files/classic/toxics/harp/software2/harp2admrt19121.zip>, *Emission Inventory Module version 2.1.4*, August 7, 2020, located at: <https://www.arb.ca.gov/toxics/harp/software2/harp2eim20200807.zip>. Accessed August 20, 2020.

References, and a web link (<https://ww2.arb.ca.gov/resources/documents/harp-aermod-meteorological-files>), have been added for appropriate, conservative meteorology files (and the necessary parameters associated with them). These meteorology files have been pre-processed by the staff of CARB and/or local air districts to be in the formats required as inputs to the U.S. EPA AERMOD modeling system. These AERMOD-ready meteorology datasets are provided on the CARB website for the various regions of the state, as a courtesy and to provide technical support for facility operators to use for conducting conservative screening risk assessments.

When the U.S. EPA changed its acceptable regulatory air dispersion modeling tool from the Industrial Source Complex (ISC) model to the AERMOD modeling system, it changed the way meteorology data could be used for conservative screening approaches. ISC previously allowed a simple, worst-case meteorology dataset to be used to ensure conservative risk screening (at any location). The AERMOD modeling system does not have an equivalent, worst-case meteorology dataset capability. Instead, region-by-region meteorology data must be selected and pre-processed into AERMOD-ready formats. In consultation with the local air districts, CARB is providing a central website location (<https://ww2.arb.ca.gov/resources/documents/harp-aermod-meteorological-files>) to provide easy access for facility operators to find acceptable, conservative, AERMOD-ready meteorology datasets.

Purpose of revising Appendix F, section (E)(7).

Appendix F, section (E)(7) is revised to incorporate references to the most recent approved cancer and non-cancer health effects values for purposes of the Hot Spots program.

Rationale

Health effects values used for cancer and non-cancer health effects in the Hot Spots program are subject to the approval by the Office of Environmental Health Hazard Assessment (OEHHA), as specified in the Hot Spots Act. Available health effects values, as well as risk assessment procedures, used for cancer risk assessment and

non-cancer health effects have been expanded and revised, and are available from OEHHA publications and websites^{147,148,149,150}.

Purpose of revising Appendix F, section (E)(8).

Appendix F, section (E)(8) is revised to update a web link for some examples of diesel risk screening tables, and to use the words “be representative of” (instead of “reflect”) the configuration.

Rationale

The CARB staff conducted many air dispersion modeling runs for estimating screening risk from a wide range of diesel engine scenarios using the Hotspots Analysis and Reporting Program (HARP) modeling tool (which uses the latest U.S. EPA AERMOD model). In addition to using the latest U.S. EPA models, these diesel modeling runs also include the most recent OEHHA Risk Assessment Guidelines, including the increased risk estimates due to early life exposure. The HARP modeling results have been compiled into diesel engine screening risk tables and made available at the updated web link shown. (<https://ww2.arb.ca.gov/hot-spots-stationary-diesel-engine-screening-risk-assessment-tables>)

The words “be representative of” (instead of “reflect”) have been revised to ensure that a valid screening table is used that is representative of the engine horsepower and related configuration parameters with respect to the engine being evaluated.

Purpose of adding Appendix F, section (E)(9).

Appendix F, section (E)(9) is added to specify that population-wide impact assessment may be required by districts for screening purposes.

¹⁴⁷ (OEHHA, 2019b). *Technical Support Document for Cancer Potency Factors: Methodologies for derivation, listing of available values, and adjustments to allow for early life stage exposures*. June 1, 2009. Accessed August 13, 2020. Available at: <https://oehha.ca.gov/air/cnr/technical-support-document-cancer-potency-factors-2009>; including an updated Appendix A: *Appendix A: Hot Spots Unit Risk and Cancer Potency Values (Updated May 2019)*, Accessed August 25, 2020. Available at: <https://oehha.ca.gov/media/CPFs042909.pdf>

¹⁴⁸ (OEHHA, 2019a). *Acute, 8-hour and Chronic Reference Exposure Level (REL) Summary*, November 2019, located at: <https://oehha.ca.gov/air/general-info/oehha-acute-8-hour-and-chronic-reference-exposure-level-rel-summary>

¹⁴⁹ (OEHHA, 2020). *p-chlorobenzotrifluoride Cancer Inhalation Unit Risk Factor Technical Support Document for Cancer Potency Factors Appendix B*; published August 2020. <https://oehha.ca.gov/media/downloads/cnr/pcbtfur080720.pdf>

¹⁵⁰ (OEHHA, 2012). *Notice of Adoption of Technical Support Document for Exposure Assessment And Stochastic Analysis Aug 2012*, August 2012, located at: <https://oehha.ca.gov/air/cnr/notice-adoption-technical-support-document-exposure-assessment-and-stochastic-analysis-aug>

Rationale

The OEHHA Risk Assessment Guidelines require facility health risk assessments (HRAs) under the Hot Spots program to report both point estimate risk levels (e.g., the maximum exposed residential receptor) and also population-wide risk estimates (e.g., a cancer burden value or a tabulation of the numbers of people exposed at various risk levels). Adding section (E)(9) to Appendix F makes clear that districts can require that population-wide impacts be included in screening risk assessments as well, and that these population-wide impacts can be taken into account as part of determining whether screening risks are considered significant or not. Consideration of population-wide impacts is important to complement point estimates of risk, especially in cases where a point estimate alone might pass a screening criteria but large numbers of people may be exposed to risk levels only slightly below the screening threshold value, resulting in substantial potential risk burden overall to the nearby population.

Appendix G. List of Documents Incorporated By Reference

Purpose of updating Appendix G

Appendix G is revised to incorporate by reference updated versions and additions of all existing documents, in some instances renumbering and/or reorganizing accordingly. In the case of the OEHHA risk assessment documents, the old OEHHA risk assessment guidelines created parts I through V for incorporating the acute and chronic reference exposure level (REL) documents, the technical support document for cancer potency factors as well as the technical support document for exposure assessment and the risk assessment guidelines themselves. The new approach is to have these pieces separated as individual documents, thus Appendix G separates these out as individual incorporation by reference including citations for the recent adoption for the cancer potency factor for p-Chloro- α,α,α -trifluorotoluene (p-Chlorobenzotrifluoride, PCBTF).

Rationale

Several agencies including CARB, U.S. EPA, OEHHA and CAPCOA have updated their documents to incorporate the latest health science. The revised incorporation by reference with updated versions and additions is necessary to align the EICG with revised guidelines that are already being used by air districts.

XII. REFERENCES

The following documents are the technical, theoretical, or empirical studies, reports, or similar documents relied upon in proposing these regulatory requirements, identified as required by Government Code, section 11346.2, subdivision (b)(3).

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XIII. APPENDICES – PROVIDED AS SEPARATE DOCUMENTS

- A. Appendix A – Proposed Regulation Order**
- B. Appendix B – Proposed Amendments to the Emission Inventory Criteria and Guidelines Report (EICG Report) and its Appendices**