UNITED STATES COURT OF APPEALS
FOR THE SIXTH CIRCUIT

OHIO CHEMISTRY TECHNOLOGY COUNCIL, Petitioner, v. U.S. ENVIRONMENTAL PROTECTION AGENCY, Respondent.	)	No. _____ Agency Docket No. EPA-HQ-OPPT-2020-0592

PETITION FOR REVIEW

Pursuant to Section 19 of the Toxic Substances Control Act (15 U.S.C. 2618), the Ohio Chemistry Technology Council ("OCTC") hereby petitions this Court to review and set aside certain provisions of the final rule of the U.S. Environmental Protection agency ("EPA") entitled "Carbon Tetrachloride (CTC); Regulation Under the Toxic Substances Control Act (TSCA)" which was published in the Federal Register at 89 Fed. Reg. 103,512 on December 18, 2024. The final rule was issued for purposes of judicial review on January 1, 2025. *See* 40 C.F.R. § 23.5(a); 15 U.S.C. § 2618(a)(2) (citing 28 U.S.C. § 2112). A copy of EPA's final rule is attached as Exhibit A.

Dated: January 8, 2025

Respectfully submitted,

/s/ Robert J. Karl

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CERTIFICATE OF SERVICE

Pursuant to 6 Cir. R. 25(f)(2) and 40 C.F.R. § 23.12(a), on this date, I hereby certify that I will cause to be delivered, via certified U.S. mail, a copy of the foregoing Petition for Review to the following:

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Dated: January 8, 2025

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 751

[EPA–HQ–OPPT–2020–0592; FRL–8206–02–OCSPP]

RIN 2070–AK82

Carbon Tetrachloride (CTC); Regulation Under the Toxic Substances Control Act (TSCA)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA or "Agency") is finalizing a rule to address the unreasonable risk of injury to health presented by carbon tetrachloride (CTC) under its conditions of use. TSCA requires that EPA address by rule any unreasonable risk of injury to health or the environment identified in a TSCA risk evaluation and apply requirements to the extent necessary so that the chemical no longer presents unreasonable risk. EPA's final rule will establish workplace safety requirements for most conditions of use, including the condition of use related to the making of low Global Warming Potential (GWP) hydrofluoroolefins (HFOs); prohibit the manufacture (including import), processing, distribution in commerce, and industrial/commercial use of CTC for conditions of use where information indicates use of CTC has ceased; and establish recordkeeping and downstream notification requirements. The use of CTC in low GWP HFOs is particularly important in the Agency's efforts to support the American Innovation and Manufacturing Act of 2020 (AIM Act) and the Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, which was ratified on October 26, 2022.

DATES: This final rule is effective on January 17, 2025.

ADDRESSES: The docket for this action, identified by docket identification (ID) number EPA–HQ–OPPT–2020–0592, is available online at *https://www.regulations.gov*. Additional information about dockets generally, along with instructions for visiting the docket in-person, is available at *https://www.epa.gov/dockets*.

FOR FURTHER INFORMATION CONTACT:

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For general information: The TSCA-Hotline, ABVI-Goodwill, 422 South Clinton Ave., Rochester, NY 14620; telephone number: (202) 554–1404; email address: *TSCA-Hotline@epa.gov*.

SUPPLEMENTARY INFORMATION:

I. Executive Summary

A. Does this action apply to me?

1. General Applicability

This action applies to you if you manufacture (defined under TSCA to include import), process, distribute in commerce, use, or dispose of CTC (CASRN 56–23–5). TSCA section 3(9) defines the term "manufacture" to mean "to import into customs territory of the United States (as defined in general note 2 of the Harmonized Tariff Schedule of the United States), produce, or manufacture". Therefore, unless expressly stated otherwise, importers of CTC are subject to any provisions regulating manufacture of CTC. The following list of North American Industrial Classification System (NAICS) codes is not intended to be exhaustive, but rather provides a guide to help readers determine whether this document applies to them. Potentially affected entities include:

- Chemical Manufacturing (NAICS code 325);
- Nonmetallic Mineral Product Manufacturing (NAICS code 327);
- Primary Metal Manufacturing (NAICS code 331);
- Waste Management and Remediation Services (NAICS code 562);
- Petrochemical Manufacturing (NAICS code 325110);
- Industrial Gas Manufacturing (NAICS code 325120);
- Other Basic Inorganic Chemical Manufacturing (NAICS code 325180);
- Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing (NAICS code 325194);
- All Other Basic Organic Chemical Manufacturing (NAICS code 325199);
- Plastics Material and Resin Manufacturing (NAICS code 325211);
- Pesticide and Other Agricultural Chemical Manufacturing (NAICS code 325320);
- All Other Miscellaneous Chemical Product and Preparation Manufacturing (NAICS code 325998);
- Cement Manufacturing (NAICS code 327310);
- Ground or Treated Mineral and Earth Manufacturing (NAICS code 327992);
- Nonferrous Metal (except Aluminum) Smelting and Refining (NAICS code 331410);
- NAICS code 562211—Hazardous Waste Treatment and Disposal NAICS code 562211); and
- Solid Waste Combustors and Incinerators (NAICS code 562213).

2. Applicability to Importers and Exporters

This action may also affect certain entities subject to import certification, and export notification rules under TSCA (*https://www.epa.gov/tsca-import-export-requirements*). Persons who import any chemical substance in bulk form, as part of a mixture, or as part of an article (if required by rule) are subject to the TSCA section 13 (15 U.S.C. 2612) import certification requirements and the corresponding regulations at 19 CFR 12.118 through 12.127; see also 19 CFR 127.28. Those persons must certify that the shipment of the chemical substance complies with all applicable rules and orders under TSCA. The EPA policy in support of import certification appears at 40 CFR part 707, subpart B.

In addition, any persons who export or intend to export a chemical substance that is the subject of this final rule are subject to the export notification provisions of TSCA section 12(b) (15 U.S.C. 2611(b)), and must comply with the export notification requirements in 40 CFR part 707, subpart D.

B. What is the Agency's authority for taking this action?

Under TSCA section 6(a) (15 U.S.C. 2605(a)), if the U.S. Environmental Protection Agency, hereinafter referred to as EPA or "the Agency", determines through a TSCA section 6(b) risk evaluation that a chemical substance presents an unreasonable risk of injury to health or the environment, EPA must by rule apply one or more requirements listed in TSCA section 6(a) to the extent necessary so that the chemical substance or mixture no longer presents such risk.

C. What action is the Agency taking?

Pursuant to TSCA section 6(b), EPA determined that CTC presents an unreasonable risk of injury to health, without consideration of costs or other nonrisk factors, including an unreasonable risk to potentially exposed or susceptible subpopulations (PESS) identified as relevant to the 2020 Risk Evaluation for Carbon Tetrachloride by EPA, under the conditions of use (Refs. 1, 2, 3). A description of the conditions of use that contribute to EPA's determination that CTC presents an unreasonable risk is in the proposed rule (88 FR 49190) (FRL–8206–01–OCSPP) and Unit IV. Accordingly, to

address the unreasonable risk, EPA is issuing this final rule under TSCA section 6(a) to:

(1) Require a Workplace Chemical Protection Program (WCPP), including an inhalation exposure concentration limit, direct dermal contact controls, and related workplace exposure controls, for the following occupational conditions of use of CTC not prohibited, outlined in Unit IV.B.:

- Domestic manufacture;
- Import;
- Processing as a reactant in the production of hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), HFOs, and perchloroethylene (PCE);
- Incorporation into formulation, mixture or reaction products in agricultural products manufacturing, vinyl chloride manufacturing, and other basic organic and inorganic chemical manufacturing;
- Repackaging for use as a laboratory chemical;
- Recycling;
- Industrial and commercial use as an industrial processing aid in the manufacture of agricultural products and vinyl chloride;
- Industrial and commercial use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine; and
- Disposal.

(2) Require use of laboratory ventilation devices, such as fume hoods or glove boxes, and dermal personal protective equipment (PPE) for the industrial and commercial use as a laboratory chemical, as outlined in Unit IV.C.;

(3) Prohibit these additional conditions of use, for which the Agency understands use of CTC has already ceased, as outlined in Unit IV.D.:

- Incorporation into formulation, mixture or reaction products in petrochemical-derived manufacturing except in the manufacture of vinyl chloride (for which EPA is requiring a WCPP);
- Industrial and commercial use as an industrial processing aid in the manufacture of petrochemicals-derived products except in the manufacture of vinyl chloride (for which EPA is requiring a WCPP);
- Industrial and commercial use in the manufacture of other basic chemicals (including manufacturing of chlorinated compounds used in solvents, adhesives, asphalt, and paints and coatings), except for use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine (for which EPA is requiring a WCPP);
- Industrial and commercial use in metal recovery;
- Industrial and commercial use as an additive; and
- Industrial and commercial use in specialty uses by the U.S. Department of Defense (DoD).

(4) Require recordkeeping, as outlined in Unit IV.E.1.

(5) Require manufacturers (including importers), processors, and distributors to provide downstream notification of the requirements, as outlined in Unit IV.E.2.

EPA notes that not all TSCA conditions of use of CTC are subject to this final rule. "Conditions of use" is defined in TSCA section 3(4) to mean the circumstances, as determined by EPA, under which a chemical substance is intended, known, or reasonably foreseen to be manufactured, processed, distributed in commerce, used, or disposed of. As described in the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1) and the 2022 Revised Unreasonable Risk Determination for Carbon Tetrachloride (Ref. 3), two conditions of use of CTC do not drive the unreasonable risk: distribution in commerce and processing as a reactant/intermediate in reactive ion etching. EPA is not finalizing any restrictions for the processing of CTC as a reactant/intermediate in reactive ion etching. However, under TSCA section 6(a), EPA may select from among a suite of risk management requirements in TSCA section 6(a), including requirements related to distribution in commerce, as part of its regulatory options to address the unreasonable risk; EPA's final regulatory action includes prohibitions on the distribution in commerce of CTC for certain downstream conditions of use to address unreasonable risk from those downstream conditions of use. Additionally, as explained in Section 1.4.2.3 of the 2020 Risk Evaluation for Carbon Tetrachloride and Section 2.2.2.1 of the 2018 Problem Formulation of the Risk Evaluation for Carbon Tetrachloride, EPA concluded that the industrial/commercial/consumer uses of CTC in adhesives/sealants, paints/coatings, and cleaning/degreasing solvent products contain only trace amounts of CTC, present only de minimis exposures or otherwise insignificant risks under TSCA, and did not warrant inclusion in the risk evaluation. Therefore, EPA has excluded from the rule's requirements CTC that is solely present unintentionally in trace quantities with another chemical substance or mixture, whether as a manufacturing residue, unreacted feedstock, byproduct, or other contaminant. However, EPA notes that the Agency has discretion to further assess trace quantities of CTC under other regulatory authorities, such as the Clean Air Act. Finally, manufacture of CTC as a byproduct was not evaluated in the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1); therefore, in this final rule, WCPP requirements applicable to the domestic manufacture of CTC do not apply where CTC is manufactured solely as a byproduct. EPA anticipates that any risks presented by the presence of CTC as a byproduct formed during the manufacturing, processing or use of a parent compound will be considered in the scope of the risk evaluation of such parent compound. For example, EPA will assess the risks of CTC manufactured as a byproduct during the manufacture of 1,2-dichloroethane in the TSCA risk evaluation for 1,2-dichloroethane (Ref. 1).

D. Why is the Agency taking this action?

Under TSCA section 6(a), "[i]f the Administrator determines in accordance with subsection (b)(4)(A) that the manufacture, processing, distribution in commerce, use or disposal of a chemical substance or mixture, or that any combination of such activities, presents an unreasonable risk of injury to health or the environment, the Administrator shall by rule . . . apply one or more of the [section 6(a)] requirements to such substance or mixture to the extent necessary so that the chemical substance or mixture no longer presents such risk." CTC was the subject of a risk evaluation under TSCA section 6(b)(4)(A) that was issued in November 2020 (Ref. 1). In addition, EPA issued a revised unreasonable risk determination in December 2022 (Ref. 3), determining that CTC, as a whole chemical substance, presents an unreasonable risk of injury to health under the conditions of use. On July 28, 2023, EPA issued a proposed rulemaking (88 FR 49180) (FRL–8206–01–OCSPP) under TSCA section 6(a) to take action to the extent necessary so that CTC no longer presents such risk. The Agency received public comment on the proposal. With this action, EPA is finalizing with modifications the July 2023 proposed rule so that CTC no longer presents an such risk. The conditions of use that contribute to the unreasonable risk from CTC are described in the proposed rule (88 FR 49190) (FRL–8206–01–OCSPP) and Unit IV.

CTC's hazards are well established. EPA's 2020 Risk Evaluation for Carbon Tetrachloride considered the hazards

associated with exposure to CTC and determined that CTC presents an unreasonable risk of injury to health due to the significant adverse health effects associated with the exposure of CTC. While some risks of adverse effects from CTC exposure are associated with acute single exposures, other risks are associated with long-term repeated exposures. EPA identified cancer and liver toxicity adverse effects from chronic inhalation and dermal exposures as well as liver toxicity from acute dermal exposures to CTC (Refs. 1, 2, 3). Cancer adverse effects (*e.g.*, liver, pheochromocytoma, neuroblastoma) were identified for chronic inhalation and dermal exposures. Cancer was selected based on the best available science and weight of scientific evidence, and in consideration of the severity of hazards, magnitude of exposure, population exposed, and uncertainties in the November 2020 Risk Evaluation for Carbon Tetrachloride and the December 2022 Revised Risk Determination for Carbon Tetrachloride. EPA identified in the 2020 Risk Evaluation for Carbon Tetrachloride a threshold cancer point of departure (POD) for liver tumors (assuming a margin of exposure of 300), and an inhalation unit risk (IUR) for adrenal tumors, based on effects observed in mice following inhalation exposure. The chronic non-cancer PODs for inhalation exposures are based on a study observing increased fatty changes in rodent livers (fatty changes in the liver are a precursor for liver fibrosis). EPA also identified additional risks associated with other adverse effects (*e.g.*, immediate and temporary depression of the central nervous system, kidney toxicity, reproductive and developmental toxicity, irritation and sensitization, and genetic toxicity) resulting from acute and chronic exposures. For this action, EPA has determined that protecting against liver and adrenal cancer would also address the risk for acute non-cancer, chronic non-cancer, and additional cancer risks from CTC, as identified in the 2020 Risk Evaluation for Carbon Tetrachloride and the Revised Unreasonable Risk Determination for CTC in December 2022 (Ref. 1, 2 and 3).

CTC is primarily used as a feedstock to make products such as refrigerants, aerosol propellants, and foam-blowing agents. Requirements under the Montreal Protocol and Title VI of the Clean Air Act (CAA), which were included in the CAA Amendments of 1990 and are codified at 42 U.S.C. Chapter 85, Subchapter VI, led to a phaseout of CTC production in the United States for most non-feedstock domestic uses, such as degreasers and fire suppressants. In addition, the Consumer Product Safety Commission (CPSC) banned the use of CTC in household (*i.e.*, consumer) products (excluding unavoidable residues not exceeding 10 ppm atmospheric concentration) in 1970 (see 16 CFR 1500.17(a)(2)). The Agency has considered the benefits of CTC for various uses as required under TSCA section 6(c)(2)(A) and (B) and recognizes that continued use of CTC for some TSCA conditions of use should be maintained for several reasons. The use of CTC may provide benefits that complement the Agency's efforts to address climate-damaging HFCs under the AIM Act and the Kigali Amendment to the Montreal Protocol, supporting human health and environmental protection under these programs. In addition, the use of CTC may provide other benefits due to certain unique properties of CTC (*e.g.*, it does not react with the process gasses when used as a process agent in the manufacture of agricultural products (Ref. 4)). Finally, strict workplace controls can be implemented to address unreasonable risk across many conditions of use. For some workplaces, EPA understands that existing controls may already reduce exposures enough to meet the inhalation exposure concentration limit proposed in this rulemaking or to prevent direct dermal contact with CTC. For many of the conditions of use for which EPA is finalizing workplace controls under a WCPP, data indicating that certain uses could meet the exposure limit and ancillary requirements of an effective WCPP in addressing unreasonable risk were submitted during the risk evaluation, the comment period following publication of the proposed rule, or during stakeholder outreach engagements, and are available in the corresponding public dockets (EPA–HQ–OPPT–2016–0733; EPA–HQ–OPPT–2019–0499; EPA–HQ–OPPT–2020–0592).

Accordingly, EPA is finalizing workplace controls to address the unreasonable risk while allowing continued use for 100% of the production volume of CTC manufactured annually, including the processing of CTC as a reactant in the production of HFOs. The rationale for the final regulatory action, including the TSCA section 6 requirements considered in developing the regulatory action, is described in Units II.D. and III.

E. What are the estimated incremental impacts of this action?

EPA has prepared an Economic Analysis for the potential incremental impacts associated with this rulemaking that can be found in the rulemaking docket (Ref. 5). As described in more detail in the Economic Analysis and in Unit V.D., EPA's estimate of the incremental costs of this final rule is $19.7 million per year annualized over 20 years at a 3% discount rate and $19 million per year at a 7% discount rate (Ref. 5). In response to the updated Circular A–4 published in November 2023, the incremental costs of this rule at a 2% discount rate ($19.9 million annualized over 20 years) are provided in Appendix C of the Economic Analysis (Ref. 5).

These costs include compliance with a WCPP for certain conditions of use, applicable PPE requirements, and notification and recordkeeping costs. EPA was not able to quantify the costs associated with administrative and engineering controls because they are site-specific and depend on the extent to which controls are already in place, which is likely to vary across individual facilities. Thus, for the purpose of estimating costs and benefits, this analysis assumes that PPE is used. Under the WCPP, regulated entities would be required to consider respirators and dermal PPE only after consideration of other more effective strategies in the hierarchy of controls adopted by the Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) to reduce exposures (Ref. 6). Regulated entities are required first to consider other measures in the hierarchy of controls and then to select PPE based on monitoring results because the Agency recognizes that workplaces have unique processes and equipment in place, and that varying levels of respiratory Assigned Protection Factor (APFs) may be needed for different workplaces.

Industry is expected to incur costs associated with performing inspections, documenting efforts to meet the regulatory requirements associated with the WCPP, including reducing exposure and occurrences of exposure, monitoring, respirators and dermal PPE, training on the use of respirators and dermal PPE, and notification and recordkeeping burdens and costs associated with the WCPP. Industry is also expected to incur equipment costs associated with dermal PPE for laboratory use. EPA assumes that industry would not incur equipment costs associated with the ventilated

laboratory safety requirement for laboratory settings because these requirements are part of baseline industry practices. All manufacturers (including importers), processors, and distributors will bear downstream notification and recordkeeping costs.

The costs are estimated as incremental to baseline conditions, including current use of PPE. The costs represent a high-end estimate of the number of entities and workers affected by the regulation because the high estimates of workers and entities from the 2020 Risk Evaluation for Carbon Tetrachloride were used. To the extent that EPA's approach overestimates the number of entities subject to the regulation, actual realized costs of this action will be lower. More details regarding the provisions of the final rule are in Unit IV.

In addition to the quantified costs, there is an unquantified cost to workers and firms associated with prolonged use of respirators, which could interfere with work tasks. The potential for respirator use to cause discomfort and productivity losses could lead companies to offer higher wages as compensation, but the extent of this effect is unknown and thus unquantified. The Economic Analysis contains additional information about the unquantified costs in Chapter 3 and in the *Estimated Incremental Costs* section of the Executive Summary (Ref. 5).

Unit IV. details which actions apply to specific conditions of use. EPA estimates that 30 firms associated with 72 sites may be manufacturing (including importing), processing, or releasing CTC.

EPA estimates that the final rule would affect at least seven small entities. EPA compared the highest annualized per-facility cost of the final regulatory action with ultimate parent company annual revenues of the affected small businesses. EPA found impacts under 1% of annual revenues for five of the seven small entities. Two small entities were estimated to have a cost-to-revenue impact ratio of between one and three percent.

In alignment with the goals of President Biden's Cancer Moonshot, the rule will protect people from cancer and other adverse health effects of CTC (Ref. 7). The actions in this final rule are expected to achieve health benefits for the American public. The Economic Analysis monetizes benefits to occupational users and non-users of avoiding cases of adrenal and liver cancer due to reduced inhalation exposures that result from implementation of the WCPP. The magnitude of the cancer benefits from reduced inhalation exposure is estimated assuming companies provide respirators to comply. It is also possible that employees will receive respiratory benefits from other actions on OSHA's hierarchy of controls, such as engineering controls, since regulated entities are required first to consider other measures in the hierarchy of controls and then to select PPE based on monitoring results. However, the Economic Analysis does not estimate the costs of such controls because feasible controls and their costs are site-specific and the amount of additional exposure reduction that could be achieved through any given type of control would depend on the extent to which such controls are already in place, which is likely to vary across individual facilities. This assumption is made for the purpose of estimating costs only and is not an assumption about how facilities would necessarily comply with WCPP requirements. Other human health benefits, including noncancer and additional cancer benefits, while tangible and significant, cannot be monetized due to data and methodology limitations. These include additional cancer benefits from avoided brain tumors, noncancer health benefits, health benefits from avoided dermal exposure, and benefits to the environment. The incremental improvements in health outcomes achieved by given reductions in exposure cannot currently be quantified for non-cancer health effects associated with CTC exposure, and therefore cannot be converted into monetized benefits. Although some benefits cannot be quantified, they are not necessarily less important than the quantified benefits. The primary reason these benefits were not quantified is the difficulty in estimating the relationship between an incremental change in CTC use and the corresponding change to a specific health or environmental outcome.

Adrenal and liver cancer avoidance benefits are calculated based on reductions in inhalation exposure using the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1) for those uses which are continuing but with a WCPP in place. Therefore, benefits are only calculated for the WCPP in the final rule, which could include respiratory protection. The estimated monetized benefit of the final rule ranges from approximately $0.13 to $0.14 million per year annualized over 20 years at a 3% discount rate and from $0.06 to $0.07 million per year at a 7% discount rate. In response to the updated Circular A–4 published in November 2023, the incremental benefits at a 2% discount rate ($0.16 to $0.17 million annualized over 20 years) are provided in Appendix C of the Economic Analysis (Ref. 5). To estimate the costs and benefits of the WCPP, the Economic Analysis generated a likely distribution of air monitoring outcomes at CTC facilities. This distribution was used to project the number of facilities that would require each respirator APF. These estimates are subject to uncertainties, and there could be facilities with higher or lower air exposures than estimated in the Economic Analysis.

Using the high-end estimates for the number of entities and workers affected by the final rule, the monetized net benefit of the final rule, which is negative, is −$19.6 million per year annualized over 20 years at a 3% discount rate and is −$18.9 million per year at a 7% discount rate. In response to the updated Circular A–4 published in November 2023, the incremental net benefits at a 2% discount rate (−$19.7 million annualized over 20 years) are provided in Appendix C of the Economic Analysis (Ref. 5). The range in the monetized net benefits estimate at each discount rate presented in the Economic Analysis reflects uncertainty in cancer risk reductions given the shorter exposure durations being considered and the life stage at which the changes in exposure occur. Although the estimated monetized net benefits are negative, there are also non-monetized benefits due to other avoided adverse health effects associated with CTC exposure, including liver, reproductive, renal, developmental, and central nervous system (CNS) toxicity endpoints. These are serious health endpoints, even though the change in risk due to CTC exposure was not quantified in the 2020 Risk Evaluation for Carbon Tetrachloride.

Section 6.6 of the Economic Analysis, addressing environmental justice impacts, provides sociodemographic data on communities and workers in industries affected by the rule and people who live in proximity to potentially affected facilities. EPA analyzed the baseline conditions facing communities near CTC and HFO manufacturing facilities as well as those of workers in the same industry and county as CTC facilities and HFO manufacturing facilities. The environmental justice analysis found that, across the entire population within 1- and 3-miles of CTC facilities, there are higher percentages of people who identify as Black and living below the poverty line and a similar percentage of people who identify as Hispanic

compared to the national averages. CTC facilities are concentrated in Texas and Louisiana, especially near Houston and Baton Rouge.

II. Background

A. Overview of Carbon Tetrachloride

As described in more detail in the proposed rule, EPA identified liver and adrenal toxicity cancer adverse effects from chronic inhalation and dermal exposures, as well as liver toxicity from acute dermal exposures in the workplace as the basis for the unreasonable risk determination for CTC (Ref. 1, 2, and 3). This final rule is specifically intended to address the unreasonable risk of injury to health EPA identified in the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1) and the 2022 Revised Unreasonable Risk Determination for Carbon Tetrachloride (Ref. 3), as described in Unit II.C. CTC is a volatile organic compound that is primarily used as a feedstock in the production of HCFCs, HFCs, and HFOs.

According to data submitted for EPA's 2016 and 2020 Chemical Data Reporting (CDR) Rule, in Reporting Years (RY) 2015 and 2019, between 100 and 250 million pounds of CTC were manufactured or imported in the United States (Refs. 5, 8, 9). CTC's use as a feedstock in the production of HCFCs, HFCs, and HFOs and the description of finalized requirements to address the unreasonable risk are described in Unit IV.B.

B. Regulatory Actions Pertaining to Carbon Tetrachloride

Because of its adverse health effects, CTC is subject to numerous Federal laws and regulations in the United States and is also subject to regulation by some states and other countries. A summary of EPA regulations pertaining to CTC, as well as other Federal, State, and international regulations, is provided in the docket (Refs. 1, 10).

As described in more detail in Unit II.C. of EPA's proposed rule (88 FR 49184, July 28, 2023) (FRL–8206–01–OCSPP) and the Response to Public Comments document (Ref. 11), EPA considered the adequacy of the current occupational safety and health standards from the OSHA (29 CFR part 1910) for protection of workers. EPA notes that the standards for chemical hazards that OSHA promulgates under the Occupational Safety and Health (OSH Act) share a broadly similar purpose with the worker protection-related regulations that EPA promulgates under TSCA section 6(a). The control measures OSHA and EPA require to satisfy the objectives of their respective statutes may also, in many circumstances, overlap or coincide. However, there are important differences between EPA's and OSHA's regulatory approaches and jurisdiction, and EPA considers these differences when deciding whether and how to account for OSHA requirements when evaluating and addressing potential unreasonable risk to workers so that compliance requirements are clearly explained to the regulated community. TSCA risk evaluations are subject to statutory science standards, an explicit requirement to consider risks to potentially exposed or susceptible subpopulations, and a prohibition on considering costs and other non-risk factors when determining whether a chemical presents an unreasonable risk that warrants regulatory actions—all requirements that do not apply to development of OSHA regulations. As such, EPA may find unreasonable risk for purposes of TSCA notwithstanding OSHA requirements. In addition, health standards issued under section 6(b)(5) of the OSH Act must reduce significant risk only to the extent that it is technologically and economically feasible. OSHA's legal requirement to demonstrate that its section 6(b)(5) standards are technologically and economically feasible at the time they are promulgated often precludes OSHA from imposing exposure control requirements sufficient to ensure that the chemical substance no longer presents a significant risk to workers. While it is possible in some cases that the OSHA standards for some chemicals reviewed under TSCA will eliminate unreasonable risk, based on EPA's experience thus far in conducting occupational risk assessments under TSCA, EPA believes that OSHA chemical standards would in general be unlikely to address unreasonable risk to workers within the meaning of TSCA, since TSCA section 6(b) unreasonable risk determinations may account for unreasonable risk to more sensitive endpoints and working populations than OSHA's risk evaluations typically contemplate and EPA is obligated to apply TSCA section 6(a) risk management requirements to the extent necessary so that the unreasonable risk is no longer presented. Because the requirements and application of TSCA and OSHA regulatory analyses differ, it is necessary for EPA to conduct risk evaluations and, where it finds unreasonable risk to workers, develop risk management requirements for chemical substances that OSHA also regulates, and it is expected that EPA's findings and requirements may sometimes diverge from OSHA's. Additional considerations of OSHA standards in the 2022 Revised Unreasonable Risk Determination for Carbon Tetrachloride are discussed further in the **Federal Register** of December 27, 2022 (87 FR 79303).

EPA intends for this regulation to be as consistent as possible with OSHA regulations for toxic and hazardous substances, with additional requirements as necessary to address the unreasonable risk. Consistent with TSCA section 9(d), EPA consults and coordinates TSCA activities with OSHA and other relevant Federal agencies for the purpose of achieving the maximum enforcement of TSCA while imposing the least burdens of duplicative requirements.

C. Summary of EPA's Risk Evaluation Activities on Carbon Tetrachloride

EPA published the scope of the CTC risk evaluation in July 2017 (82 FR 31592) (FRL–9963–57), and, after receiving public comments, published the problem formulation on June 11, 2018 (83 FR 26998) (FRL–9978–40). In January 2020, EPA published a draft risk evaluation (85 FR 4658, January 27, 2020) (FRL–10003–92), and, after public comment and peer review by the Science Advisory Committee on Chemicals (SACC), EPA issued the Risk Evaluation for Carbon Tetrachloride in November 2020 in accordance with TSCA section 6(b) (Ref. 1) (85 FR 70147, November 4, 2020) (FRL–10015–51). EPA subsequently issued a draft revised TSCA unreasonable risk determination for CTC (87 FR 52766, August 29, 2022) (FRL–9948–01–OCSPP), and, after public notice and receipt of comments, published a Revised Unreasonable Risk Determination for Carbon Tetrachloride in December 2022 (Ref. 3) (87 FR 79303, December 27, 2022) (FRL–9948–02–OCSPP). The 2020 Risk Evaluation for Carbon Tetrachloride and supplemental materials are in docket EPA–HQ–OPPT–2019–0499, and the December 2022 revised unreasonable risk determination and additional materials supporting the risk evaluation process in docket EPA–HQ–OPPT–2016–0733 available at *https://www.regulations.gov*.

1. 2020 Risk Evaluation

In the 2020 Risk Evaluation for Carbon Tetrachloride, EPA evaluated risks associated with 15 conditions of use within the following categories: manufacture (including import), processing, distribution in commerce, industrial and commercial use, and disposal (Ref. 1). The conditions of use are described in Unit III.B.1. of the

proposed rule (88 FR 49190) (FRL–8206–01–OCSPP) and in Unit IV. of this final rule. The 2020 Risk Evaluation for Carbon Tetrachloride identified significant adverse health effects associated with short-term and long-term exposure to CTC. A further discussion of the hazards of CTC is presented in Unit III.B.3 of the proposed rule (88 FR 49192) (FRL–8206–01–OCSPP) and in Unit V. of this final rule.

2. 2022 Revised Unreasonable Risk Determination

As described in more detail in the proposed rule, EPA revised the original unreasonable risk determination based on the 2020 Risk Evaluation for Carbon Tetrachloride and issued a final revised unreasonable risk determination in December 2022 (Ref. 3). EPA revised the risk determination for the 2020 Risk Evaluation for Carbon Tetrachloride pursuant to TSCA section 6(b) and consistent with Executive Order 13990 (titled "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis") and other Administration priorities (Refs. 12, 13, 14). The revisions consisted of making a single risk determination for the whole chemical substance instead of making the risk determination for each individual condition of use, which resulted in the revised risk determination superseding the prior "no unreasonable risk" determinations for specific conditions of use (Ref. 3), the withdrawal of the associated TSCA section 6(i)(1) "no unreasonable risk" order, and clarification that the risk determination does not reflect an assumption that all workers are always provided and appropriately wear personal protective equipment (PPE) (Ref. 3).

EPA determined that CTC presents an unreasonable risk of injury to health, and EPA did not identify risks of injury to the environment that contribute to the unreasonable risk determination for CTC. The CTC conditions of use that contribute to EPA's determination that the chemical substance poses unreasonable risk to health are listed in the unreasonable risk determination (Ref. 3) and also in Unit III.B.1. of the proposed rule, with descriptions to aid chemical manufacturers, processors, and users in determining how their particular use or activity would be addressed under the final regulatory action. The descriptions of the conditions of use subject to this final rule are in Unit IV.

The conditions of use that do not drive the unreasonable risk for CTC (distribution in commerce and processing as a reactant/intermediate in reactive ion etching) are also listed in the unreasonable risk determination (Ref. 3) and in Unit III.B.2. of the proposed rule. EPA's final rule includes prohibitions on the distribution in commerce of CTC for certain downstream uses, but does not include any restrictions for the processing as a reactant/intermediate in reactive ion etching.

3. Description of Unreasonable Risk

EPA has determined that CTC presents an unreasonable risk of injury to health under the conditions of use, based on cancer and acute and chronic toxicity for non-cancer effects. As described in more detail in the proposed rule, the TSCA section 6(b) 2020 Risk Evaluation for Carbon Tetrachloride, and the July 2022 errata memorandum correcting risk estimates for acute dermal exposures, EPA identified cancer and liver toxicity adverse effects from chronic inhalation and dermal exposures as well as liver toxicity from acute dermal exposures to CTC (Refs. 1, 2, 3). Cancer adverse effects (*e.g.*, liver, pheochromocytoma, neuroblastoma) were identified for chronic inhalation and dermal exposures. For chronic and acute non-cancer inhalation exposure to CTC, liver toxicity due to fatty change in the liver was indicative of cellular damage and selected as the most sensitive non-cancer endpoint. EPA identified additional risks associated with other adverse effects (*e.g.*, immediate and temporary depression of the central nervous system, kidney toxicity, reproductive and developmental toxicity, irritation and sensitization, and genetic toxicity) resulting from acute and chronic exposures (Ref. 1). By establishing protections from liver and adrenal cancer, EPA's final rule will also prevent the unreasonable risk from other less sensitive endpoints, including acute, chronic non-cancer, and additional cancer risks from CTC (Ref. 15).

EPA considered potentially exposed or susceptible subpopulations identified as relevant to the risk evaluation by the Agency, which are included in the quantitative and qualitative analyses described in the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1) and were considered in the determination of unreasonable risk for CTC.

4. Conditions of Use Subject to This Regulatory Action

As noted in Unit I.C., "Conditions of use" is defined in TSCA section 3(4). To assist with the implementation and compliance with the final rule, in Unit IV., EPA has provided a description of the conditions of use subject to the WCPP and to prescriptive controls, as well as those conditions of use prohibited by this final rule. The descriptions provided were obtained from EPA sources such as CDR codes, the 2020 Risk Evaluation for Carbon Tetrachloride and related documents, as well as the Organisation for Economic Co-operation and Development (OECD) harmonized use codes, and stakeholder engagements. EPA received public comments requesting minor clarifications of the descriptions for some industrial and commercial uses, and EPA has clarified those descriptions in Unit IV. A description of the minor changes can be found in the response to comments document (Ref. 11) and in Unit III.E.

For the purposes of this final rule, "occupational conditions of use" refers to the TSCA conditions of use described in Units IV.B.1., IV.C.1., and IV.D.1. of the final rule. Although EPA identified both industrial and commercial uses in the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1) for purposes of distinguishing exposure scenarios, the Agency clarified then and clarifies now that EPA interprets the authority Congress gave to the Agency to "regulat[e] any manner or method of commercial use" under TSCA section 6(a)(5) to reach both industrial and commercial uses.

EPA further notes that this rule does not apply to any substance excluded from the definition of "chemical substance" under TSCA section 3(2)(B)(ii) through (vi). Those exclusions include, but are not limited to, any pesticide (as defined by the Federal Insecticide, Fungicide, and Rodenticide Act) when manufactured, processed, or distributed in commerce for use as a pesticide; and any food, food additive, drug, cosmetic, or device, as defined in section 201 of the Federal Food, Drug, and Cosmetic Act, when manufactured, processed, or distributed in commerce for use as a food, food additive, drug, cosmetic or device.

D. EPA's Proposed Rule Under TSCA Section 6(a) for Carbon Tetrachloride

1. Description of TSCA Section 6(a) Requirements

Under TSCA section 6(a), if the Administrator determines through a TSCA section 6(b) risk evaluation that a chemical substance presents an unreasonable risk of injury to health or the environment, without consideration of costs or other nonrisk factors, including an unreasonable risk to potentially exposed or susceptible subpopulation identified as relevant to

the Agency's risk evaluation, under the conditions of use, EPA must by rule apply one or more of the TSCA section 6(a) requirements to the extent necessary so that the chemical substance or mixture no longer presents such risk.

The TSCA section 6(a) requirements can include one or more of the following actions alone or in combination:

- Prohibit or otherwise restrict the manufacturing (including import), processing, or distribution in commerce of the substance or mixture, or limit the amount of such substance or mixture which may be manufactured, processed, or distributed in commerce (TSCA section 6(a)(1)).
- Prohibit or otherwise restrict the manufacturing, processing, or distribution in commerce of the substance or mixture for a particular use or above a specific concentration for a particular use (TSCA section 6(a)(2)).
- Limit the amount of the substance or mixture which may be manufactured, processed, or distributed in commerce for a particular use or above a specific concentration for a particular use specified (TSCA section 6(a)(2)).
- Require clear and adequate minimum warnings and instructions with respect to the substance or mixture's use, distribution in commerce, or disposal, or any combination of those activities, to be marked on or accompanying the substance or mixture (TSCA section 6(a)(3)).
- Require manufacturers and processors of the substance or mixture to make and retain certain records, or conduct certain monitoring or testing (TSCA section 6(a)(4)).
- Prohibit or otherwise regulate any manner or method of commercial use of the substance or mixture (TSCA section 6(a)(5)).
- Prohibit or otherwise regulate any manner or method of disposal of the substance or mixture, or any article containing such substance or mixture, by its manufacturer or processor or by any person who uses or disposes of it for commercial purposes (TSCA section 6(a)(6)).
- Direct manufacturers or processors of the substance or mixture to give notice of the unreasonable risk determination to distributors, certain other persons, and the public, and to replace or repurchase the substance or mixture (TSCA section 6(a)(7)).

This unit summarizes the TSCA section 6 considerations for issuing regulations under TSCA section 6(a), and it is consistent with the considerations and analyses presented in the proposed rule to manage the unreasonable risk from CTC (88 FR 49180, July 28, 2023 (FRL–8206–01–OCSPP)).

As required, EPA developed a proposed regulatory action and an alternative regulatory action, which are described in Units IV.A. and IV.B., respectively, of the proposed rule (88 FR 49193 through 491205 (FRL–8206–01–OCSPP)). To identify and select a regulatory action, EPA considered the two routes of exposure driving the unreasonable risk, inhalation and dermal, and the exposed populations. For occupational conditions of use, EPA considered how it could directly regulate manufacturing (including import), processing, distribution in commerce, industrial and commercial use, or disposal to address the unreasonable risk.

As required by TSCA section 6(c)(2), EPA considered several factors, in addition to the identified unreasonable risk, when selecting among possible TSCA section 6(a) regulatory requirements for the proposed rule. EPA's considerations regarding TSCA section 6(c)(2) and section 6(c)(2)(A) for CTC are discussed in full in Unit VI. of the proposed rule (88 FR 49209) (FRL–8206–01–OCSPP), including the statement of effects with respect to these considerations. After review of the public comments received, EPA has revised its statement of effects considerations in Unit V. of this final rule.

Additionally, as described in more detail in EPA's proposed rule in Unit V.B. (88 FR 49209) (FRL–8206–01–OCSPP), EPA considered the availability of alternatives when finalizing a prohibition or a substantial restriction (TSCA section 6(c)(2)(C)), and in setting final compliance dates in accordance with the requirements in TSCA section 6(d)(1)(B)).

To the extent information was reasonably available, EPA considered pollution prevention strategies and the hierarchy of controls adopted by OSHA and the NIOSH when developing its proposed rule, with the goal of identifying risk management control methods that would be permanent, feasible, and effective. EPA also considered how to address the unreasonable risk while providing flexibility to the regulated community where appropriate, and EPA took into account the information presented in the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1), input from stakeholders, insight received during consultations, and anticipated compliance strategies from regulated entities.

Taken together, these considerations led EPA to the proposed regulatory action and alternative action described in Unit II.D.3. The proposed rule presents additional details related to how the requirements described in Unit II.D.1. of this document were incorporated into development of the proposed rule and primary alternative action.

2. Consultations and Other Engagement

a. Consultations

EPA conducted consultations and outreach as part of development of the July 28, 2023 proposed rule (88 FR 49180) (FRL–8206–01–OCSPP). The Agency held a federalism consultation from December 17, 2020, until February 17, 2021, as part of the rulemaking process and pursuant to Executive Order 13132 (Ref. 16).

EPA also consulted with Tribal officials (Ref. 17). The Agency held a Tribal consultation from December 7, 2020, through March 12, 2021, with meetings held on January 6 and 12, 2021 (Ref. 17). EPA received no written comments as part of this consultation.

EPA's Environmental Justice (EJ) consultation occurred from February 2, 2021, through April 2, 2021 (Ref. 18). On February 2 and 18, 2021, EPA held public meetings as part of this consultation. These meetings were held pursuant to Executive Orders 12898 and 14008. EPA received one written comment following the EJ meeting, in addition to oral comments provided during the consultation (Ref. 18).

More information regarding the consultations is presented in Units VIII.E., VIII.F. and VIII.J.

b. Other Stakeholder Consultations

In addition to the formal consultations described in Unit II.D.2.a., EPA held a webinar on December 10, 2020, providing an overview of the TSCA risk management processes and the risk evaluation findings for CTC (Ref. 19). EPA also presented on the TSCA risk management process and the findings in the 2020 Risk Evaluation for Carbon Tetrachloride at a Small Business Administration (SBA) Roundtable on December 4, 2020 (Ref. 20). Attendees of these meetings were given an opportunity to voice their concerns on both the risk evaluation and risk management.

Furthermore, during development of the proposed and final rule, EPA engaged in discussions with representatives from different industries, non-governmental organizations, organized labor, technical experts, and users of CTC, including a

webinar providing an overview of the proposed rule. A list of external meetings held during the development of the 2023 proposed and final rule is available in the docket (Ref. 21); meeting materials and summaries are also in the docket.

c. Children's Environmental Health

The Agency's 2021 Policy on Children's Health (Ref. 22) requires EPA to protect children from environmental exposures by consistently and explicitly considering early life exposures (from conception, infancy, early childhood and through adolescence until 21 years of age) and lifelong health in all human health decisions through identifying and integrating children's health data and information when conducting risk assessments. TSCA section 6(b)(4)(A) also requires EPA to conduct risk evaluations "to determine whether a chemical substance presents an unreasonable risk of injury to health or the environment . . . including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant to the risk evaluation by the Administrator, under the conditions of use." In addition, TSCA section 6(a) requires EPA to apply one or more risk management requirements under TSCA section 6(a) so that CTC no longer presents an unreasonable risk (which includes unreasonable risk to any relevant potentially exposed or susceptible subpopulation). Information on how the Policy was applied and on the health and risk assessments supporting this action is available under Units II.C. II.D. and V.A., as well as in Unit III.A.3. of the July 2023 proposed rule (88 FR 49184 through 49188, 49205 through 49208 and 49190) (FRL–8206–01–OCSPP), the 2020 Risk Evaluation for Carbon Tetrachloride, and the Economic Analysis for this rule (Refs. 1, 5).

3. Proposed Regulatory Action

EPA's proposed rule under TSCA section 6(a) to address the unreasonable risk presented by CTC under its conditions of use included the following:

- Requirements for strict workplace controls, including a CTC WCPP, which would include requirements to meet an inhalation exposure concentration limit and prevent direct dermal contact with CTC, for 9 occupational conditions of use;
- Requirements for prescriptive workplace controls for laboratory use; and
- Prohibition of certain processing, industrial, and commercial conditions of use and the manufacture, processing, and distribution for those uses.

The proposed rule included timeframes for implementation. The prohibitions EPA proposed would take effect six months after the date of publication of the final rule, except for the prohibition of the industrial and commercial use of CTC in specialty uses by the Department of Defense, which would take effect one year after the date of publication of the final rule. Likewise, for the WCPP, EPA proposed timeframes for phases of compliance, beginning with monitoring at six months and full implementation after 12 months, as described in Unit IV.A.1. of the proposed rule. EPA also proposed a compliance timeframe of six months for prescriptive controls for laboratory use.

Under TSCA section 6(c)(2)(A)(iv)(II) through (III), EPA is mandated to consider one or more alternative regulatory actions. The primary alternative regulatory action was included in the proposed rule in Unit IV.B. (88 FR 49204) (FRL–8206–01–OCSPP). Similar to the proposed regulatory action, the primary alternative regulatory action combined requirements for a WCPP and prescriptive controls to address the unreasonable risk from CTC under its conditions of use.

The primary alternative regulatory action included prescriptive workplace controls, specifically respirators and dermal PPE, for the conditions of use for which EPA had proposed a WCPP. The primary alternative action also included a WCPP for processing, industrial, and commercial uses of CTC that EPA had proposed to prohibit. At the time of proposal, EPA did not have reasonably available information indicating that any of the uses proposed for prohibition were ongoing. EPA requested comment on whether any of the uses the Agency proposed to prohibit are ongoing and if EPA should consider a WCPP for those conditions of use of CTC. For the industrial and commercial use of CTC as a laboratory chemical, the primary alternative regulatory action considered by EPA included the implementation of only the requirements of Direct Dermal Contact Controls (DDCC) of the WCPP in combination with the use of fume hoods in workplace laboratory settings and advanced engineering controls specifically for DoD's use of CTC as a laboratory chemical in chemical weapons destruction. The compliance timeframes for the controls as part of the primary alternative regulatory action were the same as the timeframes proposed.

For a comprehensive overview of the primary alternative regulatory action refer to Unit IV.B. of the proposed rule, with the rationale for the primary alternative regulatory action provided in Unit V.A.4. of the proposed rule (88 FR 49205 through 49208) (FRL–8206–01–OCSPP).

4. Public Comments Received

EPA requested comment on all aspects of the proposed rule. During the public comment period, EPA held a webinar on August 15, 2023, providing an overview of the proposed rule and TSCA section 6; during the webinar, members of the public had the opportunity to share their perspectives (Ref. 23). The comment period closed on September 11, 2023. EPA received 23 public comments, with a majority received from industry trade organizations. The public comments also include comments from chemical manufacturers, advocacy organizations, laboratory users, a union, an academic institution, members of the regulated community, and individual residents. A summary of the comments as well as EPA's responses is in the docket for this rulemaking (Ref. 11). Additionally, Unit III. contains summaries of public comments that informed EPA's regulatory approach in this final rule.

After the close of the public comment period for the proposed rule, stakeholders, including affected industry and interested groups, requested meetings with EPA. Topics of these meetings included exposure controls, process descriptions, monitoring data, and specific conditions of use. EPA received data as part of and following these stakeholder meetings and has made the information available to the public in the rulemaking docket (EPA–HQ–OPPT–2020–0592) (Ref. 21).

After review of the public comments received from the proposed rule, EPA revised certain preliminary considerations that impacted which conditions of use were proposed by EPA to be prohibited or that could continue under the WCPP or prescriptive controls (Ref. 11). Similarly, based on public comments received, EPA modified for this final rule several proposed compliance timeframes, with details in Unit III.

III. Changes From the Proposed Rule

Unit III. summarizes the main changes from the proposed rule to the final rule, based on the consideration of the public comments.

A. Changes to Requirements for Certain Conditions of Use

As described in Unit III.A.1., when compared to the proposed rule, EPA's final rule no longer prohibits two sub-

uses, under two separate conditions of use that were proposed for prohibition, and now allows them to continue under the WCPP. In addition, this final rule broadens the type of prescriptive controls required for one condition of use (Unit III.A.2.), as compared to the proposed rule. The rationale for these changes is described in this unit. EPA emphasizes that implementation of the WCPP or prescriptive controls can fully address the unreasonable risk from CTC for these conditions of use, and that these changes do not significantly impact the production volume of CTC expected to remain in commerce when compared to the proposed regulatory action. Taken together, EPA estimates that there are 10 facilities involved in the changes of the requirements to the conditions of use described in Units III.A.1. and 2., nine of which use CTC for the industrial and commercial use as a laboratory chemical. In addition, EPA understands that small quantities of CTC are used for the sub-uses that will continue under the WCPP instead of the proposed prohibition (Ref. 24). The two sub-uses which will continue under the WCPP account for approximately 0.4% to 1% of total production volume, based on a comparison of 2019 CDR data on CTC production volume (between 100 million and 250 million lbs.) and information reported to EPA regarding the two sub-uses (Ref. 5, Ref. 24).

1. Changes to the Prohibition of Certain Conditions of Use

EPA's primary alternative regulatory action described in the proposed rule considered regulating several conditions of use under the WCPP as an alternative to the proposed prohibition, including incorporation into formulation, mixtures, or reaction products in petrochemicals-derived manufacturing, and industrial and commercial use as an industrial processing aid in the manufacture of petrochemicals-derived products. In addition, EPA requested comment on whether the Agency should require a WCPP or prescriptive controls, including respirators and dermal PPE, for any of the conditions of use EPA proposed to prohibit.

EPA is finalizing a WCPP for incorporation into formulation, mixtures, or reaction products in vinyl chloride manufacturing and the industrial and commercial use as an industrial processing aid in the manufacture of vinyl chloride, as included in the primary alternative regulatory action of EPA's proposal under the broader categories of processing: incorporation into formulation, mixtures, or reaction products in petrochemical-derived manufacturing and industrial and commercial use as an industrial processing aid in the manufacture of petrochemical-derived products. EPA proposed to prohibit these sub-uses of CTC due to the lack of information indicating that these uses are ongoing, but requested comment on whether CTC is still used in these and other conditions of use EPA proposed to prohibit, and stated that if EPA received information indicating the continued use of CTC for these conditions of use, the Agency would consider regulating these uses rather than prohibiting them (88 FR at 49202 through 49203, 49205, and 49218). EPA received comments from one entity indicating that the incorporation of CTC into formulation, mixtures, or reaction products in vinyl chloride manufacturing and the industrial and commercial use of CTC as an industrial processing aid in the manufacture of vinyl chloride are ongoing (Ref. 24). The entity indicated that switching to an alternative chemical or process would require replacement of existing infrastructure and result in the temporary loss of revenue. The entity using CTC for these uses provided manufacturing data used in the 2020 Risk Evaluation for Carbon Tetrachloride, indicating that CTC is used by this entity in industrialized and standardized settings that can meet the requirements of the WCPP. Therefore, EPA understands that the entity is able to meet the WCPP requirements for processing: incorporation into formulation, mixtures, or reaction products in vinyl chloride manufacturing and the industrial and commercial use as an industrial processing aid in the manufacture of vinyl chloride as well. Furthermore, EPA understands as a general matter that these uses would occur in highly industrialized settings and controlled and closed processes, suggesting a WCPP could be successfully implemented such that risk of injury to health presented by CTC is no longer unreasonable. CTC was used in other petrochemical-derived manufacturing (other than vinyl chloride manufacturing); however, based on the reasonably available information, such uses of CTC do not appear to be ongoing. Therefore, EPA has concluded that industry has already found feasible alternatives to CTC for these uses, EPA is prohibiting processing: incorporation into formulation, mixtures, or reaction products in the remainder of petrochemical-derived manufacturing and the industrial and commercial use of CTC as a processing aid in the manufacture of remaining petrochemical-derived products, as proposed, to address the unreasonable risk contributed by these conditions of use.

2. Changes to Restrictions: Prescriptive Controls for Industrial and Commercial Use as a Laboratory Chemical

In general, EPA is finalizing the prescriptive control requirements for the industrial and commercial use of CTC as a laboratory chemical as proposed, with some modifications based on consideration of public comments. As described in the proposed rule, to address the unreasonable risk of injury to health resulting from dermal exposures to CTC for the industrial and commercial use as a laboratory chemical, EPA proposed to require dermal PPE in combination with comprehensive training for tasks related to the use of CTC in a laboratory setting for each potentially exposed person in direct dermal contact with CTC. EPA also proposed to require the use of fume hoods to codify the assumption of existing good laboratory practices that EPA relied upon as a key basis for its evaluation of risk from this condition of use (Ref. 1). EPA requested comment relative to the ability of owners and operators to implement laboratory chemical fume hood and dermal PPE related requirements within six months of publication of the final rule. Under the primary alternative regulatory action, EPA included DDCC for laboratory use and solicited comment on non-prescriptive requirements of DDCC as compared to the prescriptive workplace controls of dermal PPE.

EPA received several comments regarding the industrial and commercial use as a laboratory chemical. One commenter stated that the proposed regulation would result in confusion and duplication with the OSHA standard for occupational exposure to hazardous chemicals in laboratories under 29 CFR 1910.1450 that is already in effect (Ref. 25). A couple of commenters urged EPA to align its requirements for laboratory use of CTC more closely with the OSHA's laboratory standard to reduce compliance burden (Refs. 25, 26). Commenters also requested that EPA include flexibility for engineering controls beyond a fume hood for consistency with the OSHA lab standard, stating that, while fume hoods are considered best practice and commonly used to reduce exposure in laboratories, experiment designs utilizing CTC may not be able to be accommodated within a fume hood (Refs. 25, 27). Commenters described other alternative controls that can be

designed and implemented to reduce exposure, such as glove boxes, exhausted enclosures, ducted biosafety cabinets, and filtration devices.

Based on information provided by commenters related to exposure mitigation controls to comply with the OSHA laboratory standard and best management practices available to laboratories, EPA has determined that requiring laboratory ventilation devices such as fume hoods or glove boxes, would better align with the OSHA laboratory standard and existing good laboratory practices. As described in Unit V.A.2. the proposed rule (88 FR 49201, July 28, 2023) (FRL–8206–01–OCSPP), EPA proposed to require fume hoods in laboratory settings to codify assumptions made in the 2020 Risk Evaluation for CTC, where EPA's risk estimates and determination that inhalation exposures from the industrial and commercial use of CTC as a laboratory chemical did not contribute to the unreasonable risk were predicated on its findings that expected safety practices of using CTC in small amounts under a fume hood reduce the potential for inhalation exposures (Ref. 1). In addition to fume hoods, EPA has determined that other types of ventilation systems or containment devices, when used in compliance with the OSHA laboratory standard at 29 CFR 1910.1450(e)(3), may minimize inhalation exposures in a laboratory setting consistent with the qualitative assumption in the 2020 Risk Evaluation for CTC that the potential for inhalation exposure is low due to expected use of a fume hood. For the industrial and commercial use as a laboratory chemical, EPA concurs with the commenters that indicated EPA's requirements should align more closely with the OSHA laboratory standard wherever possible to prevent confusion. The requirement in this final rule that laboratory ventilation safety devices, such as fume hoods or glove boxes, are in use and functioning properly and that specific measures are taken to ensure proper and adequate performance of such equipment to minimize exposures to persons in the area when CTC is used in a laboratory setting aligns with existing requirements from the OSHA laboratory standard at 29 CFR 1910.1450(e)(3)(iii) while remaining consistent with the assumptions made in the 2020 Risk Evaluation.

As detailed in Unit IV.C. of this final rule, EPA is finalizing the requirements for dermal PPE in combination with comprehensive training for tasks related to the use of CTC in a laboratory setting as proposed. EPA believes these requirements align with OSHA's laboratory standard and OSHA's General Requirements for Personal Protective Equipment at 29 CFR 1910.132 to the extent possible while still addressing the unreasonable risk of injury to health resulting from dermal exposures to CTC identified for the industrial and commercial use as a laboratory chemical.

B. Changes to WCPP Timeframes

For the conditions of use for which EPA proposed the WCPP, EPA proposed several compliance timeframes, including the following requirements: that initial exposure monitoring be conducted within six months of publication of the final rule in the **Federal Register** (or within 30 days of introduction of CTC into the workplace if CTC use commences at least six months after the date of publication); that each owner or operator ensure that the exposure to CTC does not exceed the ECEL as an 8-hour TWA for all potentially exposed persons within nine months of publication of the final rule in the **Federal Register**; and that owners and operators implement an exposure control plan within 12 months of publication of the final rule in the **Federal Register**. EPA requested comment regarding the ability of owners or operators to comply with the various provisions of the WCPP, including initial exposure monitoring, within the compliance timelines included in the proposal, and anticipated timelines necessary for any procedural adjustments needed to comply with the establishment of a respiratory protection program and development of an exposure control plan. EPA also requested comment regarding the amount of time, if any, it would take the regulated community to develop a method to measure at or below the ECEL over an entire work shift and information on what levels of detection are possible over an entire work shift based on existing monitoring methods, justification for the timeframe of the specific steps needed to develop a more sensitive monitoring method, cost associated with a more sensitive monitoring method, and any additional detailed information related to establishing a monitoring program to reliably measure CTC at or below the ECEL.

Public comments highlighted challenges with the proposed timeframes and suggested longer timeframes for initial exposure monitoring. For example, one commenter stated that the proposed 6-month timeframe to conduct initial exposure monitoring may not be possible because CTC use may be infrequent and only occur annually or even less frequently, such as maintenance exercises (Ref. 28). Other commenters expressed concern that requirements to comply with a new exposure limit will stress industrial hygiene consultants and laboratories that analyze the samples, and urged EPA to ensure that there is adequate time for consultant firms and laboratories to establish sufficient capacity (Refs. 29, 30, 31). Several commenters stated that the proposed 6-month timeframe for initial monitoring would be untenable and suggested that the deadline be extended to 18 months (Refs. 29, 30, 32). One commenter stated that owners or operators should be given sufficient time to implement any new requirements which could involve substantial investments (Ref. 27). Two of the commenters reasoned that, particularly for CTC, at least 18 months is necessary to revalidate methods and determine whether revision to corporate exposure assessment strategy is necessary to address the new ECEL, including to address the specific implementation and technical feasibility challenges of measuring the CTC ECEL for both full shift and task measurements (Refs. 29, 30). One commenter indicated that they need to develop methods to achieve the detection limit for the proposed ECEL and ECEL action level, to procure professional services to implement the requirements, and most likely require laboratory analytical support (Ref. 33). Additionally, one commenter expressed concern that corporate and facility industrial hygiene resources as well as third party laboratories may also be conducting a reassessment and analysis for the methylene chloride and PCE rules recently promulgated under TSCA section 6(a), thereby requiring additional time for CTC (Ref. 29).

In consideration of public comments and the challenges of initiating the WCPP, even for facilities with industrial hygiene programs in place, and the difference in the occupational exposure limits between the OSHA permissible exposure limit (PEL) and the EPA ECEL and the challenges associated with monitoring to new, lower EPA exposure thresholds that may spur an increase in the need for monitoring or other exposure control assessment infrastructure, EPA has determined that a longer compliance deadline of 540 days is as soon as practicable to conduct initial monitoring for CTC, which likely would require regulated entities to contract new services or realign current industrial hygiene professionals towards WCPP compliance. Providing 540 days

for initial monitoring is intended to (1) prevent professional safety service sectors from being overwhelmed by new EPA requirements; (2) provide time to procure the necessary services while ensuring the preservation of safety quality, standards, and practices; and (3) provide sufficient time for a comprehensive exposure evaluation, increasing the likelihood of successful implementation of the WCPP. Following initial monitoring, EPA is finalizing the requirement that each owner or operator supply a respirator to each person who enters a regulated area within three months after the receipt of any exposure monitoring that indicates exposures exceeding the ECEL. Therefore, each owner or operator must ensure that the exposures to CTC do not exceed the ECEL as an 8-hour TWA for all potentially exposed persons, including by providing respiratory protection, no later than 630 days after December 18, 2024. Given the full WCPP requirements (including the exposure control plan) are required after owners or operators are required to ensure that no person is exposed to an airborne concentration that exceeds the TWA ECEL, EPA acknowledges that compliance with the ECEL may include temporary PPE use (*e.g.*, respiratory protection) until comprehensive engineering and administrative controls are fully implemented. As described in the proposed rule, EPA believes that three months after receipt of exposure monitoring results is as soon as practicable, while also providing a reasonable transition period for entities to evaluate exposure monitoring results, acquire the correct respiratory protection, and establish the PPE program, including training, fit-testing, and medical evaluation.

EPA also received public comment regarding the compliance timeframe for full implementation of the WCPP, including detailing the evaluation steps that would be required to assess a facility and develop, document, and implement an exposure control plan. To allow time for orderly transitions and training to comply with an ECEL (0.03 ppm (8-hr TWA)) that is significantly lower than the OSHA PEL of 10 ppm (8-hr TWA) and the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV) of 5 ppm (8-hr TWA) for CTC, two commenters suggested that EPA adopt a graduated implementation approach for ECEL implementation by first requiring entities that already meet the OSHA PEL to comply with the ACGIH TLV within two years from the effective date of the final rule and then permitting those facilities meeting the ACGIH standard three years to transition to the ECEL (Refs. 34, 35). Two commenters expressed concern that the proposed timeframes would be insufficient for owners or operators to document their efforts to implement the hierarchy of controls as required under the WCPP, and recommended that the time required to develop the exposure control plan be extended to two years from completion of initial monitoring, for a total of 24 to 36 months from the effective date of the final rule, to provide adequate time for entities to evaluate and implement appropriate compliance approaches that provide flexibility and are the most effective for protecting workers (Refs. 29, 30).

Based on comments, outreach, reasonably available information, and existing OSHA standards, EPA maintains that the majority of the exposure reduction and worker safety infrastructure needed for compliance is currently in place, but recognizes the fundamental challenge of building a new exposure control strategy around the new, lower EPA exposure limit. Additionally, based on consideration of public comment and given that OSHA has not promulgated a detailed standard specific to CTC, EPA has determined that a longer compliance timeframe of 1080 days for development and implementation of an exposure control plan is as soon as practicable to ensure that the regulated community has adequate time to evaluate monitoring data, assess and develop an exposure strategy, procure appropriate control technology and PPE, and implement the required chemical safety program for CTC.

Therefore, EPA is finalizing the compliance timeframes for the WCPP provisions as follows: (1) The requirements for each owner or operator to conduct initial baseline monitoring must be met within 540 days after December 18, 2024, or within 30 days of introduction of CTC into the workplace, whichever is later; (2) the requirements for each owner or operator to ensure that exposure to CTC does not exceed the ECEL as an 8-hour TWA for all potentially exposed persons, including by providing respiratory protection to all potentially exposed persons in the regulated area must be met within 630 days after December 18, 2024, or within three months after receipt of the results of any exposure monitoring that indicates exposures exceeding the ECEL; and (3) the requirements for development and implementation of an exposure control plan must be met within 1,080 days after December 18, 2024. For greater clarity in this final rule, EPA is also finalizing with slight modification the requirement that owners and operators institute a training and information program for potentially exposed persons and assure their participation in the training and information program, and that this requirement be met within 630 days after December 18, 2024 (see Unit IV.B.7.a.).

EPA understands that certain departments and agencies of the Federal government, as well as Federal contractors acting for or on behalf of the Federal government, need additional time to comply with these timeframes. For example, complying with these timeframes could impact the ability of the Department of Energy (DOE) to perform sampling and groundwater treatment at contaminated plumes and wastewater treatment facilities. While, for example, 29 CFR part 1960 sets forth procedures and guidelines for ensuring that Federal workers are protected in comparable ways to their non-Federal counterparts, EPA believes that compliance with this final rule will require increased and different preparations on the part of Federal agencies. For example, Federal agencies must follow procurement requirements, which will likely result in increased compliance timelines. In addition, these requirements will require support in the Federal budget, which, for some agencies, is a multi-year process. Therefore, EPA is providing additional time for agencies of the Federal government and their contractors, when acting for or on behalf of the Federal government, to comply with the WCPP provisions as follows: (1) The requirements for each owner or operator to conduct initial baseline monitoring must be met within 915 days after December 18, 2024, or within 30 days of introduction of CTC into the workplace, whichever is later; (2) the requirements for each owner or operator to ensure that exposure to CTC does not exceed the ECEL as an 8-hour TWA for all potentially exposed persons, including by providing respiratory protection to all potentially exposed persons in the regulated area, must be met within 1,005 days after December 18, 2024, or within three months after receipt of the results of any exposure monitoring that indicates exposures exceeding the ECEL; (3) the requirements for each owner or operator to ensure all persons are separated, distanced, physically removed, or isolated from direct dermal contact with CTC, including by providing dermal PPE, must be met within 1,005 days after December 18, 2024; (4) the requirements for

development and implementation of an exposure control plan must be met within 1,080 days after December 18, 2024; and (5) the requirement that owners or operators of workplaces subject to the WCPP institute a training and information program for potentially exposed persons and assure their participation in the training and information program within 1,005 days after the date of publication of the final rule in the Federal Register (*i.e.*, no later than September 20, 2027).

C. Changes to WCPP Requirements

1. Exposure Monitoring Requirements

As part of the WCPP, EPA proposed to require owners or operators meet certain documentation requirements for each monitoring event of CTC, including compliance with the Good Laboratory Practice (GLP) Standards in accordance with 40 CFR part 792.

Numerous commenters expressed concern regarding the requirement that the WCPP include compliance with the GLP Standards (Refs. 28, 29, 30, 31, 35, 36). Commenters stated that it is atypical, for industrial hygiene purposes, to use this standard for air sampling of CTC (Refs. 29, 30, 31). According to the commenters, it is common practice within the industrial hygiene community to have analyses performed by American Industrial Hygiene Association (AIHA) accredited labs (Ref. 29). One commenter added that collection of occupational monitoring samples need not be conducted under the GLP Standards where planning and collection is overseen by a Certified Industrial Hygienist or Environmental Professional as defined at 40 CFR 312.10 (Refs. 30, 31). Commenters also suggested applying the policy described in typical TSCA section 5(e) orders that establish a New Chemical Exposure Limit (NCEL) under the TSCA New Chemicals Program, which states that compliance with GLP Standards is not required where exposure monitoring samples are analyzed by a laboratory accredited by either: (A) the AIHA Industrial Hygiene Laboratory Accreditation Program; or (B) another comparable program approved in advance in writing by EPA (Refs. 29, 30, 31). Another commenter reasoned that GLP Standards were not intended for air monitoring in a workplace when compliance with such standards would mean that real-time assessments could not be made, as air samples would need to be processed and analyzed in a laboratory (Ref. 28).

EPA agrees with the commenter that the WCPP is incompletely served by solely relying on the GLP Standards initially put forth in the July 29, 2023 proposed rule (88 FR 49180) (FRL–8206–01–OCSPP). Given the concern from commenters regarding potential increases in demand for professional safety services and sampling laboratories having a negative impact due to anticipated industry strain and sampling limitations (Refs. 29, 30, 31), EPA has broadened the scope of laboratory accreditation accordingly. EPA has considered this laboratory capacity issue, in addition to other revisions for finalization in this rule, so that the additional infrastructure is in place for the regulated community to successfully implement the WCPP. For the final rule, EPA is requiring that exposure samples be analyzed using an appropriate analytical method, and related records retained, by a laboratory that complies with the GLP Standards in 40 CFR part 792 or that otherwise maintains a relevant third-party laboratory accreditation (*e.g.*, under the AIHA Laboratory Accreditation Programs, LLC Policy Module 2A/B/E of Revision 17.3), or other analogous industry-recognized programs.

Another commenter stated that EPA's proposal did not make clear that "personal breathing zone" air samples to monitor exposures are to be taken without regard to respirator use. The commenter noted that OSHA requires exposure monitoring to be conducted without regard to respirator use (citing as an example OSHA's definition of "employee exposure" at 29 CFR 1910.1052(b)) and asserted that this important element of OSHA's monitoring program was omitted from EPA's proposal (Ref. 37). EPA agrees with the commenter that exposure monitoring should be conducted without regard to respiratory protection to inform engineering control options and respiratory protection considerations. Therefore, EPA is finalizing this rule to explicitly state that air sampling is required to measure ambient concentrations for CTC without taking respiratory protections into account when being performed. This will ensure the appropriate degree of protection to potentially exposed persons by logging accurate ambient air concentrations of CTC, thus empowering owners or operators to appropriately consider the hierarchy of controls.

Additionally, as part of the WCPP, EPA proposed to require owners and operators to re-monitor within 15 working days after receipt of any exposure monitoring when results indicated non-detect, unless an Environmental Professional as defined at 40 CFR 312.10 or a Certified Industrial Hygienist reviews the monitoring results and determines re-monitoring is not necessary. EPA received several comments disagreeing with the proposed requirement to review non-detect air monitoring samples. The commenters stated that facilities use accredited labs to perform industrial hygiene sampling analysis, the results are reviewed by industrial hygiene professionals, and it is an unnecessary step that adds no value to reduce risk to workers (Refs. 29, 30, 31).

EPA disagrees with commenters that expressed the opinion that re-evaluating a non-detect result adds no value and is inappropriate. While in some cases a non-detect result may accurately indicate that the chemical is not present and that air concentrations are below the ECEL action level, in other cases it may not necessarily imply negligible occupational exposure to the chemical. For example, interference from another chemical during sampling may result in an incorrect result of non-detect. This interference may not be recognized at the time of sampling or analysis. Owners and/or operators also may not be using sampling techniques or analytical procedures that are effective or appropriate for the particular chemical of interest. In each of these cases, non-detect results, along with supporting documentation about the sampling and analytical methods used to get those results, is a meaningful part of the potentially exposed person's exposure record required under the WCPP. The WCPP in the proposed rule and in this final rule does not require re-monitoring in all cases. Re-monitoring may be necessary based on a professional evaluation by an Environmental Professional as defined at 40 CFR 312.10 or a Certified Industrial Hygienist. This flexibility allows owners or operators options in terms of revisiting occupational sampling in the event of a non-detect result, or evaluation by a qualified professional.

EPA determined that a non-detect sampling result when effective sampling and analysis procedures are used is valuable to an owner/operator in that it suggests effective implementation of exposure controls. Potentially exposed persons may also use these records in discussions with owner/operators, in collective bargaining situations, or in compliance assistance inquiries to EPA or other federal agencies. Exposure monitoring results may also improve overall workplace health and reducing owner/operator liability in the effective detection, treatment, and prevention of occupational disease or illness. All of the above scenarios are valuable for

owner/operators, potentially exposed persons, and for effective mitigation of occupational exposures. In consideration of these factors, EPA has removed the air monitoring equipment malfunction from the monitoring activities that do not require resampling based on professional evaluation by an Environmental Professional or Certified Industrial Hygienist. While professional discretion may be warranted in determining whether re-monitoring is needed following results that indicate non-detect, EPA has determined this is not appropriate in the event of air monitoring equipment malfunction. This is due to the importance of air monitoring in ensuring that the requirements of the WCPP are met, and the importance of the WCPP in reducing risks from exposures to CTC in the workplace. Monitoring results from malfunctioning air monitoring equipment are not valid monitoring and therefore not sufficient to meet the monitoring requirements under the WCPP.

EPA may consider developing additional guidance regarding occupational monitoring in the future. Therefore, EPA is finalizing the requirement to re-monitor within 15 working days after receipt of any exposure monitoring if results indicated non-detect unless an Environmental Professional as defined at 40 CFR 312.10 or a Certified Industrial Hygienist reviews the monitoring results and determines re-monitoring is not necessary. EPA has updated the recordkeeping requirements associated with the WCPP exposures records required under 40 CFR 751.713(h)(1) to require documentation of the determination by the Environmental Professional as defined at 40 CFR 312.10 or a Certified Industrial Hygienist to be maintained as a record. Occupational monitoring (and associated recordkeeping) is an area that EPA may develop guidance as part of final rule implementation efforts.

2. Designated Representative

EPA proposed to require owners and operators to provide potentially exposed persons regular access to the exposure control plan, exposure monitoring records, and PPE program implementation plan (documenting proper application, wear, and removal of PPE). EPA requested comment on how owners and operators could engage with potentially exposed persons on the development and implementation of an exposure control plan and PPE program. One commenter stated that employees should be engaged in the development and implementation of the exposure control plan and that the engagement is best performed during the PPE and respirator training (Ref. 27). Another commenter urged EPA to require that owners and operators consult with workers and their designated representatives in developing and implementing their plans (Ref. 37).

EPA received public comment on the role of designated representatives in the WCPP. One commenter, a group of labor unions, urged EPA to incorporate requirements similar to OSHA's access standard at 29 CFR 1910.1020 (entitled, "Access to employee exposure and medical records") in EPA's proposed recordkeeping requirements for the WCPP to ensure that exposure information is promptly and fully shared with both potentially exposed persons and their designated representatives (Ref. 37). The commenter also suggested that EPA include a requirement that employers provide employees or their designated representatives an opportunity to observe monitoring events. The commenter observed that workers and their designated representatives have a critical role to play in ensuring effective control of toxic substances and further noted that, often, unions are the organizations with expertise in understanding occupational exposure information.

Following review of the comments received, EPA recognizes the importance of having the ability for potentially exposed persons and their designated representative(s), such as labor union representatives, to observe exposure monitoring and have prompt access to exposure records. EPA additionally recognizes that, in some instances, individual workers may be hesitant to ask owners or operators for information relating to their chemical exposure or may be less familiar with discipline-specific industrial hygiene practices. EPA determined that it is appropriate in this final rule to establish requirements regarding designated representatives, consistent with existing OSHA precedent in certain 29 CFR part 1910, subpart Z regulations, to allow designated representatives the ability to observe occupational exposure monitoring and have access to exposure monitoring records. In EPA's final rule, the WCPP includes a requirement that owners and operators provide potentially exposed persons or their designated representatives an opportunity to observe any exposure monitoring that is designed to characterize their exposures and is conducted under the WCPP. EPA is also finalizing a requirement that designated representatives have access to relevant exposure records, similar to provisions in certain OSHA regulations under 29 CFR part 1910, subpart Z, such as 29 CFR 1910.1200 and 29 CFR 1910.1020. EPA is requiring owners and operators to notify potentially exposed persons and their designated representatives of the availability of the exposure control plan and associated records of exposure monitoring and PPE program implementation within 30 days of the date that the exposure control plan is completed and at least annually thereafter. EPA is also requiring, consistent with the proposed requirement for notification of exposure monitoring results, that the notice of the availability of the exposure control plan and associated records be provided in plain language writing to each potentially exposed person in a language that the person understands or posted in an appropriate and accessible location outside the regulated area with an English-language version and a non-English language version representing the language of the largest group of workers who do not read English. While EPA encourages owners or operators to consult with persons that have potential for exposure and their designated representatives on the development and implementation of the exposure control plan, EPA has determined that it is not necessary to include this as a requirement in the final rule, consistent with OSHA, because the involvement of designated representatives in the observation of occupational monitoring and the potential to access exposure records being finalized in this rule provide a productive forum for communicating with owner/operators about the exposure control plan. EPA believes that the notification of the exposure control plan and associated records may help facilitate participation from potentially exposed persons and their designated representatives in the implementation and further development of that plan.

EPA's final rule to address the unreasonable risk of PCE under TSCA section 6(a) (RIN 2070–AK84) established the definition of "designated representative" intended to apply to all TSCA section 6(a) requirements under 40 CFR part 751 at § 751.5. A recognized or certified collective bargaining agent must be treated automatically as a designated representative without regard to written authorization. Additionally, with respect to Federal Government employees, EPA, like OSHA at 29 CFR 1960.2(c), will interpret these designated representative requirements consistent with the Federal Service Labor Management

Relations Statute (5 U.S.C. 7101 *et seq.*), or collective bargaining or other labor-management arrangements that cover the affected employees.

Should a request be initiated for such records by the potentially exposed person or their designated representative(s), the owner or operator will be required to provide the specified records at a reasonable time, place, and manner, analogous to provisions outlined in OSHA's 29 CFR 1910.1020(e)(1)(i). If the owner or operator is unable to provide the requested records within 15 working days, the owner or operator must, within those 15 days, inform the potentially exposed person or designated representative(s) requesting the record of the reason for the delay and the earliest date when the record will be made available. Additionally, in the event that a designated representative is observing exposure monitoring, the owner or operator must ensure that designated representatives are provided with PPE appropriate for the observation of monitoring. Finally, this rule requires owners or operators to provide notice to potentially exposed persons and their designated representatives of exposure monitoring results and of the availability of the exposure control plan and associated records. For purposes of this requirement, the owner or operator is only required to provide notice to those designated representatives that the owner or operator is aware of, such as representatives designated in writing or a recognized collective bargaining agent for the owner or operator's own employees.

3. Other Changes to the WCPP

EPA proposed various requirements under the WCPP for owners or operators to provide PPE, including respiratory protection and dermal protection, to potentially exposed persons and to establish a PPE program. For greater clarity in this final rule, EPA has revised the PPE requirements with respect to the cross-references to the relevant OSHA regulations. While the language appears different than the requirements included in the proposed rule, it remains EPA's intention that owners and operators implement PPE programs that are consistent with OSHA requirements. The PPE requirements as part of the WCPP in this final rule are described in Unit IV.B.6.

D. CTC Unintentionally Present in Trace Quantities in Other Chemical Substances

Several public comments on the proposed rule urged EPA to establish an explicit "de minimis" weight fraction threshold or add an exemption for impurities or other contaminants from the rule's requirements for small levels of CTC present in other chemical substances or mixtures (Refs. 26, 28, 29, 30, 31, 35, 38, 39). Two commenters raised concerns that absent such exemption, the proposed prohibition on industrial and commercial use of CTC as an industrial processing aid in the manufacture of petrochemicals-derived products would inadvertently prohibit the industrial and commercial use of PCE as a processing aid in catalyst regeneration in petrochemical manufacturing, which EPA is regulating under a WCPP in a separate TSCA section 6(a) rulemaking for PCE, because PCE contains trace amounts of CTC as an impurity or other contaminant (Refs. 26, 38). Two other commenters who supported a de minimis exclusion for impurities noted that prohibiting impurities in downstream products or CTC impurities in feedstocks could severely hamper numerous value chains and stated that establishing a de minimis weight fraction threshold of 0.1% by weight for the CTC restrictions would align with existing requirements under OSHA's Hazard Communication Standard (Refs. 30, 31). One of these commenters stated that a member company imports a product containing a very small amount of CTC as an impurity, then sells the sealed container for rubber processing; this commenter urged EPA to expressly exempt from the WCPP requirement these zero exposure and de minimis scenarios (Ref. 31). Another commenter stated that a member uses some raw materials that contain CTC, primarily chlorinated rubbers and methylene chloride, in the manufacturing of adhesives and coatings, and was concerned that this use would fall under the proposed prohibitions (Ref. 39). Another commenter asserted that any formulated products that contain de minimis concentrations of CTC (*i.e.*, concentrations less than 0.1% by weight) would not pose a risk and should not be covered by the rule (Ref. 29). Two other commenters recommended that EPA include both a de minimis exemption for materials in which CTC may appear at de minimis levels of less than 0.1% by weight, and an exemption for CTC present in a formulation, in an intermediate, or in an end product as an impurity or byproduct, including when present as an unintentional byproduct or impurity in an imported product (Refs. 26, 35). One commenter suggested that EPA implement a de minimis weight fraction threshold of 0.5% (Ref. 39).

In the final rule, EPA has excluded from the rule's requirements CTC that is solely present unintentionally in trace quantities with another chemical substance or mixture. This exclusion is intended to cover circumstances in which another chemical substance or mixture unintentionally contains trace quantities of CTC that may be present as a manufacturing residue, unreacted feedstock, byproduct, or other contaminant. The Agency determined that this exclusion was appropriate because the conditions of use of CTC that were evaluated in the 2020 Risk Evaluation for Carbon Tetrachloride and determined to contribute to the unreasonable risk presented by CTC did not include scenarios in which trace amounts of CTC is unintentionally present in other chemical substances or mixtures. To the contrary, Section 1.4.2.3 of the Risk Evaluation stated that there were conditions of use that EPA concluded in the 2018 Problem Formulation of the Risk Evaluation for Carbon Tetrachloride would present only de minimis exposures or otherwise insignificant risks from trace amounts of CTC and did not warrant inclusion in the risk evaluation. This conclusion was related specifically to industrial/commercial/consumer uses of CTC in adhesives/sealants, paints/coatings, and cleaning/degreasing solvent products. EPA reserves the right to assess and address potential environmental and health risks of trace quantities of CTC under different authorities such as CAA Title I and VI. The 2020 Risk Evaluation for Carbon Tetrachloride explained that while CTC's use as a process agent in the manufacturing of other chlorinated compounds may result in trace levels of CTC as a manufacturing residue in the chlorinated substances used to manufacture downstream products, those trace amounts are expected to volatilize during the product manufacturing process, such that EPA expected insignificant or unmeasurable concentrations of CTC in the chlorinated substances in commercially available adhesive/sealant, paint/coating, and cleaning/degreasing products. The final rule's exclusion for CTC unintentionally present in trace quantities with another chemical substance or mixture is consistent with this earlier exclusion from the scope of the Risk Evaluation for Carbon Tetrachloride. Any product with CTC concentrations above trace quantities that falls within a condition of use regulated under this rule will be subject to the relevant rule provisions (*e.g.*,

WCPP, prescriptive controls, or prohibition), as appropriate based on the condition of use of CTC.

In addition, any potential occupational risk from the presence of trace quantities of CTC in PCE is expected to be eliminated by the recently promulgated final risk management rule for PCE under TSCA section 6(a) (to be codified at 40 CFR part 751, subpart G). The occupational and consumer protections from exposures to PCE under that final rule, which address the unreasonable risk of injury to health presented by PCE under its conditions of use, would also have the effect of reducing the risk from exposures to trace amounts of CTC that may be present in PCE. For example, the final rule requires a workplace chemical protection program with both an Existing Chemical Exposure Limit of 0.14 ppm of PCE as an 8-hr TWA and direct dermal contact control requirements for the industrial/commercial use of PCE as a processing aid in catalyst regeneration in petrochemical manufacturing. Any engineering controls or PPE used to reduce occupational exposures to PCE for the use as a processing aid in catalyst regeneration in petrochemical manufacturing are expected to reduce workplace exposures to CTC. The limitations on inhalation and dermal exposures to PCE to prevent unreasonable risk of injury to health from that chemical substance are also expected to limit any potential exposure to trace quantities of CTC that may be unintentionally present in the PCE, reducing the risk of injury to health from the CTC, so that that condition of use does not contribute to the unreasonable risk of CTC.

At this time, EPA is not establishing a specific weight fraction or other numerical threshold value for the trace quantities exclusion in the CTC final rule, consistent with existing exclusions of trace quantities of remaining substances from the definitions of "controlled substance" and "transform" under 40 CFR 82.3. Instead, the exclusion is based on the plain meaning of the term, "trace quantities." If the CTC is intentionally retained in the chemical substance or mixture of which it is a part and provides a desired purpose, then it is not "present unintentionally in trace quantities" and would not be excluded from the rule's requirements.

E. Other Changes

EPA has revised its proposed description of industrial and commercial use of CTC as a laboratory chemical to provide additional clarity as suggested by a commenter (Ref. 33). The revised description for industrial and commercial use as a laboratory chemical appears in Unit IV.C.1. In addition, EPA has slightly modified the industrial and commercial use descriptions in 40 CFR 751.705(b)(1)(ii)(B), 751.707(a)(8), and 751.711(c) to clarify that the industrial and commercial use of CTC in the recovery of chlorine in tail gas from the production of chlorine falls under the WCPP rather than the prohibition on industrial and commercial use in the manufacture of other basic chemicals (including manufacturing of chlorinated compounds used in solvents, adhesives, asphalt, and paints and coatings). In the proposed rule, EPA had intended this use of CTC to be captured with the description of "industrial and commercial use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda," but EPA agrees with two public commenters that it would be clearer to specifically list use of CTC in the recovery of chlorine in tail gas from the production of chlorine in the regulatory text (Refs. 29, 30).

EPA has revised its proposed description of disposal. Based on coordination across Federal programs, for the disposal COU, EPA has determined it is appropriate that owners and operators of cleanup sites where potentially exposed persons are involved in the disposal of CTC-containing wastewater for the purposes of cleanup projects of CTC-contaminated water and groundwater, including industrial pre-treatment and industrial treatment activities, must ensure that potentially exposed persons involved with the activity of removing the groundwater from the location where it was found and treating the removed groundwater on site comply with the WCPP. At cleanup sites, the WCPP, including the ECEL, would apply to any potentially exposed person involved in the disposal of CTC-containing groundwater, which most likely includes a worker who is involved with the activity of removing CTC- containing groundwater from the location where it was found and the on-site treatment of the groundwater, typically referred to as *ex situ* remediation, which is most consistent with the scope of the 2020 CTC Risk Evaluation. *Ex situ* remediation includes both active and passive remediation methods that span traditional (*e.g.*, pump and treat) and less traditional (*e.g.*, phytoremediation) approaches, but only if the remediation method would be considered industrial wastewater pretreatment, industrial wastewater treatment or discharge to a publicly owned treatment work (POTW). EPA generally considers workers in and around those locations to be potentially exposed persons as that term is defined in 40 CFR 751.5. For example, EPA's requirements would apply to protect workers conducting remediation through pump and treat systems or workers sampling groundwater in conjunction with groundwater extraction or treatment (*e.g.*, remediation or cleanup) activities. EPA considers only those treatment activities that are performed at the cleanup site on CTC-contaminated wastewater that has been removed from the subsurface, surface water impoundments, or aquifers and that are recognized as industrial treatment, industrial pretreatment, or discharge to a POTW to be covered under the provisions described in Unit IV.B. The provisions of the WCPP for the disposal COU, including the ECEL, are not intended to cover potentially exposed persons who are sampling groundwater to monitor the presence of a plume, but specifically only those sampling at the site of extraction and treatment activities. EPA emphasizes that this standard is only for cleanup sites involved in the active or passive *ex situ* treatment (or disposal) of CTC contaminated groundwater and wastewater from cleanup sites and that no other remedial actions at cleanup sites will be covered or affected. Additionally, while EPA considers solid wastes as part of the waste streams included in the disposal COU, at groundwater remediation sites managed by the Federal government and under existing waste disposal requirements, the WCPP requirements under this rulemaking only apply to water contaminated with CTC, and any other type of CTC-impacted waste will be managed according to relevant existing requirements under RCRA, other statutes, and regulatory agreements.

Additionally, it is not necessary to establish previously proposed Subpart A definitions for "authorized person," "owner or operator," "potentially exposed person," and "regulated area" in this final rule because EPA already established definitions for these terms at 40 CFR 751.5 in the TSCA section 6 final rule for methylene chloride (RIN 2070–AK70) (89 FR 39254, May 8, 2024 (FRL–8155–01–OCSPP)) so that these definitions may be commonly applied to this and other rules under TSCA section 6 that would be codified under 40 CFR part 751. Similarly, it is not necessary to establish previously proposed Subpart A definitions for "direct dermal

contact," "exposure group," and "ECEL" in this final rule because EPA already established definitions for these terms at 40 CFR 751.5 in the TSCA section 6 final rule for PCE (RIN 2070–AK84).

EPA proposed to require that the notification to companies to whom CTC is shipped under 40 CFR 751.111(c) identify the uses for which CTC is allowed to be distributed in commerce. To provide greater clarity to downstream users of CTC regarding the provisions of this rule, EPA is modifying the notification to identify the uses prohibited under this regulation.

EPA also made other minor edits to the preamble and regulatory text to provide more clarity to the requirements of the final rule.

IV. Provisions of the Final Rule

EPA intends that each provision of this rulemaking be severable. In the event of litigation staying, remanding, or invalidating EPA's risk management approach for one or more conditions of use in this rule, EPA intends to preserve the risk management approaches in the rule for all other conditions of use to the fullest extent possible. The Agency evaluated the risk management options in TSCA section 6(a)(1) through (7) for each condition of use and generally EPA's regulation of one condition of use to address its contribution to the unreasonable risk from CTC functions independently from EPA's regulation of other conditions of use, which may have different characteristics leading to EPA's risk management decisions. Further, the Agency crafted this rule so that different risk management approaches are reflected in different provisions or elements of the rule that are capable of operating independently. Accordingly, the Agency has organized the rule so that if any provision or element of this rule is determined by judicial review or operation of law to be invalid, that partial invalidation will not render the remainder of this rule invalid.

There are many permutations of the above. For example, as discussed in Unit IV.D., this final rule prohibits both the industrial and commercial use of CTC in metal recovery, and the industrial and commercial use of CTC as a processing aid in the manufacture of petrochemical-derived products except in the manufacture of vinyl chloride (for which EPA is requiring a WCPP as described in Unit III.A.). To the extent that a court were to find that EPA lacked substantial evidence to support the prohibition of CTC as a processing aid in the manufacture of petrochemical-derived products or otherwise found legal issues with EPA's approach to that condition of use, it would have no bearing on other similarly situated conditions of use, such as the industrial and commercial use in metal recovery, unless the specific issue also applies to the particular facts associated with metal recovery. This is reflected in the structure of the rule, which describes the prohibited conditions of use separately under 40 CFR 751.705.

As another example, for the processing of CTC as a reactant in the production of HCFCs, HFCs, HFOs, and PCE and the industrial and commercial use of CTC as a laboratory chemical, EPA took different risk management approaches—application of the WCPP for the processing of CTC as a reactant in the production of HCFCs, HFCs, HFOs, and PCE and specific prescriptive controls for use as a laboratory chemical. To the extent that a court were to find a legal issue with EPA's approach to the WCPP, impacting the processing of CTC as a reactant in the production of HCFCs, HFCs, HFOs, and PCE, it would have no bearing on EPA's decision to require specific prescriptive controls for industrial and commercial use as a laboratory chemical, and vice versa. This is reflected in the structure of the rule, which organizes the WCPP and prescriptive controls into different sections of the regulation.

EPA also intends all TSCA section 6(a) risk management requirements in this rule to be severable from each regulatory exclusion from those requirements. For example, to the extent a court were to find a legal issue with excluding trace quantities of CTC from the rule's requirements pursuant to 40 CFR 751.701(b), or with excluding manufacture of CTC as a byproduct from WCPP requirements pursuant to 40 CFR 751.707(a)(1), the underlying risk management requirements would not be impacted. Rather, the excluded activities would become subject to the underlying TSCA section 6(a) risk management requirements applicable to the condition of use. EPA further notes that the specific examples of severability described in this unit are not intended to be exhaustive, but rather illustrative of a wide variety of scenarios that reflect EPA's overarching intent that each provision of this rulemaking be severable.

EPA acknowledges that after the issuance of this rule, a person or entity may become aware of important information which indicates a particular use, that would otherwise be prohibited, is ongoing, and could meet the criteria of a WCPP. EPA also notes that there are multiple avenues to ask EPA to revisit issues in this TSCA section 6(a) rulemaking, both before and after the mandatory compliance dates are set consistent with TSCA section 6(d). EPA has the authority under TSCA section 6(g) to consider whether an exemption is appropriate and, consistent with TSCA section 6(g)(1), may propose such exemptions independently from this rulemaking. Additionally, any person could petition EPA to request that EPA issue or amend a rule under TSCA section 6.

A. Applicability

This final rule sets prohibitions and restrictions on the manufacture (including import), processing, distribution in commerce, commercial use, and disposal of CTC to prevent unreasonable risk of injury to health in accordance with TSCA section 6(a), 15 U.S.C. 2605(a).

Additionally, pursuant to TSCA section 12(a)(2), this rule applies to CTC even if being manufactured, processed, or distributed in commerce solely for export from the United States because EPA has determined that CTC presents an unreasonable risk to health within the United States. Several commenters expressed concern that an unclear statement in the proposed rule preamble appeared to indicate that all manufacture, processing, and distribution for export would be prohibited under the proposed rule (Refs. 29, 30, 32). This was not EPA's intent. Rather, EPA intended to indicate that because EPA determined that CTC presents an unreasonable risk of injury to health within the United States, manufacturing and processing of CTC for export would not be exempt from any otherwise-applicable TSCA section 6(a) regulatory requirements. Because distribution in commerce did not contribute to EPA's unreasonable risk determination for CTC, and because this final rule permits manufacturing and processing, including recycling, for various uses to continue under the WCPP, EPA intends this final rule to permit manufacturing and processing in compliance with the WCPP for export, as well as distribution in commerce for export, without regard for the intended use in the destination country. In other words, manufacturing, processing, and distribution for the conditions of use listed in 40 CFR 751.705(a)(1)(i) and (ii) are prohibited where such conditions of use would occur inside the United States, but in instances where such conditions of use would occur solely outside of the United States after export, the upstream manufacturing, processing, and distribution for export would not be prohibited. EPA has clarified the regulatory text at 40 CFR

751,707(a) to make clear that any manufacture and processing for export must be in accordance with the WCPP. In addition, any persons who export or intend to export a chemical substance that is the subject of this final rule are subject to the export notification provisions of TSCA section 12(b) (15 U.S.C. 2611(b)), and must comply with the export notification requirements in 40 CFR part 707, subpart D.

EPA is revising the description of the Disposal COU to clarify the requirements of the WCPP at cleanup sites which would apply to any potentially exposed person involved in the disposal of CTC-containing groundwater to industrial treatment, industrial pre-treatment, or POTWs. A potentially exposed person most likely includes a worker who is involved with the activity of removing CTC-containing groundwater from the location where it was found and the on-site treatment of the groundwater, typically referred to as *ex situ* remediation, which is most consistent with the scope of the 2020 CTC Risk Evaluation. *Ex situ* remediation includes both active and passive remediation methods that span traditional (*e.g.*, pump and treat) and less traditional (*e.g.*, phytoremediation) approaches, but only if the remediation method would be considered industrial wastewater pretreatment, industrial wastewater treatment or discharge to a publicly owned treatment work (POTW).

As discussed in Unit III.D, the prohibitions and restrictions described in this unit do not apply to CTC that is solely present unintentionally in trace quantities with another chemical substance or mixture, whether as a manufacturing residue, unreacted feedstock, byproduct, or other contaminant. Additionally, the provisions of this final rule only apply to chemical substances as defined under TSCA section 3. Notably, TSCA section 3(2) excludes from the definition of chemical substance "any food, food additive, drug, cosmetic, or device (as such terms are defined in Section 201 of the Federal Food, Drug, and Cosmetic Act [21 U.S.C. 321]) when manufactured, processed, or distributed in commerce for use as a food, food additive, drug, cosmetic, or device" and "any pesticide (as defined in the Federal Insecticide, Fungicide, and Rodenticide Act [7 U.S.C. 136 *et seq.*]) when manufactured, processed, or distributed in commerce for use as a pesticide." Additional details regarding TSCA statutory authorities can be found in section 2 of the response to comments document (Ref. 11).

EPA uses the term "potentially exposed person" in Unit IV. And in the regulatory text to include workers, occupational non-users, employees, independent contractors, employers, and all other persons in the work area where CTC is present and who may be exposed to CTC under the conditions of use for which a WCPP or specific prescriptive controls would apply. (EPA notes that this definition is intended to apply to occupational workspaces as part of implementation of the WCPP and other restrictions, and recognizes that other individuals or communities may be exposed to CTC as members of fenceline communities or members of the general population.) For certain conditions of use, EPA requires a comprehensive WCPP or specific prescriptive controls to address the unreasonable risk from CTC to workers directly handling the chemical or in the area where the chemical is being used. Similarly, the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1) did not distinguish between employers, contractors, or other legal entities or businesses that manufacture, process, distribute in commerce, use, or dispose of CTC. For this reason, EPA uses the term "owner or operator" to describe the entity responsible for implementing the WCPP or specified prescriptive controls in any workplace where an applicable condition of use is identified in Unit IV. And subject to the WCPP or prescriptive controls is occurring. The term includes any person who owns, leases, operates, controls, or supervises such a workplace. While owners or operators remain responsible for ensuring compliance with the WCPP or prescriptive controls requirements in the workplace, they may contract with others to provide training or implement a respiratory protection program, for example. EPA is also clarifying its intent that for the provisions in this rule, any requirement for an owner or operator, or an owner and operator, is a requirement for any individual that is either an owner or an operator.

EPA emphasizes that this approach is essential for addressing the unreasonable risk presented by CTC, including to individuals who may not be covered by OSHA requirements, such as, volunteers, self-employed persons, and State, and local government workers who are not covered by a state plan. EPA uses the term "owner or operator" in TSCA programs because the term is used in other EPA programs to describe persons with responsibilities for implementing statutory and regulatory requirements at particular locations. See, for example, CAA section 113, 42 U.S.C. 7412, which defines "owner or operator" as a person who owns, leases, operates, controls, or supervises a stationary source. There is a similar definition in section 306 of the Clean Water Act (CWA), 33 U.S.C. 1316. EPA understands that the use of this term may result in multiple persons' bearing responsibility for complying with provisions of this final rule, including the WCPP. However, this is also the case for workplaces regulated by OSHA, including those regulated under OSHA's general industry standards at 29 CFR part 1910. OSHA's 1999 Multi-Employer Citation Policy explains which employers should be cited for a hazard that violates an OSHA standard (Ref. 40). The Policy describes four different roles that employers may fill at a workplace and describes who should be cited for a violation based on factors such as whether the employer created the hazard, had the ability to prevent or correct the hazard, and knew or should have known about the hazard. More than one employer may be cited for the same hazard. This final rule will have similar results, in that more than one owner or operator may be responsible for compliance.

The OSHA multi-employer citation policy is an example of a guidance governing situations where more than one regulated entity is present. EPA has received several requests for clarification of the applicability of the term "owner or operator" to sites where more than one entity owns, leases, or controls a workplace where a CTC condition of use is ongoing and where implementation of the WCPP or prescriptive controls is required. EPA understands that there are a wide variety of situations where these questions could arise, and plans to issue guidance consistent with TSCA authorities that explains how EPA will approach the issue of responsibility for implementation of, and compliance with, the WCPP requirements in practice.

B. Workplace Chemical Protection Program (WCPP)

1. Applicability

EPA is finalizing the WCPP for all of the conditions of use for which it was proposed, as well as for two additional uses related to vinyl chloride manufacturing within two conditions of use for which prohibition was proposed. EPA is also revising the description of industrial and commercial use of CTC related to chlorine production to clarify that both elimination of nitrogen trichloride in the production of chlorine and caustic soda and recovery of

chlorine in tail gas from the production of chlorine are subject to the WCPP. Additionally, EPA is revising the description of the Disposal COU to clarify the requirements of the WCPP at cleanup sites. Specifically, EPA has determined that at groundwater cleanup sites, the WCPP would apply to any potentially exposed person involved in the disposal of CTC-containing groundwater to industrial treatment, industrial pre-treatment, or POTWs. A potentially exposed person most likely includes a worker who is involved with the activity of removing CTC-containing groundwater from the location where it was found and the on-site treatment of the groundwater, typically referred to as *ex situ* remediation, which is most consistent with the scope of the 2020 CTC Risk Evaluation. *Ex situ* remediation includes both active and passive remediation methods that span traditional (*e.g.*, pump and treat) and less traditional (*e.g.*, phytoremediation) approaches, but only if the remediation method would be considered industrial wastewater pretreatment, industrial wastewater treatment or discharge to a publicly owned treatment work (POTW). EPA's descriptions of changes from the proposed rule in Unit III. The Agency explained why the WCPP addresses the unreasonable risk for certain conditions of use in Unit V. of the proposed rule (88 FR 49180, July 28, 2023) (FRL 8206–01–OCSPP).

EPA is finalizing the WCPP for the following conditions of use where manufacture and processing are not otherwise prohibited: domestic manufacturing (except where CTC is manufactured solely as a byproduct); import; processing as a reactant in the production of HCFCs, HFCs, HFOs, and PCE; processing: incorporation into formulation, mixture or reaction product in agricultural products manufacturing, vinyl chloride manufacturing, and other basic organic and inorganic chemical manufacturing; processing by repackaging for use as a laboratory chemical; recycling; industrial and commercial use as a processing aid in the manufacture of agricultural products and vinyl chloride; industrial and commercial use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine; and disposal. This unit provides a description of the conditions of use subject to the WCPP to assist with compliance.

a. Manufacturing

i. Domestic Manufacture

This condition of use refers to making or producing a chemical substance within the United States (including manufacturing for export), including the extraction of a component chemical substance from a previously existing chemical substance or a complex combination of substances. For purposes of this rule, WCPP requirements applicable to the manufacture of CTC do not apply where CTC is manufactured solely as a byproduct, because manufacture of CTC as a byproduct was not evaluated in the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1). Under TSCA, EPA uses the term "byproduct" to refer to a chemical substance produced without a separate commercial intent during the manufacture, processing, use, or disposal of another chemical substance(s) or mixture(s) (see, *e.g.*, 40 CFR 710.3(d), 720.3). A byproduct is distinguishable from a coproduct, which is a chemical substance produced for a commercial purpose during the manufacture, processing, use, or disposal of another chemical substance or mixture. CTC could be manufactured as a byproduct during the manufacturing of other chlorinated compounds. EPA anticipates that any risk presented by the presence of CTC as a byproduct will be considered in the scope of the risk evaluation of the parent chemical in future risk evaluations, such as the consideration of CTC as a byproduct in the 1,2-dichloroethane risk evaluation, as explained in Section 1.4.2.3 of the 2020 Risk Evaluation for Carbon Tetrachloride (Refs. 1, 41).

ii. Import

This condition of use refers to the act of causing a chemical substance or mixture to arrive within the customs territory of the United States. This condition of use includes loading/unloading and repackaging associated with import.

b. Processing

i. Processing as a Reactant in the Production of Hydrochlorofluorocarbons, Hydrofluorocarbons, Hydrofluoroolefins, and Perchloroethylene

This condition of use refers to processing CTC in chemical reactions for the manufacturing of another chemical substance or product. Through processing as a reactant or intermediate, CTC serves as a feedstock in the production of another chemical product via a chemical reaction in which CTC is consumed. Currently, CTC is used as a reactant to manufacture HCFCs, HFCs, HFOs, and PCE, which are used in the making of a variety of products including refrigerants, aerosol propellants, and foam-blowing agents. The specifics of the reaction process (*e.g.*, use and types of catalysts, reaction temperature) vary depending on the product being produced; however, a typical reaction process involves unloading CTC from containers and feeding into the reaction vessel(s), where CTC either completely or partially reacts with other raw materials to form the final product. Following the reaction, the product may be purified to remove unreacted CTC or other materials if needed. This condition of use includes reuse of CTC, including CTC that is not transformed as feedstock in other manufacturing processes, as a reactant.

ii. Processing: Incorporation Into Formulation, Mixtures, or Reaction Products for Agricultural Products Manufacturing; Vinyl Chloride Manufacturing; Other Basic Organic and Inorganic Chemical Manufacturing

This condition of use refers to the process of mixing or blending several raw materials to obtain a single product or preparation or formulation. CTC has historically been incorporated into formulation or mixtures to manufacture hydrochloric acid (HCl), vinyl chloride, ethylene dichloride (EDC), chloroform, hafnium tetrachloride, thiophosgene, and methylene chloride. CTC may be incorporated into various products and formulations at varying concentrations for further distribution. For example, CTC may be unloaded from transport containers either directly into mixing equipment or into an intermediate storage vessel either manually or through automation via a pumping system. Mixing of components can occur in either a batch or continuous system. The mixture that contains CTC may be used as a reactant to manufacture a chlorinated compound that is subsequently formulated into a product or a processing aid used to aid in the manufacture of formulated products. For the purposes of this rulemaking, EPA is allowing under the WCPP the continued incorporation of CTC into formulation, mixtures, or reaction products for agricultural products manufacturing, vinyl chloride manufacturing, the elimination of nitrogen trichloride in the production of chlorine and caustic soda, and the recovery of chlorine in tail gas from the production of chlorine.

iii. Processing: Repackaging for Use as a Laboratory Chemical

This condition of use refers to the physical transfer of a chemical substance or mixture, as is, from one container to another container or containers in preparation for distribution of the chemical substance or mixture in commerce. Depending on the product, formulation products may be filtered prior to packaging. Final packaging occurs either through manual dispensing from transfer lines or through utilization of an automatic system. Typically, repackaging sites receive the chemical in bulk containers and transfer the chemical from the bulk container into another smaller container in preparation for distribution in commerce.

iv. Processing: Recycling

This condition of use refers to the process of treating generated spent chemical (which would otherwise be disposed of as waste) that is collected on-site or transported to third-party sites for reclamation/recycling. Spent chemicals can be restored to a condition that permits reuse via reclamation/recycling. The recovery process may involve an initial vapor recovery or mechanical separation step followed by distillation, purification, and final packaging.

c. Industrial and Commercial Use

i. Industrial and Commercial Use as an Industrial Processing Aid in the Manufacture of Agricultural Products and Vinyl Chloride

A processing aid is a "chemical that is added to a reaction mixture to aid in the manufacture or synthesis of another chemical substance but is not intended to remain in or become part of the product or product mixture." Additionally, processing agents are intended to improve the processing characteristics or the operation of process equipment, but not intended to affect the function of a substance or article created. CTC is used as a processing aid/agent to aid in the manufacture of formulated products, including agricultural chemicals and vinyl chloride. CTC has historically been used as a processing agent in the manufacture of chlorosulphonated polyolefin; styrene butadiene rubber; endosulfan (insecticide); 1–1 Bis (4-chlorophenyl) 2,2,2-trichloroethanol (dicofol insecticide); and tralomethrin (insecticide) (Ref. 1). For the purposes of this rulemaking, EPA is allowing under the WCPP the continued use of CTC as an industrial processing aid in the manufacturing of agricultural products and vinyl chloride.

ii. Industrial and Commercial Use in the Elimination of Nitrogen Trichloride in the Production of Chlorine and Caustic Soda and the Recovery of Chlorine in Tail Gas From the Production of Chlorine

This condition of use refers to a specific use of CTC as a processing aid/agent in basic inorganic chemical manufacturing. For purposes of this rulemaking, EPA is allowing under the WCPP the continued use of CTC in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine.

d. Disposal

This condition of use refers to the process of disposing waste streams of CTC that are collected either onsite (*e.g.* pumped out of the ground for treatment), or transported to a third-party site for treatment or their final disposition, such as waste incineration or landfilling. For this rule, the WCPP for the disposal of CTC-containing water and groundwater for purposes of cleanup projects of CTC-contaminated water and groundwater, including industrial pre-treatment and industrial treatment activities, applies to removing the groundwater from the location where it was located and treating the removed groundwater on site. The requirements of the WCPP apply to any potentially exposed person involved in the disposal of CTC-containing groundwater to industrial treatment, industrial pre-treatment, or POTWs. A potentially exposed person most likely includes a worker who is involved with the activity of removing CTC-containing groundwater from the location where it was found and the on-site treatment of the groundwater, typically referred to as *ex situ* remediation, which is most consistent with the scope of the 2020 CTC Risk Evaluation. *Ex situ* remediation includes both active and passive remediation methods that span traditional (*e.g.*, pump and treat) and less traditional (*e.g.*, phytoremediation) approaches, but only if the remediation method would be considered industrial wastewater pretreatment, industrial wastewater treatment or discharge to a publicly owned treatment work (POTW). A remediation method would need to be considered one of these three types of disposal to fall within the condition of use under TSCA for remediation sites managed by the Federal government and if not, would not be subject to the requirements of the rule. Further, while EPA considers solid wastes as part of the waste streams included in the disposal COU, at groundwater remediation sites managed by the Federal government and under existing waste disposal requirements, the WCPP requirements under this rulemaking only apply to water contaminated with CTC, and any other type of CTC-impacted waste will be handled according to relevant existing requirements under RCRA and other statutes. The provisions of the WCPP for the disposal COU, including the ECEL, are not intended to cover potentially exposed persons who are sampling groundwater to monitor the presence of a plume, but specifically only those sampling at the site of extraction and treatment activities.

2. Overview

The WCPP for CTC encompasses an inhalation exposure limit and action level, DDCC, and the associated implementation requirements described in this unit, to ensure that the chemical substance no longer presents unreasonable risk. Under a WCPP, owners or operators have the ability to select controls, within the parameters outlined in this unit, regarding how they prevent exceedances of the identified EPA exposure limit thresholds or prevent direct dermal contact. In the case of CTC, meeting the EPA exposure limit threshold and implementing the DDCC requirements for certain occupational conditions of use would address the unreasonable risk to potentially exposed persons from inhalation and dermal exposure.

EPA is finalizing these requirements to apply beginning on June 11, 2026 for non-Federal owners or operators, or by June 21, 2027 for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or within 30 days of introduction of CTC into the workplace, whichever is later, at which point entities would be required to complete initial monitoring (as described in Unit IV.B.3.b.). Additionally, EPA requires that each owner or operator ensure that no person is exposed to an airborne concentration of CTC that exceeds the ECEL as an 8-hour TWA, including by providing respirators to potentially exposed persons in the regulated area, no later than September 9, 2026 for non-Federal owners or operators, or no later than September 20, 2027 for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or beginning four months after introduction of CTC into the workplace, whichever is later. EPA also requires each owner or operator to ensure all persons are separated, distanced,

physically removed, or isolated from direct dermal contact with CTC, including by providing dermal PPE, by June 16, 2025 for non-Federal owners or operators, or no later than September 20, 2027 for Federal agencies and Federal contractors acting for or on behalf of the Federal government. EPA also requires implementation of any needed exposure controls based on initial monitoring and development of an exposure control plan, which requires consideration and documented application of the hierarchy of controls, no later than December 3, 2027 (as described in Unit IV.B.5.).

EPA's implementation of the requirement to meet an ECEL as part of a WCPP aligns with, to the extent possible, certain elements of the existing OSHA standards for regulating toxic and hazardous substances under 29 CFR part 1910, subpart Z. However, EPA is finalizing as proposed a new, lower occupational exposure limit, derived from the TSCA 2020 Risk Evaluation for Carbon Tetrachloride (Refs. 1, 15). For CTC, this final rule will eliminate the unreasonable risk from CTC contributed to by the conditions of use subject to the WCPP, enable continued industry use where appropriate, and provide the familiarity of a pre-existing framework for the regulated community.

EPA's requirements include specific exposure limits and ancillary requirements necessary for successful implementation of an ECEL as part of a WCPP. Taken together, these WCPP requirements apply to the extent necessary so that the unreasonable risk from CTC under the conditions of use listed earlier in this unit would no longer be presented.

Unit IV. includes a summary of the WCPP, including a description of the finalized exposure limits including an ECEL and ECEL action level; implementation requirements including monitoring requirements; a description of potential exposure controls in accordance with the hierarchy of controls, including engineering controls, administrative controls, and PPE as it relates to respirator selection; and additional finalized requirements for recordkeeping and workplace participation. Additionally, Unit IV.B.4. describes DDCC requirements for CTC, including potential exposure controls, which consider the hierarchy of controls; PPE as it relates to dermal protection; and additional requirements finalized for recordkeeping. Unit IV. also describes changes to the proposed compliance timeframes, changes by EPA to certain provisions of the WCPP based on public comments, and addition of new provisions in the WCPP based on public comments used to inform this final rule.

3. Existing Chemical Exposure Limit (ECEL)

To reduce exposures in the workplace and address the unreasonable risk of injury to health resulting from inhalation exposures to CTC identified under the occupational conditions of use in the TSCA 2020 Risk Evaluation for Carbon Tetrachloride, EPA is requiring an ECEL and ancillary requirements for all of the conditions of use identified in Unit IV.B.1.

a. ECEL and ECEL Action Level (AL)

EPA is finalizing as proposed an ECEL under TSCA section 6(a) of 0.03 ppm (0.2 mg/m^3) for inhalation exposures to CTC as an 8-hour TWA based on the threshold POD for liver cancer (assuming a margin of exposure of 300) and the IUR for adrenal cancer. The ECEL memo includes linear risk calculations for adrenal gland tumors in the equation for "Cancer risk for other tumor types (*e.g.*, adrenal glands) at the ECEL," showing that the ECEL is protective of all tumor types, including adrenal gland and brain tumors (Ref. 15). EPA has determined that ensuring exposures remain at or below the 8-hour TWA ECEL of 0.03 ppm will eliminate the unreasonable risk of injury to health for CTC resulting from acute and chronic inhalation exposures in an occupational setting (Ref. 15). If ambient exposures are kept at or below the 8-hour TWA ECEL of 0.03 ppm, a potentially exposed person will be protected against the effects described in this unit, including cancer, chronic non-cancer effects, and effects resulting from acute inhalation exposures (Ref. 15). In addition to the ECEL memo, to respond to public comments, EPA also explained that the ECEL is protective of short-term acute inhalation exposures (Refs. 11 and 15). EPA is finalizing requirements that each owner or operator ensure that the airborne concentration of CTC does not exceed the ECEL for all potentially exposed persons within 1,005 days after the date of publication of the final rule (*i.e.*, no later than September 20, 2027) for Federal agencies and Federal contractors acting for or on behalf of the Federal government, 630 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, no later than September 9, 2026) for non-Federal owners and operators, or beginning four months after introduction of CTC into the workplace if CTC use commences at least 540 days after the date of publication (*i.e.*, the use commences on or after June 11, 2026).

EPA is finalizing an ECEL action level at 0.02 ppm as an 8-hour TWA for CTC. Below the ECEL action level, certain compliance activities, such as periodic monitoring, would be required less frequently, as described further in this unit. In this way, EPA's WCPP for CTC is consistent with the familiar framework that is in place in OSHA standards for regulating toxic and hazardous substances under 29 CFR 1910 Subpart Z that establish an action level, although the values differ due to differing statutory authority. As explained by OSHA, the action level provides employers and employees with greater assurance that their employees will not be exposed to concentrations above the PELs (Ref. 42).

In summary, EPA is finalizing as proposed with slight modification that owners or operators must ensure the airborne concentration of CTC within the personal breathing zone of potentially exposed persons remains at or below 0.03 ppm as an 8-hour TWA ECEL, with an action level finalized as 0.02 ppm as an 8-hour TWA. For purposes of this rulemaking, the personal breathing zone is consistent with how OSHA defines it as a hemispheric area forward of the shoulders within a six-to-nine-inch radius of a worker's nose and mouth and requires that exposure monitoring air samples be collected from within this space (Ref. 43). EPA is finalizing the ECEL for most occupational conditions of use to ensure that no person is exposed to inhalation of CTC in excess of these concentrations resulting from those conditions of use. EPA recognizes that the regulated community has the ability to detect the values for the ECEL because of viable detection limits and analytical methods of CTC for monitoring devices that are available in commerce, currently in use, which are as low as 4 micrograms per sample (Refs. 15, 44). For the purposes of this TSCA section 6(a) rulemaking, EPA will consider the use of methods for exposure monitoring (*i.e.*, NIOSH Method 1003) that produce results that are accurate, to a confidence level of 95 percent and within 25 percent (plus or minus) of airborne concentrations of CTC above 0.03 ppm ECEL, to be in compliance with this rule. EPA recognizes that current analytical methods may not measure CTC to below the action level of 0.02 ppm, particularly for short-term tasks; therefore, owners and operators will be required to monitor more frequently, as described further in this unit, until monitoring methods that measure to or below the action level become available.

b. Monitoring Requirements

i. Exposure Sampling

Initial monitoring for CTC is critical for establishing a baseline of exposure for potentially exposed persons; similarly, periodic exposure monitoring assures continued compliance over time so that potentially exposed persons are not exposed to levels that would result in an unreasonable risk of injury to health. Exposure monitoring could be suspended if certain conditions described in Unit IV. are met. Also, in some cases, a change in workplace conditions with the potential to impact exposure levels would warrant additional monitoring, which is also described.

EPA is finalizing with modifications from proposal its requirement that owners or operators determine each potentially exposed person's exposure by taking a personal breathing zone air sample of each potentially exposed person's exposure or by taking personal breathing zone air samples that are representative of each potentially exposed person with a similar exposure profile to chemical substance or mixture based on substantial similarity of tasks performed, the manner in which the tasks are performed, and the materials and processes with which they work (hereinafter identified as an "exposure group"). Personal breathing zone air samples are representative of the 8-hour TWA of all potentially exposed persons in an exposure group if the samples are of the full shift-exposure of at least one person who represents the highest potential CTC exposures in that exposure group. In addition, the initial monitoring will be required when and where the operating conditions are best representative of each potentially exposed person's full-shift exposures. Personal breathing zone air samples taken during one work shift may be used to represent potentially exposed person exposures on other work shifts where the owner or operator can document that the tasks performed and conditions in the workplace are similar across shifts. Additionally, air sampling is required to measure ambient concentrations for CTC without taking respiratory protections into account as sampling is being performed. For purposes of exposure monitoring requirements, owners and operators are only required to monitor potentially exposed persons that are expected to be present in the workplace.

EPA is also finalizing requirements that the owner or operator ensure that their exposure monitoring methods are accurate to a confidence level of 95% and are within (plus or minus) 25% of airborne concentrations of CTC above the 8-hour TWA ECEL. To ensure compliance for monitoring activities, EPA is finalizing recordkeeping requirements and will require that owners or operators document their choice of monitoring method outlined in this unit. As described in Unit III.C.1., EPA is finalizing the requirement that owners or operators meet certain documentation requirements for each monitoring event of CTC, including compliance with GLP Standards in accordance with 40 CFR part 792 or use of a laboratory accredited by the AIHA (*e.g.*, AIHA LAP, LLC Policy Module 2A/B/E of Revision 17.3), or other analogous industry-recognized program. Additionally, as described in Unit III.C.1., EPA is finalizing the requirement that owners or operators must re-monitor within 15 working days after receipt of any exposure monitoring when results indicate non-detect, unless an Environmental Professional as defined at 40 CFR 312.10 or a Certified Industrial Hygienist reviews the monitoring results and determines re-monitoring is not necessary.

EPA is also finalizing the requirement that each owner or operator maintain exposure monitoring records that include the following information for each monitoring event:

- Dates, duration, and results of each sample taken.
- The quantity, location(s) and manner of use of CTC at the time of each monitoring event.
- All measurements that may be necessary to determine the conditions (*e.g.*, work site temperatures, humidity, ventilation rates, monitoring equipment type and calibration dates) that may affect the monitoring results.
- Name, workplace address, work shift, job classification, work area, and type of respiratory protection (if any) of each monitored person.
- Identification of all potentially exposed persons that a monitored person is intended to represent if using a representative sample.
- Use of appropriate sampling and analytical methods.
- Compliance with GLP Standards in accordance with 40 CFR part 792 or use of a laboratory accredited by AIHA (*e.g.*, AIHA LAP, LLC Policy Module 2A/B/E of Revision 17.3), or another analogous industry-recognized program.
- Information regarding air monitoring equipment, including: type, maintenance, calibrations, performance tests, limits of detection, and any malfunctions.
- Notification of exposure monitoring results to each person whose exposures are monitored or who is part of a monitored exposure group.

ii. Initial Exposure Monitoring

Under the final regulation, each non-Federal owner or operator of a facility that is engaged in one or more of the conditions of use listed in Unit IV.B.1. will be required to perform initial exposure monitoring within 540 days after publication of the final rule in the **Federal Register** (*i.e.*, no later than June 11, 2026) or within 30 days of introduction of CTC into the workplace, whichever is later, to determine the extent of exposure of potentially exposed persons to CTC. As discussed in Unit III.B., EPA is providing additional time for Federal agencies and Federal contractors acting for or on behalf of the Federal government to comply with the provisions of the WCPP, so they will be required to conduct initial monitoring within 915 days after publication (*i.e.*, no later than June 21, 2027). Initial monitoring will notify owners and operators of the magnitude of possible exposures to potentially exposed persons with respect to their work conditions and environments. Based on the magnitude of possible exposures in the initial exposure monitoring, the owner or operator may need to increase or decrease the frequency of future periodic monitoring or adopt new exposure controls (such as engineering controls, administrative controls, and/or a respiratory protection program), as indicated in table 1. In addition, the initial monitoring will be required when and where the operating conditions are best representative of each potentially exposed person's work-shift exposures. If the owner or operator chooses to use a sample that is representative of potentially exposed persons' full shift exposures (rather than monitor every individual), such sampling should be representative (*i.e.*, taken from the breathing zone of potentially exposed persons and reflect duration-appropriate exposure) of the most highly exposed persons in the workplace. Additionally, EPA expects that owners and operators will conduct initial exposure monitoring representative of all tasks that a potentially exposed person will be expected to do. EPA understands that certain tasks may occur less frequently or may reflect accidental exposure (for example, due to malfunction).

EPA also recognizes that some entities may already have objective exposure monitoring data. If the owner or operator has monitoring data conducted within five years prior to 60 days following publication of the final rule in the Federal Register and the monitoring

satisfies all other requirements in Unit IV., including the requirement that the data represents the highest CTC exposures likely to occur under reasonably foreseeable conditions of use, the owner or operator may rely on such earlier monitoring results for the initial baseline monitoring sample. Prior monitoring data cannot be used where there has been a change in work conditions or practices that is expected to result in new or additional exposures.

As described in more detail later in Unit IV., the owner or operator must conduct periodic monitoring at least once every five years since its last monitoring. This periodic monitoring must be representative of all the potentially exposed persons in the workplace and the tasks that they are expected to do.

iii. Periodic Exposure Monitoring

EPA is finalizing the following periodic monitoring for owners or operators. These finalized requirements are also outlined in Table 1.

- If samples taken during the initial exposure monitoring reveal a concentration below the ECEL action level (<0.02 ppm 8-hour TWA), the owner or operator must repeat the periodic exposure monitoring at least once every five years.
- If the most recent exposure monitoring indicates that airborne exposure is above the ECEL (>0.03 ppm 8-hour TWA), the owner or operator must repeat the periodic exposure monitoring within three months of the most recent exposure monitoring.
- If the most recent exposure monitoring indicates that airborne exposure is at or above the ECEL action level (≥0.02 ppm 8-hour TWA) but at or below the ECEL (≤0.03 ppm 8-hour TWA), the owner or operator must repeat the periodic exposure monitoring within six months of the most recent exposure monitoring.
- If the most recent (non-initial) exposure monitoring indicates that airborne exposure is below the ECEL action level, the owners or operators must repeat such monitoring within six months of the most recent monitoring until two consecutive monitoring measurements, taken at least seven days apart, are below the ECEL action level (<0.02 ppm 8-hour TWA), at which time the owner or operator must repeat the periodic exposure monitoring at least once every five years.
- In instances where an owner or operator does not manufacture, process, use, or dispose of CTC for a condition of use for which the WCPP is required over the entirety of time since the last required periodic monitoring event, EPA is requiring that the owner or operator would be permitted to forgo the next periodic monitoring event. However, documentation of cessation of use of CTC would be required and periodic monitoring would be required to resume when the owner or operator restart any of the conditions of use listed in Unit IV.B.1.

TABLE 1—PERIODIC MONITORING REQUIREMENTS

Air concentration condition	Periodic monitoring requirement
If initial exposure monitoring is below the ECEL action level (<0.02 ppm 8-hour TWA).	Periodic exposure monitoring is required at least once every five years.
If the most recent exposure monitoring indicates that airborne exposure is above the ECEL (>0.03 ppm 8-hour TWA).	Periodic exposure monitoring is required within three months of the most recent exposure monitoring.
If the most recent exposure monitoring indicates that airborne exposure is at or above the ECEL action level but at or below the ECEL (≥0.02 ppm 8-hour TWA, ≤0.03 ppm 8-hour TWA).	Periodic exposure monitoring is required within six months of the most recent exposure monitoring.
If the two most recent (non-initial) exposure monitoring measurements, taken at least seven days apart within a 6-month period, indicate exposure is below the ECEL action level (<0.02 ppm 8-hour TWA).	Periodic exposure monitoring is required within five years of the most recent exposure monitoring.
If the owner or operator engages in a condition of use for which WCPP ECEL would be required but does not manufacture, process, use, or dispose of CTC in that condition of use over the entirety of time since the last required monitoring event.	The owner or operator may forgo the next periodic monitoring event. However, documentation of cessation of use of CTC is required and periodic monitoring would be required when the owner or operator resumes the condition of use.

Note: Additional scenarios in which monitoring may be required are discussed in Unit IV.B.3.b.iv.

iv. Additional Exposure Monitoring

EPA is finalizing that each owner or operator conduct additional exposure monitoring within a reasonable timeframe after there has been a change in the production, process, control equipment, personnel or work practices may reasonably be expected to result in new or additional exposures at or above the ECEL, or when the owner or operator has any reason to believe that new or additional exposures at or above the ECEL action level have occurred, for example if an owner or operator receives information from potentially exposed person(s) suggesting that such new or additional exposures may have occurred. In the event of start-up or shutdown, or ruptures, malfunctions or other breakdowns or unexpected releases that may lead to exposure to potentially exposed persons, EPA is finalizing that each owner or operator must conduct exposure monitoring of potentially exposed persons (using personal breathing zone sampling) within a reasonable timeframe after the conclusion of the start-up or shutdown and/or the cleanup, repair or remedial action of the malfunction or other breakdown or unexpected release. EPA is also requiring that the owner or operator document that additional monitoring was completed within a reasonable timeframe. At this time, EPA is not finalizing a specific compliance timeframe for completion of additional monitoring when there has been a change in the production, process, control equipment, personnel or work practices, or in the event of start-up or shutdown, or ruptures, malfunctions or other breakdowns or unexpected releases that may lead to exposure to potentially exposed persons; however, other TSCA section 6(a) rules are finalizing a compliance timeframe of 30 days for additional monitoring in these cases, and such timeframe would be an indication of what EPA considers likely to be reasonable in most cases when these changes are made at facilities that use CTC or in the event of these potential releases of CTC. An additional exposure monitoring event may result in an increased frequency of periodic monitoring. For example, if the initial monitoring results from a workplace are above the ECEL action level, but below the ECEL, periodic monitoring is required every six months. If additional monitoring is performed because increased exposures are suspected, and

the results are above the ECEL, subsequent periodic monitoring would have to be performed every three months. The required additional exposure monitoring should not delay implementation of any necessary cleanup or other remedial action to reduce the exposures to persons in the workplace.

c. Regulated Area

EPA is finalizing its requirement that the owner or operator demarcate any area where airborne concentrations of CTC exceed, or are reasonably expected to exceed the ECEL. To provide more clarity regarding how regulated areas must be demarcated, EPA has incorporated the language analogous to OSHA's regulated area requirements under the standards for toxic and hazardous substances (29 CFR part 1910, subpart Z) into this final rule. Owners and operators must demarcate regulated areas from the rest of the workplace in any manner that adequately establishes and alerts potentially exposed persons to the boundaries of the area and minimizes the number of authorized persons exposed to CTC within the regulated area. This can be accomplished using administrative controls (*e.g.*, highly visible signifiers) in multiple languages as appropriate (*e.g.*, when potentially exposed persons who primarily speak a language other than English are present, owners and operators should post additional highly visible signifiers in the language of the largest group of workers who cannot readily comprehend or read English), placed in conspicuous areas. The owner or operator is required to restrict access to the regulated area from any potentially exposed person that lacks proper training or is otherwise unauthorized to enter.

d. Notification of Monitoring Results

EPA is finalizing the requirement that the owner or operator must, within 15 working days after the receipt of the results of any exposure monitoring, notify each potentially exposed person whose exposure is represented by that monitoring and their designated representatives in writing, either individually to each potentially exposed person or by posting the information in an appropriate and accessible location, such as public spaces or common areas, for potentially exposed persons outside of the regulated area. The notice would be required to identify the exposure monitoring results, the ECEL and ECEL action level and what they mean in plain language, statement of whether the monitored airborne concentration of CTC exceeds the ECEL and ECEL action level, and any corresponding respiratory protection required. If the ECEL is exceeded, the notice must also include a description of the actions taken by the owner or operator to reduce inhalation exposures to or below the ECEL. The notice must also include the quantity, location, manner of CTC use, and identified releases of CTC that could result in exposure to CTC at the time of monitoring. The notice must be posted in multiple languages if necessary (*e.g.*, notice must be in a language that the potentially exposed person understands, including a non-English language version representing the language of the largest group of workers who cannot readily comprehend or read English).

4. Direct Dermal Contact Control (DDCC) Requirements

To reduce exposures in the workplace and address the unreasonable risk of injury to health resulting from dermal exposures to CTC identified under the occupational conditions of use in the TSCA 2020 Risk Evaluation for CTC, EPA is finalizing DDCC requirements for all of the conditions of use identified in Unit IV.B.1. EPA is finalizing its requirements that owners or operators must separate, distance, physically remove, or isolate all person(s) from direct handling of CTC or from skin contact with surfaces that may be contaminated with CTC (*i.e.*, equipment or materials on which CTC may be present) under routine conditions in the workplace (hereafter referred to as direct dermal contact) within 180 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, June 16, 2025) for non-Federal owners or operators, or within 1,005 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, September 20, 2027) for Federal agencies and Federal contractors acting for or on behalf of the Federal government. The 2020 Risk Evaluation for Carbon Tetrachloride identified that unreasonable risk to workers is also driven by the dermal exposure, specifically from direct skin contact with CTC; risk exceeding the benchmark was identified even when considering use of chemically resistant gloves in most commercial and industrial conditions of use. EPA has determined that preventing direct dermal contact will eliminate the unreasonable risk of injury to health resulting from dermal exposures for certain occupational conditions of use of CTC. See the proposed rule for EPA's description of how the requirements related to DDCC would address the unreasonable risk resulting from dermal exposures and the rationale for this regulatory approach in Units III.B.4. and V.A. of the proposed rule. and V.A. of the proposed rule.

5. Exposure Control Plan

EPA is finalizing its requirement that entities implementing the WCPP adopt feasible exposure controls, including one or a combination of elimination, substitution, engineering controls, and administrative controls, prior to requiring the use of PPE (*i.e.*, respirators or gloves) as a means of controlling exposures below EPA's ECEL and/or prevent directing dermal contact with CTC for all potentially exposed persons, in accordance with the hierarchy of controls (Ref. 6). If an owner or operator chooses to replace CTC with a substitute, EPA recommends careful review of the available hazard and exposure information on the potential substitutes to avoid a substitute chemical that might later be found to present an unreasonable risk of injury to health or the environment under its conditions of use or be subject to regulation (sometimes referred to as a "regrettable substitution"). EPA expects that, for conditions of use for which EPA is finalizing a WCPP, compliance at most workplaces would be part of an established industrial hygiene program that aligns with the hierarchy of controls.

Examples of engineering controls that may prevent or reduce the potential for direct dermal contact include automation, physical barriers between contaminated and clean work areas, enclosed transfer liquid lines (with purging mechanisms in place (*e.g.*, nitrogen, aqueous) for operations such as product changes or cleaning), and design of tools (*e.g.*, a closed-loop container system providing contact-free connection for unloading fresh and collecting spent solvents, pneumatic tools, tongs, funnels, glove bags, etc.). Examples of administrative controls that may prevent or reduce the potential for direct dermal contact include adjusting work practices (*i.e.*, implementing policies and procedures) such as providing safe working distances from areas where direct handling of CTC may occur.

EPA is finalizing the requirement that regulated entities use the hierarchy of controls, instituting one or a combination of controls to the extent feasible, and supplement such protections using PPE, where necessary, including respirators for potentially exposed persons at risk of inhalation exposure above the ECEL and dermal PPE for persons potentially exposed through direct dermal contact to CTC. If efforts of elimination, substitution,

engineering controls, and administrative controls are not sufficient to reduce exposures to or below the ECEL or prevent direct dermal contact for all potentially exposed persons in the workplace, EPA requires that the owner or operator use feasible controls to reduce CTC concentrations in the workplace to the lowest levels achievable and supplement these controls with respiratory protection and dermal PPE as needed to achieve the ECEL or prevent direct dermal contact. In such cases, EPA requires that the owner or operator provide potentially exposed persons reasonably likely to be exposed to CTC by inhalation to concentrations above the ECEL with respirators affording sufficient protection against inhalation risk and appropriate training on the proper use of such respirators, to ensure that their exposures do not exceed the ECEL as described in Unit IV. EPA also requires that the owner or operator provides potentially exposed persons reasonably likely to be exposed to CTC by direct dermal contact with dermal protection affording sufficient protection against dermal risk and appropriate training on the proper use of dermal protection, as described in this unit. As part of the training requirement, the owner or operator is required to provide information and comprehensive training in an understandable manner (*i.e.*, plain language), considering factors such as the skills required to perform the work activity and the existing skill level of the staff performing the work, and in multiple languages as appropriate (*e.g.*, based on languages spoken by potentially exposed persons) to potentially exposed persons. This training must be provided prior to or at the time of initial assignment to a job involving potential exposure to CTC. Furthermore, EPA also requires that the owner or operator document their efforts in using elimination, substitution, engineering controls, and administrative controls to reduce exposure to or below the ECEL in an exposure control plan.

The Agency understands that certain engineering controls can reduce exposures to people inside the workplace but may lead to increased ventilation of CTC outside of the workplace. Increasing CTC releases to the ambient air could lead to increasing risks to people in fenceline communities of adverse health effects from exposures to CTC in ambient air. Therefore, as proposed, and considering the effects of CTC on health and the magnitude of the exposure of human beings, as required by TSCA section 6(c)(2)(A)(i), EPA is prohibiting increased releases of CTC to outdoor air associated with the implementation of the WCPP/ECEL. This requirement is intended to avoid unintended increases in exposures to people from CTC emissions to ambient air. Owners and operators are required to attest in their WCPP/ECEL exposure control plan that engineering controls selected do not increase emissions of CTC to ambient air outside of the workplace and document in their exposure control plan whether additional equipment was installed to capture emissions of CTC to ambient air. Owners and operators may institute air emissions monitoring or modeling to assist with meeting this requirement.

EPA is finalizing its requirement that the owner or operator include and document in the exposure control plan or through any existing documentation of the facility's safety and health program developed as part of meeting OSHA requirements or other safety and health standards, the following:

- Identification in the exposure control plan of available exposure controls that were considered and rationale for using or not using available exposure controls in the following sequence (*i.e.*, elimination and substitution, then engineering controls and administrative controls) to reduce exposures in the workplace to either at or below the ECEL or to the lowest level achievable and to prevent or reduce direct dermal contact with CTC in the workplace;
- For each exposure control considered, exposure controls selected based on feasibility, effectiveness, and other relevant considerations;
- A description of actions the owner or operator must take to implement exposure controls selected, including proper installation, regular inspections, maintenance, training, or other steps taken;
- A description of regulated areas, how they are demarcated, and persons authorized to enter the regulated areas;
- Attestation that exposure controls selected do not increase emissions of CTC to ambient air outside of the workplace and whether additional equipment was installed to capture or otherwise prevent increased emissions of CTC to ambient air;
- A description of activities conducted by the owner or operator to review and update the exposure control plan to ensure effectiveness of the exposure controls, identify any necessary updates to the exposure controls, and confirm that all persons are properly implementing the exposure controls; and
- An explanation of the procedures for responding to any change that may reasonably be expected to introduce additional sources of exposure to CTC, or otherwise result in increased exposure to CTC, including procedures for implementing corrective actions to mitigate exposure to CTC.

Under this final rule, owners or operators are prohibited from using rotating work schedules to comply with the ECEL 8-hour TWA, in alignment with certain elements of existing OSHA's standards for toxic substances under 29 CFR part 1910, subpart Z. Owners or operators must maintain the effectiveness of any engineering and administrative controls instituted as part of the exposure control plan. They must also review and update the exposure control plan as necessary, but at least every five years, to reflect any significant changes in the status of the owner or operator's approach to compliance with the exposure control requirements. EPA intends that the exposure control plan identify the *available* exposure controls and, for the exposure controls not selected, document the efforts identifying why these are not feasible, not effective, or otherwise not implemented. For entities for which significant amounts of time are needed to verify suitability of alternatives or procure funds or authorization for additional engineering controls, for example, EPA expects that as those controls become available the exposure control plan would be updated accordingly. EPA requires that the exposure control plan be revisited under certain conditions (and at least every five years) and encourages updates as more sophisticated controls are available.

This final rule requires owners or operators to make the exposure control plan and associated records, including ECEL exposure monitoring records, ECEL compliance records, DDCC compliance records, and workplace participation records, available to potentially exposed persons and their designated representatives. Owners or operators must notify potentially exposed persons and their designated representatives of the availability of the exposure control plan and associated records within 30 days of the date that the exposure control plan is completed and at least annually thereafter. The notice of the availability of the plan and associated records must be provided in plain language writing to each potentially exposed person in a language that the person understands or posted in an appropriate and accessible location outside the regulated area with an English-language version and a non-

English version representing the language of the largest group of workers who do not read English. This final rule also requires the owner or operator to provide the exposure control plan and associated records at a reasonable time, place, and manner to a potentially exposed person or their designated representative upon request. As explained in Unit III.C.2., if the owner or operator is unable to provide the specified records within 15 days, the owner or operator must inform the potentially exposed person or designated representative requesting the record within 15 days that reason for the delay and the earliest date when the record will be made available.

6. Personal Protective Equipment (PPE)

Where elimination, substitution, engineering controls, and administrative controls are not feasible to reduce the air concentration to or below the ECEL and/or prevent direct dermal contact with CTC for all potentially exposed persons, EPA is finalizing as proposed with slight modifications to improve clarity or for greater consistency with OSHA's regulations to require owners and operators to provide PPE, including respiratory protection and dermal protection selected in accordance with the guidelines described in this unit, and to implement a PPE program. This unit includes a description of the PPE program, including required PPE as it relates to respiratory protection, required PPE as it relates to dermal protection, and other requirements such as additional training for respirators and recordkeeping to support implementation of a PPE program.

a. Respiratory Protection

Where elimination, substitution, engineering, and administrative controls are not feasible or sufficiently protective to reduce the air concentration to or below the ECEL, or if inhalation exposure above the ECEL is still reasonably likely, EPA is finalizing, with slight modification from the proposal, minimum respiratory PPE requirements based on an owner or operator's most recent measured air concentration for one or more potentially exposed persons and the level of PPE needed to reduce exposure to or below the ECEL. In those circumstances, EPA is finalizing the requirements for a respiratory protection PPE program with worksite-specific procedures and elements for required respirator use. Owners or operators must develop and administer a written respiratory protection program in accordance with OSHA's respiratory protection standard under 29 CFR 1910.134(c)(1), (c)(3), and (c)(4). EPA is finalizing requirements that owners and operators provide training to all persons required to use respiratory protection consistent with 29 CFR 1910.134(k) prior to or at the time of initial assignment to a job involving potential exposure to CTC. Owners and operators must retrain all persons required to use PPE at least annually, or whenever the owner or operator has reason to believe that a previously trained person does not have the required understanding and skill to properly use PPE, or when changes in the workplace or in PPE to be used render the previous training obsolete.

EPA is finalizing requirements that each owner or operator supply a respirator, selected in accordance with requirements described in this unit, to each person who enters a regulated area within 1,005 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, no later than September 20, 2027) for Federal agencies and Federal contractors acting for or on behalf of the Federal government, 630 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, no later than September 9, 2026) for non-Federal owners and operators, or within three months after the receipt of any exposure monitoring that indicates exposures exceeding the ECEL, and thereafter must ensure that all persons within the regulated area are using the provided respirators whenever CTC exposures exceed or can reasonably be expected to exceed the ECEL.

EPA is also finalizing requirements that owners or operators who are required to administer a respiratory protection PPE program must supply a respirator based on a medical evaluation consistent with the requirements of 29 CFR 1910.134(e). If a potentially exposed person cannot use a negative-pressure respirator, then the owner or operator must provide that person with an alternative respirator. The alternative respirator must have less breathing resistance than the negative-pressure respirator and provide equivalent or greater protection. If the person is unable to use an alternative respirator, then the person must not be permitted to enter the regulated area. Additionally, EPA is requiring owners and operators to select respiratory protection that properly fits each affected person and communicate respirator selections to each affected person in accordance with the requirements of 29 CFR 1910.134(f). Consistent with requirements of 29 CFR 1910.134(g) through (j), EPA is requiring owners and operators to provide, ensure use of, and maintain (in a sanitary, reliable, and undamaged condition) respiratory protection that is of safe design and construction. EPA is also requiring owners and operators to provide training to all persons required to use respiratory protection consistent with the requirements of 29 CFR 1910.134(k).

EPA is finalizing the requirements to establish minimum respiratory protection requirements, such that any respirator affording a higher degree of protection than the following requirements may be used. In instances where respiratory protection is appropriate, NIOSH Approved® equipment must be used. NIOSH Approved is a certification mark of the U.S. Department of Health and Human Services (HHS) registered in the United States and several international jurisdictions. EPA is finalizing the following requirements for respiratory protection, based on the most recent exposure monitoring concentration results measured as an 8-hour TWA that exceed the ECEL (0.03 ppm):

- If the measured exposure concentration is at or below 0.03 ppm: no respiratory protection is required.
- If the measured exposure concentration is above 0.03 ppm and less than or equal to 0.3 ppm (10 times ECEL): Any NIOSH Approved air-purifying half mask respirator equipped with organic vapor cartridges or canisters; or any NIOSH Approved Supplied-Air Respirator (SAR) or Airline Respirator operated in demand mode equipped with a half mask; or any NIOSH Approved Self-Contained Breathing Apparatus (SCBA) in a demand mode equipped with a half mask [APF 10].
- If the measured exposure concentration is above 0.3 ppm and less than or equal to 0.75 ppm (25 times ECEL): Any NIOSH Approved Powered Air-Purifying Respirator (PAPR) equipped with a loose-fitting facepiece or hood/helmet equipped with organic vapor cartridges or canisters; or any NIOSH Approved SAR or Airline Respirator in a continuous-flow mode equipped with a loose-fitting facepiece or helmet/hood [APF 25].
- If the measured exposure concentration is above 0.75 ppm and less than or equal to 1.5 ppm (50 times ECEL): Any NIOSH Approved air-purifying full facepiece respirator equipped with organic vapor cartridges or canisters; any NIOSH Approved PAPR with a half mask equipped with organic vapor cartridges or canisters; any NIOSH Approved SAR or Airline Respirator in a continuous flow mode equipped with a half mask; any NIOSH Approved SAR or Airline Respirator

operated in a pressure-demand or other positive-pressure mode with a half mask; or any NIOSH Approved SCBA in demand-mode equipped with a full facepiece or helmet/hood [APF 50].

- If the measured exposure concentration is above 1.5 ppm and less than or equal to 30 ppm (1,000 times ECEL): Any NIOSH Approved PAPR equipped with a full facepiece equipped with organic vapor cartridges or canisters; any NIOSH Approved SAR or Airline Respirator in a continuous-flow mode equipped with full facepiece; any NIOSH Approved SAR or Airline Respirator in pressure-demand or other positive-pressure mode equipped with a full facepiece and an auxiliary self-contained air supply; or any NIOSH Approved SAR or Airline Respirator in a continuous-flow mode equipped with a helmet or hood and has been tested to demonstrate performance at a level of a protection of APF 1,000 or greater. [APF 1,000].
- If the measured exposure concentration is greater than 30 ppm (1,000+ times ECEL): Any NIOSH Approved SCBA equipped with a full facepiece, hood, or helmet and operated in a pressure demand or other positive pressure mode [APF 10,000].
- If the exposure concentration is unknown: Any NIOSH Approved combination supplied air respirator equipped with a full facepiece and operated in pressure demand or other positive pressure mode with an auxiliary self-contained air supply; or any NIOSH Approved SCBA operated in pressure demand or other positive pressure mode and equipped with a full facepiece or hood/helmet [APF 1000+].

Additionally, EPA is finalizing requirements that owners or operators select and provide respirators in accordance with the requirements of 29 CFR 1910.134(d)(1)(iv) and with consideration of workplace and user factors that affect respirator performance and reliability.

EPA is requiring that the owner or operator must ensure that all filters, cartridges, and canisters used in the workplace are labeled and color coded per NIOSH requirements and that the label is not removed and remains legible. Consistent with 29 CFR 1910.134(d)(3)(iii), EPA is requiring either the use of NIOSH Approved respirators with an end-of-life service indicator for the contaminant, in this case CTC, or implementation of a change schedule for canisters and cartridges that ensures that they are changed before the end of their service life. EPA is also requiring owners and operators to ensure that respirators are used in compliance with the terms of the respirator's NIOSH approval.

EPA is finalizing requirements that owners and operators must conduct regular evaluations of the workplace, including consultations with potentially exposed persons using respiratory protection, consistent with the requirements of 29 CFR 1910.134(l), to ensure that the provisions of the written respiratory protection program described in this unit are being effectively implemented.

EPA is finalizing the requirement that owners and operators document respiratory protection used and PPE program implementation. EPA is finalizing requirements that owners and operators document in the exposure control plan or other documentation of the facility's safety and health program information relevant to the respiratory program, including records on the name, workplace address, work shift, job classification, work area, and type of respirator worn (if any) by each potentially exposed person, maintenance, fit-testing, and training as described in this unit.

b. Dermal Protection

As described in this unit EPA is finalizing requirements that each owner or operator supply dermal PPE that separates and provides a barrier to prevent direct dermal contact with CTC, selected in accordance with requirements described in this unit, to each person who is reasonably likely to be dermally exposed in the work area through direct dermal contact within 1,005 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, no later than September 20, 2027) for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or 180 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, no later than June 16, 2025) for non-Federal owners and operators. Where elimination, substitution, engineering controls, and administrative controls are not feasible or sufficient to fully prevent direct dermal contact with CTC, EPA is finalizing requirements that appropriate dermal PPE be provided by owners and operators to, and be worn by, persons potentially exposed to direct dermal contact with CTC. EPA is requiring owners and operators to provide dermal PPE that is of safe design and construction for the work to be performed. EPA is also requiring owners and operators ensure each potentially exposed person who is required to wear PPE to use and maintain PPE in a sanitary, reliable, and undamaged condition. Additionally, EPA is requiring owners and operators to select and provide PPE that properly fits each potentially exposed person who is required to use PPE and communicate PPE selections to each affected person.

In choosing appropriate dermal PPE, EPA is requiring owners and operators to select gloves, clothing, and protective gear (which covers any exposed dermal area of arms, legs, torso, and face) based on specifications from the manufacturer or supplier or individually prepared third party testing that demonstrate an impervious barrier to CTC during expected durations of use and normal conditions of exposure within the workplace, accounting for potential chemical permeation or breakthrough times. EPA is also requiring that owners and operators demonstrate that the selected PPE will be impervious for the expected duration and conditions of exposure, such as using the format specified in ASTM F1194–99(2010) "Standard Guide for Documenting the Results of Chemical Permeation Testing of Materials Used in Protective Clothing Materials," reporting cumulative permeation rate as a function of time, or equivalent manufacturer- or supplier-provided testing. In alignment with the OSHA Hand Protection PPE Standard (29 CFR 1910.138), EPA is requiring owners and operators to select dermal PPE based on an evaluation of the performance characteristics of the PPE relative to the task(s) to be performed, conditions present, and the duration of use. EPA is also requiring owners and operators to consider likely combinations of chemical substances to which the clothing may be exposed in the work area when selecting the appropriate PPE such that the PPE will prevent direct dermal contact to CTC.

For example, owners and operators can select gloves that have been tested in accordance with the American Society for Testing and Materials (ASTM) F739 "Standard Test Method for Permeation of Liquids and Gases through Protective Clothing Materials under Conditions of Continuous Contact." EPA is finalizing that PPE be provided for use for a time period only to the extent and no longer than the time period for which testing has demonstrated that the PPE will be impervious during expected durations of use and conditions of exposure. EPA is finalizing requirements that owners and operators also consider other factors when selecting appropriate PPE, including effectiveness of glove type when preventing exposures from CTC alone and in likely combination with other chemical substances used in the work area or when used with glove liners, permeation, degree of dexterity

required to perform task, and temperature, as identified in the Hand Protection section of OSHA's Personal Protective Equipment Guidance (Ref. 45).

EPA is finalizing that owners and operators establish, either through manufacturer or supplier-provided documentation or individually prepared third party testing that the selected PPE will be impervious for the expected duration and conditions of exposure, such as using the format specified in ASTM F1194–99(2010) "Standard Guide for Documenting the Results of Chemical Permeation Testing of Materials Used in Protective Clothing Materials," reporting cumulative permeation rate as a function of time, or equivalent manufacturer- or supplier-provided testing. EPA is also requiring owners and operators to consider likely combinations of chemical substances to which the clothing may be exposed in the work area when selecting the appropriate PPE such that the PPE will prevent direct dermal contact to CTC. Degradation may also be appropriate to consider in the context of combination chemical exposures, as some glove types and materials may demonstrate efficient permeation barrier results but may not be fully resistant to degradation from the chemical exposure. Degradation can be evaluated using standard test methods such as select test methods within ASTM Method D 471 Standard Test Method for Rubber Property—Effect of Liquids (*e.g.*, ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension). EPA is finalizing requirements that PPE must be immediately provided and replaced if any person is dermally exposed to CTC longer than the breakthrough time period for which testing has demonstrated that the PPE will be impermeable or if there is a chemical permeation or breakage of the PPE.

Additionally, EPA is finalizing requirements that owners and operators subject to this rule comply with provisions of 29 CFR 1910.133(b) for requirements on selection and use of eye and face protection.

Additionally, as part of the PPE program, EPA is also finalizing that owners and operators must comply with OSHA's general PPE training requirements at 29 CFR 1910.132(f) for application of a PPE training program, including providing training on proper use of dermal PPE (*e.g.*, when and where PPE is necessary, proper application, wear, and removal of PPE, maintenance, useful life and disposal of PPE). EPA is finalizing that owners and operators provide PPE training to all persons required to use dermal PPE prior to or at the time of initial assignment to a job involving potential exposure to CTC. Owners and operators have to re-train each affected person at least once annually or whenever the owner or operator has reason to believe that a previously trained person does not have the required understanding and skill to properly use PPE, or when changes in the workplace or in the PPE to be used render the previous training obsolete.

EPA is also finalizing requirements that owners and operators retain records of dermal PPE used and program implementation. EPA is requiring that owners and operators document in the exposure control plan or other documentation of the facility's safety and health program, information relevant to any dermal PPE program, as applicable, including:

- The name, workplace address, work shift, job classification, and work area of each person reasonably likely to directly handle CTC or handle equipment or materials on which CTC may present and the type of PPE selected to be worn by each of these persons;
- The basis for specific PPE selection (*e.g.*, demonstration based on permeation testing or manufacturer specifications that each item of PPE selected provides an impervious barrier to prevent exposure during expected duration and conditions of exposure, including the likely combinations of chemical substances to which the PPE may be exposed in the work area);
- Appropriately sized PPE and training on proper application, wear, and removal of PPE, and proper care/disposal of PPE;
- Occurrence and duration of any direct dermal contact with CTC that occurs during any activity or malfunction at the workplace that causes direct dermal exposures to occur and/or glove breakthrough, and corrective actions to be taken during and immediately following that activity or malfunction to prevent direct dermal contact to CTC; and
- Training described in this unit.

7. Additional Finalized Requirements

a. Workplace Information and Training

EPA is also finalizing its requirements to implement a training program in alignment with the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the OSHA General Industry Standard for Methylene Chloride (29 CFR 1910.1052). To ensure that potentially exposed persons in the workplace are informed of the hazards associated with CTC exposure, EPA is finalizing as proposed with slight modification to require that owners or operators of workplaces subject to the WCPP institute a training and information program for potentially exposed persons and assure their participation in the training and information program within 1,005 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, no later than September 20, 2027) for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or 630 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, no later than September 9, 2026) for non-Federal owners and operators. For purposes of workplace information and training, owners and operators are only required to train potentially exposed persons that are expected to be present in the workplace or to directly handle CTC or handle equipment or materials on which CTC may present.

As part of the training and information program, the owner or operator is required to provide information and comprehensive training in an understandable manner (*i.e.*, plain language) and in multiple languages as appropriate (*e.g.*, based on languages spoken by potentially exposed persons) to potentially exposed persons prior to or at the time of initial assignment to a job involving potential exposure to CTC. Owners and operators are required to provide information and training, as referenced in the OSHA Hazard Communication Standard, to all potentially exposed persons that includes:

- The requirements of the CTC WCPP and how to access or obtain a copy of the requirements of the WCPP, including but not limited to the exposure control plan, monitoring requirements, and PPE program;
- The quantity, location, manner of use, release, and storage of CTC and the specific operations in the workplace that could result in CTC exposure, particularly noting where each regulated area is located;
- Principles of safe use and handling of CTC in the workplace, including specific measures the owner or operator has implemented to reduce inhalation exposure at or below the ECEL or prevent dermal contact with CTC, such as work practices and PPE used;
- The methods and observations that may be used to detect the presence or release of CTC in the workplace (such as monitoring conducted by the owner or operator, continuous monitoring devices, visual appearance or odor of CTC when being released, etc.); and

- The acute and chronic health hazards of CTC as detailed on relevant Safety Data Sheets (SDSs).

In addition to providing training at the time of initial assignment to a job involving potential exposure to CTC, owners and operators subject to the CTC WCPP are required to re-train each potentially exposed person as necessary, but at a minimum annually, to ensure they understand the principles of safe use and handling of CTC in the workplace. The owner or operator would consider factors such as the skills required to perform the work activity and the existing skill level of the staff performing the work. EPA is finalizing its requirements that owners and update the training as necessary whenever there are changes in the workplace, such as new tasks or modifications of tasks, in particular, whenever there are changes in the workplace that increase exposure to CTC or where potentially exposed persons' exposure to CTC can reasonably be expected to exceed the action level or increase the potential for direct dermal contact with CTC. To support compliance, EPA is finalizing that each owner or operator of a workplace subject to the WCPP would be required to provide to the EPA, upon request, all available materials related to workplace information and training.

b. Workplace Participation

EPA encourages owners and operators to consult with potentially exposed persons and their designated representative on the development and implementation of exposure control plans and PPE/respirator programs. EPA is finalizing a requirement that owners and operators provide potentially exposed persons and their designated representatives regular access to the exposure control plans, exposure monitoring records, and PPE program implementation records. To ensure compliance with workplace participation, EPA is finalizing a requirement that the owner or operator document the notice to and ability of any potentially exposed person that may reasonably be affected by CTC exposure to readily access the exposure control plans, facility exposure monitoring records, PPE program implementation records, or any other information relevant to CTC exposure in the workplace.

c. Recordkeeping

For owners and operators to demonstrate compliance with the WCPP provisions, EPA is requiring that owners and operators retain compliance records for five years (although this requirement does not supplant any longer recordkeeping retention time periods such as those required under 29 CFR 1910.1020, or other applicable regulations). EPA is requiring the owner or operator to retain records of:

- Exposure control plan;
- PPE program implementation and documentation, including as necessary, respiratory protection and dermal protection used and related PPE training; and
- Information and training provided to each person prior to or at the time of initial assignment and any retraining.

In addition, EPA is finalizing requirements that owners and operators subject to the WCPP ECEL requirements maintain records to include:

- Regulated areas and authorized personnel;
- The exposure monitoring records;
- Notification of exposure monitoring results; and
- To the extent that the owner or operator relies on prior exposure monitoring data, records that demonstrates that it meets all of the requirements of this section.

The owners and operators, upon request by EPA, are required to make all records that are maintained as described in Unit IV. available to EPA for examination and copying in accordance with EPA requirements. EPA emphasizes that all records required to be maintained can be kept in the most administratively convenient form; electronic record form or paper form.

8. Compliance Timeframes

EPA is finalizing the requirement that owners or operators of workplaces subject to the WCPP implement the DDCC requirements as outlined in this unit within 1,005 days after December 18, 2024 for Federal agencies or Federal contractors acting for or on behalf of the Federal government, 180 days after December 18, 2024 for non-Federal owners and operators, or within 30 days of introduction of CTC into the workplace, whichever is later. With regard to the compliance timeframe for the WCPP provisions related to the ECEL, EPA is not finalizing the timeframes proposed. Rather, as discussed in Unit III.B., based on consideration of public comments and reasonably available information, EPA is finalizing longer timeframes for compliance with provisions related to the ECEL for non-Federal owners or operators, and is providing Federal agencies and Federal contractors acting for or on behalf of the Federal government additional time to comply with each of the provisions of the WCPP. Specifically, EPA is finalizing its requirement that non-Federal owners and operators perform initial exposure monitoring according to the process outlined in this unit within 540 days after date of publication of the final rule in the **Federal Register** (*i.e.*, no later than June 11, 2026) or within 30 days of introduction of CTC into the workplace, whichever is later. Federal agencies and Federal contractors acting for or on behalf of the Federal government must conduct initial exposure monitoring within 915 days after the date of publication (*i.e.*, no later than June 21, 2027), or within 30 days of introduction of CTC into the workplace, whichever is later. EPA is also finalizing its requirement that each non-Federal owner or operator ensure that exposure to CTC does not exceed the ECEL as an 8-hour TWA for all potentially exposed persons within 630 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, no later than September 9, 2026), while Federal agencies and Federal contractors acting for or on behalf of the Federal government must comply with the ECEL within 1,005 days after the date of publication (*i.e.*, no later than September 20, 2027). If applicable, each owner or operator must provide respiratory protection sufficient to reduce inhalation exposures to below the ECEL to all potentially exposed persons in the regulated area within three months after receipt of the results of any exposure monitoring that indicates an exceedance of the ECEL. For non-Federal owners or operators, this will be within 630 days after the date of publication of the final rule in the **Federal Register** (*i.e.*, no later than September 9, 2026). For Federal agencies and Federal contractors acting for or on behalf of the Federal government, this will be within 1,005 after the date of publication of the final rule in the **Federal Register** (*i.e.*, no later than September 20, 2027). EPA is also finalizing the requirement that owners and operators demarcate a regulated area within three months after receipt of any exposure monitoring that indicates exposures exceeding the ECEL. Owners and operators shall proceed accordingly to implement an exposure control plan, including institution of feasible exposure controls other than PPE, within 1,080 days after date of publication of the final rule in the **Federal Register** (*i.e.*, no later than December 3, 2027).

C. Prescriptive Controls Required for Laboratory Use

In contrast to the non-prescriptive requirements of the WCPP, including the DDCC, where regulated entities would have the ability to select controls

in accordance with the hierarchy of controls to comply with the parameters outlined in Unit IV.B., EPA has found it appropriate in certain circumstances to require specific prescriptive controls for certain occupational conditions of use. In general, EPA is finalizing prescriptive controls, for the industrial and commercial use of CTC as a laboratory chemical, as described in Unit III.A.2. This unit provides a description of the industrial and commercial use of CTC as a laboratory chemical subject to specific prescriptive controls, the specific prescriptive control requirements, and the compliance timeframe for the requirements.

1. Applicability

The industrial and commercial use of CTC as a laboratory chemical refers to the industrial or commercial use of CTC, often in small quantities, in a laboratory process or in specialized laboratory equipment for instrument calibration/maintenance, chemical analysis, chemical synthesis, extracting and purifying other chemicals, dissolving other substances, executing research, development, test and evaluation methods, and similar activities, such as use as a solvent, reagent, analytical standard, or other experimental use.

After the risk evaluation was published, DoD did further analysis and provided additional information clarifying their current use of CTC as a laboratory chemical and risk management measures implemented. DoD provided information on their use of CTC as a laboratory chemical in chemical weapons destruction, indicating that CTC is used in small amounts in a confined, laboratory-like setting with advanced engineering controls. There is no waste CTC generated during this process.

EPA recognizes that potentially exposed persons in a laboratory setting may include students, researchers, visiting scholars, or others whose job classifications may vary, such as depending on the academic period in university laboratories. The requirements described in this unit apply to all potentially exposed persons in all laboratory settings, including academic and research laboratories, regardless of job classification.

2. Workplace Requirements

To address the unreasonable risk of injury to health resulting from dermal exposures to CTC identified for the industrial and commercial use as a laboratory chemical, including DoD's use of CTC as a laboratory chemical in chemical weapons destruction, EPA is requiring dermal PPE, including impermeable gloves and protective clothing, in combination with comprehensive training for tasks particularly related to the use of CTC in a laboratory setting as specified in this unit for each potentially exposed person with direct dermal contact to CTC in the work area through direct handling of the substance or from contact with surfaces that may be contaminated with CTC. For dermal PPE, EPA is requiring that each owner or operator comply with the requirements outlined in Units IV.B.6.b. for selection of dermal PPE and training for all potentially exposed persons. EPA's description for how the requirements for the industrial and commercial use as a laboratory chemical address the unreasonable risk resulting from dermal exposures under the conditions of use and the rationale for this regulatory approach is outlined in Unit V. of the proposed rule (88 FR 49205, July 28, 2023) (FRL–8206–01–OCSPP).

In addition, EPA is requiring the use of laboratory ventilation devices, such as fume hoods, glove boxes, air handling units, exhaust fans, biological safety devices, airflow controls, and other local exhaust devices, in workplace laboratory settings for the industrial and commercial use of CTC as a laboratory chemical, except for DoD's use of CTC as a laboratory chemical in chemical weapons destruction, to codify existing good laboratory practices. EPA is requiring each owner or operator of a workplace laboratory setting, except for DoD's use of CTC as a laboratory chemical in chemical weapons destruction, to ensure laboratory ventilation devices are in use and functioning properly to minimize exposures to persons in the area where CTC is used as a laboratory chemical. EPA suggests owners or operators refer to OSHA's 29 CFR 1910.1450, Appendix A, for National Research Council recommendations concerning laboratory chemical hood ventilation system characteristics and practices and to ANSI's and ASSP's Z9.5–2022 for recommendations on additional laboratory ventilation controls to minimize exposures to potentially exposed persons in the work area.

EPA understands that DoD uses CTC in small amounts in a confined, laboratory-like setting with advanced engineering controls (Ref. 46). Therefore, for DoD's industrial and commercial use of CTC as a laboratory chemical in chemical weapons destruction, EPA is requiring advanced engineering controls that essentially codify existing practices at DoD facilities. EPA is not requiring a WCPP, specifically with monitoring requirements, for DoD's industrial and commercial use of CTC as a laboratory chemical in chemical weapons destruction.

3. Recordkeeping

To support and demonstrate compliance, EPA is requiring that each owner or operator of a laboratory workplace subject to the requirements of this unit retain compliance records for five years. In alignment with 29 CFR 1910.1450(e)(3)(ii) and (iii) and 29 CFR 1910.132(d)(2), EPA is requiring that owners and operators must retain records of:

- Dermal protection used by each potentially exposed person and PPE program implementation as outlined in this unit;
- Criteria that the owner or operator will use to determine and implement control measures to reduce potentially exposed persons' exposure to CTC including laboratory ventilation devices as outlined in this unit;
- Implementation of properly functioning laboratory ventilation devices using manufacturer's instructions for installation, use, and maintenance of the systems, including inspections, tests, development of maintenance procedures, the establishment of criteria for acceptable test results, and documentation of test and inspection results, except for DoD's use of CTC as a laboratory chemical in chemical weapons destruction; and
- For DoD's industrial and commercial use of CTC as a laboratory chemical in chemical weapons destruction, implementation of advanced engineering controls that are in use and functioning properly and specific measures taken to ensure proper and adequate performance. Owners or operators must maintain records for five years. EPA expects owners or operators ensure that records reflect actions taken within the last five years to comply with the requirements of this unit.

4. Compliance Timeframes

With regards to the compliance timeframe, EPA is requiring that each owner or operator of a workplace engaged in the industrial and commercial of CTC as a laboratory chemical ensure laboratory ventilation devices are in use and functioning properly and that dermal PPE is provided to all potentially exposed persons with direct dermal contact with CTC within 180 days after publication of the final rule.

Similarly, EPA is requiring that DoD facilities engaged in the industrial and

commercial use of CTC as a laboratory chemical in chemical weapons destruction ensure that advanced engineering controls are in use and functioning properly and dermal PPE is provided to all potentially exposed persons with direct dermal contact with CTC within 365 days after publication of the final rule.

EPA understands that certain departments and agencies of the Federal government, as well as Federal contractors acting for or on behalf of the Federal government, need additional time to comply with these timeframes. For example, ensuring compliance with the prescriptive controls could be challenging due to changing contracting, procurement decisions and other processes in Federal facilities. Similarly, EPA is requiring for that agencies of the Federal government and their contractors, when acting for or on behalf of the Federal government, that are engaged in the industrial and commercial use of CTC as a laboratory chemical ensure laboratory ventilation devices are in use and functioning properly, and that dermal PPE and training on proper use of PPE is provided to all potentially exposed persons with direct dermal contact with CTC within 365 days after publication of the final rule.

D. Prohibition of Manufacture, Processing, Distribution, and Use of CTC

1. Applicability

EPA is finalizing the prohibitions for most of the conditions of use for which prohibition was proposed. Prohibitions will address the contribution to the unreasonable risk determined to be presented by CTC in the 2020 Risk Evaluation for Carbon Tetrachloride and 2022 Revised Unreasonable Risk Determination for Carbon Tetrachloride from industrial and commercial uses of CTC, and reasonably available information indicates that industry has already transitioned away from CTC and found technically and economically feasible alternatives to CTC for these uses. Unit V. of the proposed rule and the Response to Comments document present further discussion of EPA's rationale for why these conditions of use are being prohibited (88 FR 49205) (FRL–8206–01–OCSPP). EPA's *description* of the uses proposed to be prohibited for which the Agency is finalizing a WCPP (processing: incorporation into formulation, mixtures, or reaction products in vinyl chloride manufacturing and the industrial and commercial use as an industrial processing aid in the manufacture of vinyl chloride) are in Units III.A.1. and IV.B.1. The rule prohibits manufacture, processing, distribution in commerce, and use of CTC for the following industrial and commercial uses of CTC: industrial and commercial use as a processing aid in the manufacture of petrochemical-derived products except in the manufacture of vinyl chloride (for which EPA is finalizing a WCPP); industrial and commercial use in the manufacture of other basic chemicals (including chlorinated compounds used in solvents, adhesives, asphalt, and paints and coatings), except for use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine (for which EPA is finalizing a WCPP); industrial and commercial use in metal recovery; industrial and commercial use as an additive; and industrial and commercial use in specialty uses by the U.S. Department of Defense. EPA is also finalizing the explicit prohibition for processing: incorporation into formulation, mixture or reaction products in petrochemical-derived manufacturing except in the manufacture of vinyl chloride (the upstream processing condition of use for the industrial and commercial use of CTC as a processing aid in the manufacture of petrochemicals-derived products except in the manufacture of vinyl chloride). This unit provides a description of the uses subject to the prohibitions to assist with compliance.

a. Processing: Incorporation Into Formulation, Mixture or Reaction Products in Petrochemical-Derived Manufacturing Except in the Manufacture of Vinyl Chloride

Incorporation into formulation, mixture, or reaction products refers to the process of mixing or blending several raw materials to obtain a single product or preparation or formulation. CTC has historically been incorporated into formulation or mixtures to manufacture hydrochloric acid (HCl), vinyl chloride, ethylene dichloride (EDC), chloroform, hafnium tetrachloride, thiophosgene, and methylene chloride. CTC may be incorporated into various products and formulations at varying concentrations for further distribution. For example, CTC may be unloaded from transport containers either directly into mixing equipment or into an intermediate storage vessel either manually or through automation via a pumping system. Mixing of components can occur in either a batch or continuous system. The mixture that contains CTC may be used as a reactant to manufacture a chlorinated compound that is subsequently formulated into a product or a processing aid used to aid in the manufacture of petrochemicals-derived products. For the purposes of this rulemaking, EPA is specifically prohibiting the incorporation into formulation, mixture or reaction products in petrochemical-derived manufacturing except in the manufacture of vinyl chloride. Incorporation into formulation, mixture or reaction products in agricultural products manufacturing, vinyl chloride manufacturing, the elimination of nitrogen trichloride in the production of chlorine and caustic soda, and the recovery of chlorine in tail gas from the production of chlorine is being regulated under the WCPP, as described in Unit IV.B.

b. Industrial and Commercial Use

i. Industrial and Commercial Use as an Industrial Processing aid in the Manufacture of Petrochemicals-Derived Products Except in the Manufacture of Vinyl Chloride.

A processing aid is a "chemical that is added to a reaction mixture to aid in the manufacture or synthesis of another chemical substance but is not intended to remain in or become part of the product or product mixture." Additionally, processing agents are intended to improve the processing characteristics or the operation of process equipment, but not intended to affect the function of a substance or article created. CTC has traditionally been used as a processing aid/agent to aid in the manufacture of petrochemical-derived products (Ref. 1). The condition of use includes the use of CTC that has historically been used as a processing agent in the manufacture of chlorosulphonated polyolefin; stryene butadiene rubber; endosulfan (insecticide); 1–1 Bis (4-chlorophenyl) 2,2,2-trichloroethanol (dicofol insecticide); and tralomethrin (insecticide). For the purposes of this rulemaking, EPA is specifically prohibiting the industrial and commercial use of CTC as an industrial processing aid in the manufacture of petrochemicals-derived products, except in the manufacture of vinyl chloride. The industrial and commercial use as an industrial processing aid in the manufacture of agricultural products and vinyl chloride is being regulated under the WCPP, as described in Unit IV.B.

ii. Industrial and Commercial Use in the Manufacture of Other Basic Chemicals (Including Manufacturing of Chlorinated Compounds Used in Solvents, Adhesives, Asphalt, and Paints and Coatings), Except for Use in the Elimination of Nitrogen Trichloride in the Production of Chlorine and Caustic Soda and the Recovery of Chlorine in Tail Gas From the Production of Chlorine

CTC has historically been used as a processing aid/agent in basic organic and inorganic chemical manufacturing. CTC could be used as a processing agent in the manufacturing of chlorinated compounds that are subsequently used in the formulation of solvents, adhesives, asphalt, and paints and coatings; in the manufacturing of chlorinated paraffins (*e.g.*, plasticizer in rubber, paints, adhesives, sealants, plastics), and chlorinated rubber (*e.g.*, additive in paints, adhesives); and in the manufacturing of inorganic chlorinated compounds, such as in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine. For the purposes of this rulemaking, EPA is specifically prohibiting the industrial and commercial use in the manufacture of other basic chemicals (including manufacturing of chlorinated compounds used in solvents, adhesives, asphalt, and paints and coatings), except for use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine. The industrial and commercial use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine is being regulated under the WCPP, as described in Unit IV.B.

iii. Industrial and Commercial Use in Metal Recovery

CTC has historically been used as a processing aid or agent to aid in metal recovery.

iv. Industrial and Commercial Use as an Additive

Additives are chemicals combined with a chemical product to enhance the properties of the product. Additives typically stay mixed within the finished product and remain unreacted. The risk evaluation examined the use of CTC as an additive for the manufacture of petrochemical-derived products and agricultural products. CTC has historically been used as an additive in fuel and in plastic components used in the automotive industry.

v. Industrial and Commercial Use in Specialty Uses by the U.S. Department of Defense (DoD)

During the risk evaluation, DoD provided monitoring data for CTC uses in various processes that include worker activities such as cleaning and sampling residual metal and ash; destruction of munitions and storage of resulting liquid waste; and sampling of energetics with solvent. The unreasonable risk determination for CTC further determined that this condition of use contributed to the unreasonable risk. The Agency understands that DoD has successfully phased out the use of CTC for this condition of use.

As discussed in Unit II.C.4., the prohibitions do not apply to any substance that is excluded from the definition of "chemical substance" under TSCA section 3(2)(B)(ii) through (vi).

2. Compliance Timeframes

EPA is finalizing that the prohibitions apply as of 180 days after the date of publication of the final rule for the manufacturing, processing, distribution in commerce, and use of CTC for the following: incorporation of CTC into formulation, mixture or reaction products in petrochemical-derived manufacturing except in the manufacture of vinyl chloride; the industrial and commercial use of CTC as a processing aid in the manufacture of petrochemical-derived products except in the manufacture of vinyl chloride; the industrial and commercial use of CTC in the manufacture of other basic chemicals (including chlorinated compounds used in solvents, adhesives, asphalt, and paints and coatings), except for use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine; the industrial and commercial use of CTC in metal recovery; and the industrial and commercial use of CTC as an additive.

EPA is also finalizing the prohibitions for the manufacturing, processing, distribution in commerce, and use of CTC for the industrial and commercial use in specialty uses by the DoD to apply as of 365 days after the date of publication of the final rule.

E. Other Requirements

1. Recordkeeping

For conditions of use that are not otherwise prohibited under this final rule, EPA is finalizing the requirement that manufacturers, processors, distributors, and commercial users maintain ordinary business records, such as invoices and bills-of-lading, that demonstrate compliance with the prohibitions, restrictions, and other provisions of this final regulation; and to maintain such records for a period of 5 years from the date the record is generated. This requirement begins on February 18, 2025. For enforcement purposes, EPA will have access to such businesses records plus additional records required under 40 CFR 751.713. Recordkeeping requirements would ensure that owners or operators can demonstrate compliance with the regulations if necessary.

2. Downstream Notification

For conditions of use that are not otherwise prohibited under this final regulation, EPA is finalizing requirements that manufacturers (including importers), processors, and distributors of CTC provide downstream notification of the prohibitions through the SDSs by adding to sections 1(c) and 15 of the SDS the following language:

After June 18, 2025, this chemical substance (as defined in TSCA section 3(2)) may not be distributed in commerce or processed in greater than trace quantities for the following purposes: Incorporation into formulation, mixture or reaction products in petrochemical-derived manufacturing except in the manufacture of vinyl chloride; Industrial and commercial use as an industrial processing aid in the manufacture of petrochemicals-derived products except in the manufacture of vinyl chloride; Industrial and commercial use in the manufacture of other basic chemicals (including manufacturing of chlorinated compounds used in solvents, adhesives, asphalt, and paints and coatings), except for use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine; Industrial and commercial use in metal recovery; Industrial and commercial use as an additive; and beginning December 18, 2025, industrial and commercial specialty uses by the U.S. Department of Defense.

To provide adequate time to update the SDS and ensure that all products in the supply chain include the revised SDS, EPA's final rule requires manufacturers to revise their SDS within two months of rule publication and processors and distributors to revise their SDS within six months of rule publication. EPA did not receive public comments asserting that these compliance dates for updating the SDS were impracticable, and is therefore finalizing the compliance dates as proposed. The intention of downstream notification is to spread awareness throughout the supply chain of the

restrictions on CTC under TSCA and to provide information to commercial end-users about prohibited uses of CTC.

V. TSCA Section 6(c)(2) Considerations

A. Health Effects of Carbon Tetrachloride and the Magnitude of Human Exposure to Carbon Tetrachloride

EPA's analysis of the health effects of CTC and the magnitude of human exposure to CTC are in the 2020 Risk Evaluation for CTC and the 2022 Revised Unreasonable Risk Determination for CTC (Refs. 1, 3). A summary is presented here.

The 2020 Risk Evaluation for CTC identified potential health effects of CTC including carcinogenicity, liver toxicity, neurotoxicity, kidney toxicity, reproductive and developmental toxicity, irritation and sensitization, and genetic toxicity. Acute inhalation exposures to CTC at relatively high concentrations induce immediate and temporary depression of the central nervous-system, with effects consisting of escape-impairing symptoms such as dizziness. For chronic non-cancer inhalation exposure scenarios to CTC, liver toxicity is identified as the most sensitive adverse effect contributing to the unreasonable risk of CTC exposure due to fatty changes to the liver indicative of cellular damage. Under EPA's Guidelines for Carcinogen Risk Assessment (Ref. 47), CTC is classified as "Likely to be Carcinogenic in Humans." CTC has been shown to cause pheochromocytomas (tumors of the adrenal glands) in male and female mice by oral and inhalation exposures, and a strong association between neuroblastoma and CTC in a single well-conducted epidemiological study in the same organ raises concern for potential carcinogenic effects in human. In addition, a general correlation has been observed in animal studies with CTC between hepatocellular cytotoxicity and regenerative hyperplasia and the induction of liver tumors (Ref. 1).

Populations exposed to CTC include workers ages 17 and older of either gender, including pregnant women and individuals who do not use CTC but may be indirectly exposed due to their proximity to the user who is directly handling CTC (occupational non-users, or ONUs). EPA estimates that, annually, there are approximately between 852 and 9,554 workers and between 500 and 4,144 ONUs at between 30 and 71 facilities either manufacturing, processing, or using CTC for industrial and commercial conditions of use (Ref. 5).

In addition to these estimates of numbers of workers and occupational non-users directly exposed to CTC, EPA recognizes there is exposure to the general population from air and water pathways for CTC (fenceline communities are a subset of the general population who may be living in proximity to a facility where CTC is being used in an occupational setting). EPA separately conducted a screening approach to assess whether there may be potential risks to the general population from these exposure pathways. This analysis is summarized in the proposed rule, which includes information on the SACC peer review. This unit addresses those areas where some risk was indicated at the fenceline, and the conditions of use will be continuing under this final rule.

EPA's methodological approach to assessing potential exposures to fenceline communities of chemicals undergoing risk evaluation under TSCA section 6 was presented to the SACC peer review panel in March 2022, and EPA is including SACC recommendations, as appropriate, in assessing general population exposures in upcoming risk evaluations.

EPA's fenceline analysis for the water pathway for CTC, based on methods presented to the SACC, did not find risks from drinking water, incidental oral ingestion of ambient water, or incidental dermal exposure of surface water (Ref. 48).

Standard cancer benchmarks used by EPA and other regulatory agencies are an increased cancer risk above benchmarks ranging from 1 in 1,000,000 to 1 in 10,000 (*i.e.*, 1×10^{-6} to 1×10^{-4}). For example, when setting standards under section 112(f)(2) of the CAA, EPA uses a two-step process, with "an analytical first step to determine an 'acceptable risk' that considers all health information, including risk estimation uncertainty, and includes a presumptive limit on maximum individual risk (MIR) of approximately 1-in-10 thousand" (Ref. 49, referencing the interpretation set forth in the 1989 final National Emission Standards for Benzene rule (54 FR 38044 Sept. 14, 1989)). In the screening level fenceline analysis for the ambient air pathway for CTC, EPA calculated its risk estimates to certain populations within the general population living or working near particular facilities and compared those risk estimates to a 1 in 1,000,000 (*i.e.*, 1×10^{-6}) benchmark value for cancer risk. There are still uncertainties where the calculated risk exceeds this cancer risk benchmark value. The benchmark values are not a bright line, and the Agency considers a number of factors when determining unreasonable risk, such as the endpoint under consideration, the reversibility of effect, and exposure-related considerations (*e.g.*, duration, magnitude, aggregate or cumulative impacts, or frequency of exposure, or size of population exposed, including PESS).

The screening level fenceline analysis for CTC calculated risk estimates to select populations within the general population living or working near particular facilities exceeding the 1×10^{-6} benchmark value (Ref. 50). However, EPA has not determined based on this screening level analysis whether these risks to the general population contribute to the unreasonable risk presented by CTC. After considering the results, limitations, and uncertainties of the screening-level analysis, EPA determined as a matter of policy that reopening the TSCA section 6(b) risk evaluation for CTC for further evaluation of risk to the general population, and consequently delaying the promulgation of this TSCA section 6(a) rule, was not warranted. The Agency believes it is important to expeditiously promulgate this final rule to protect the public from the unreasonable risk determined in accordance with TSCA section 6(b)(4)(A), which was driven by occupational exposures.

The ambient air analysis for the multi-year fenceline analysis identified 19 facilities (in addition to 6 facilities solely manufacturing CTC as a byproduct, which were excluded because, as described earlier, the 2020 Risk Evaluation for Carbon Tetrachloride did not include the manufacture of CTC as a byproduct as a condition of use) with risk estimates above one in a million, with one facility with risk estimates above one in ten thousand, at 100 meters representing five conditions of use. Under the final regulatory action described in Unit IV., all of the ongoing conditions of use with an indication of potential risk to fenceline communities (with the exception of manufacture of CTC as a byproduct) would be required to establish a WCPP. Furthermore, EPA is prohibiting increased emissions associated with WCPP requirements, and in the WCPP exposure control plan facilities need to evaluate controls to determine how to reduce releases and exposures to potentially exposed persons in the workplace and attest that engineering controls selected do not increase emissions of CTC to ambient air outside of the workplace and whether additional equipment was installed to capture emissions of CTC to

ambient air. EPA anticipates that this analysis would help facilities to determine the most effective ways to reduce releases, including possible engineering controls or elimination/substitution of CTC, and therefore may also reduce the overall risk to fenceline communities.

EPA recognizes, as was described in the 2020 Risk Evaluation for Carbon Tetrachloride, that CTC is highly persistent in the atmosphere with an estimated tropospheric half-life exceeding 330 years. Thus, CTC has notable global background concentrations due to its long half-life, despite having limited air releases in the US, as noted in both the EPA's Air Toxic Screening Assessment modeling technical support document and in a recent EPA publication comparing the national air toxics modeling to regional monitoring data (Refs. 51, 52). The risk estimates from the fenceline analysis do not account for the background concentrations from historical emissions, which are persistent in the atmosphere.

In the instances where manufacturing, processing, or use of CTC may increase, EPA expects that potential additional exposure from emissions to ambient air to be limited as a result of the prohibition on the increased ventilation of CTC to ambient air and existing National Emission Standards for Hazardous Air Pollutants (NESHAPs) that cover CTC for these conditions of use under the CAA. Applicable NESHAPs include: 40 CFR part 63, subparts F, G, H, and I, Organic HAP from the Synthetic Organic Chemical Manufacturing Industry and Other Processes Subject to the Negotiated Regulation for Equipment Leaks.

The CAA establishes a two-phase process for the EPA's development, review, and potential revision of NESHAP that impose emission standards and work practice requirements on subject categories of sources of hazardous air pollutants. First, the EPA sets technology-based or performance-based standards reflecting the maximum achievable control technology (MACT) for major sources (CAA section 112(d)(2) and (3)) and generally available control technology (GACT) for area or non-major sources (CAA section 112(d)(5)). In the second phase, eight years after adoption of the first phase standards, the EPA performs a residual risk review of major source MACT standards to ensure that they provide an ample margin of safety to protect public health (CAA section 112(f)(2)), and a technology review of all NESHAP to account for developments in practices, processes and control technologies (CAA section 112(d)(6)). The CAA only requires the EPA to conduct the residual risk review one time for each MACT standard, although the EPA has discretion to conduct additional risk reviews where warranted. The technology review, instead, is a recurring duty, and the EPA must perform it no less often than every eight years.

B. Environmental Effects of Carbon Tetrachloride and the Magnitude of Environmental Exposure to Carbon Tetrachloride

EPA's analysis of the environmental effects of CTC and the magnitude of exposure of the environment to CTC are in the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1). The unreasonable risk determination for CTC is based solely on risks to human health; based on the TSCA 2020 Risk Evaluation for Carbon Tetrachloride, EPA determined that exposures to the environment did not drive the unreasonable risk. A summary is presented here in Unit V.

Exposures to terrestrial organisms from the suspended soils and biosolids pathway was qualitatively evaluated. Due to its physical-chemical properties, EPA expects that CTC does not bioaccumulate in fish or sediments; and CTC could be mobile in soil and migrate to water or volatilize to air (Ref. 1).

EPA concluded in the 2020 Risk Evaluation for Carbon Tetrachloride that CTC poses a hazard to environmental aquatic receptors. Amphibians were the most sensitive taxa for acute and chronic exposures. Acute exposures of CTC to fish, freshwater aquatic invertebrates, and sediment invertebrates resulted in hazard values as low as 10.4 mg/L, 11.1 mg/L, and 2 mg/L, respectively. For chronic exposures, CTC has a hazard value for amphibians of 0.03 mg/L based on teratogenesis and lethality in frog embryos and larvae. Furthermore, chronic exposures of CTC to fish, freshwater aquatic invertebrates, and sediment invertebrates resulted in hazard values as low as 1.97 mg/L, 1.1 mg/L, and 0.2 mg/L, respectively. In algal studies, CTC has hazard values ranging from 0.07 to 23.59 mg/L (Ref. 1).

In addition to the environmental effects assessed in the 2020 Risk Evaluation for Carbon Tetrachloride, EPA recognizes that CTC is an ozone-depleting substance with a 100-year GWP of 1730 (energy the emissions of one ton of gas will absorb over 100 years, relative to the emissions of one ton of carbon dioxide (CO_2)) (Ref. 53). As a result of its ozone-depleting effects, the Montreal Protocol and Title VI of the CAA led to a phase-out of CTC production in the United States for most non-feedstock domestic uses. EPA did not evaluate the effect of CTC or this rule on ozone depletion. In addition, while the Agency understands that the use of CTC is expected to increase to produce low GWP HFOs, replacing many of the higher GWP HFCs, there is uncertainty in the change in volume of CTC that will be manufactured and used to produce HFOs. In the final rule, EPA is requiring owners/operators to ensure that any engineering controls instituted under the WCPP do not increase emissions of CTC to ambient air. EPA expects that potential additional exposure from emissions to ambient air would be limited as a result of the existing NESHAPs that cover CTC. However, EPA did not evaluate whether a possible increase of CTC emissions with a GWP of 1730 would offset emissions of the HFCs replaced by the lower GWP HFOs manufactured with CTC, or the overall global warming impact of CTC use.

C. Benefits of Carbon Tetrachloride for Various Uses

As described in the proposed rule, CTC is primarily used as a feedstock in the production of HCFCs, HFCs, and HFOs. Other conditions of use include regulated use as a processing agent in the manufacture of petrochemicals-derived and agricultural products and other chlorinated compounds such as chlorinated paraffins, chlorinated rubber and others that may be used downstream in the formulation of solvents for adhesives, asphalt, paints and coatings. Requirements under the Montreal Protocol and Title VI of the CAA led to a phaseout of CTC production in the United States for most non-feedstock domestic uses in 1996 and the CPSC banned the use of CTC in household products (excluding unavoidable residues not exceeding 10 ppm atmospheric concentration) in 1970.

CTC is a major feedstock for generation of lower-GWP alternative fluorocarbon products in the United States (Ref. 54). EPA anticipates that many entities currently using HFCs with higher global warming potential will transition to alternatives with lower global warming potential as requirements under the AIM Act begin to apply. The manufacturing of CTC is predicted to increase as a result of the transition from HFCs to lower-GWP HFOs that use CTC as a feedstock, such as HFO–1234yf used in motor vehicle AC and HFO–1234ze used in some types of aerosols and foam-blowing agents.

D. Reasonably Ascertainable Economic Consequences of the Final Rule

1. Likely Effect of the Rule on the National Economy, Small Business, Technological Innovation, the Environment, and Public Health

With respect to the anticipated effects of this rule on the national economy, the economic impact of a regulation on the national economy generally only becomes measurable if the economic impact of the regulation reaches 0.25 percent to 0.5 percent of Gross Domestic Product (GDP) (Ref. 55). Given the current GDP of $23.17 trillion, this is equivalent to a cost of $58 billion to $116 billion which is considerably higher than the estimated cost of this rule. EPA considered the number of businesses, facilities, and workers that would be affected and the costs and benefits to those businesses and workers and society at large and did not find that there would be a measurable effect on the national economy. In addition, EPA considered the employment impacts of this final rule. For businesses subject to the WCPP, including the ECEL and DDCC requirements, and prescriptive workplace control requirements, EPA estimates the marginal cost of labor will increase. This may lead to small negative employment effects. Costs of prohibition in the final rule are not quantified, since EPA expects the prohibited uses are not ongoing. However, there may be employment effects proportionate to the extent to which CTC is still being used in the prohibited conditions of use.

EPA has determined that the rule will not have a significant impact on a substantial number of small entities. EPA estimates that the rule would affect at least seven small entities, and that the cost would only exceed 1 percent of annual revenues for two of these small entities. EPA expects that the final rule will not hinder technological innovation. Innovative applications of CTC in recent years have occurred in the production of HFOs. The regulatory options with requirements for certain conditions of use, including processing as a reactant in the production of refrigerants (such as HFOs), are not expected to inhibit innovation since they permit the continued use of CTC with appropriate controls. With respect to those conditions of use where prohibition is the requirement in the final action, EPA did not find evidence of ongoing use of CTC and thus there are no expected effects on innovation.

The effects of this rule on public health are estimated to be positive, due to the avoided incidence of adverse health effects attributable to CTC exposure, including adrenal and liver cancer.

2. Costs and Benefits of the Regulatory Action and of the 1 or More Primary Alternative Regulatory Actions Considered by the Administrator

The costs and benefits that can be monetized for this rule are described at length in in the Economic Analysis (Ref. 5). The total cost of the final rule is $19.7 million dollars annualized over 20 years at a 3% discount rate and $19 million dollars at a 7% discount rate. EPA's Economic Analysis for the rule quantified the benefits from avoided cases of adrenal and liver cancers. Cancer benefits are calculated based on inhalation exposure estimates from the Final Risk Evaluation. The estimated monetized benefit of the final rule ranges from approximately $0.13 to $0.14 million per year annualized over 20 years at a 3% discount rate and from $0.06 to $0.07 million per year at a 7% discount rate.

There are also unquantified benefits due to other avoided significant adverse health effects associated with CTC exposure, including liver, reproductive, renal, developmental, and CNS toxicity end points. EPA believes that the balance of costs and benefits of this final rule cannot be fairly described without considering the additional, non-monetized benefits of mitigating the non-cancer adverse effects. The non-cancer adverse effects from CTC exposure can significantly impact an individual's quality of life. The incremental improvements in health outcomes achieved by given reductions in exposure cannot currently be quantified for non-cancer health effects associated with CTC exposure, and therefore cannot be converted into monetized benefits. The qualitative discussion throughout this rulemaking and in the Economic Analysis highlights the importance of these non-cancer effects, which are not able to be monetized in the way that EPA is able to for cancer. These effects include not only cost of illness but also personal costs such as emotional and mental stress that are hard to measure appropriately. Considering only monetized benefits significantly underestimates the impacts of CTC adverse outcomes and underestimates the benefits of this final rule.

Net benefits were calculated by subtracting the costs from the quantified benefits. The net benefit of the final rule action is −$19.6 million dollars annualized over 20 years at a 3% discount rate and −$18.9 million dollars at a 7% discount rate.

Industry would bear monitoring, PPE, and notification and recordkeeping burdens and costs associated with the ECEL. While companies may comply with the rule using engineering controls, when estimating costs and benefits the Economic Analysis assumes firms will provide PPE to employees when monitoring thresholds are exceeded. EPA estimated monitoring results based on a log normal distribution estimated from the median and 95th percentile 8-hour time-weighted average exposure outcomes presented in the 2020 Risk Evaluation for Carbon Tetrachloride. PPE, recordkeeping, and monitoring costs after initial monitoring vary by industry and by projected initial monitoring result. Industry is expected to incur planning, recordkeeping and PPE costs associated with DDCC requirements. Industry would incur costs associated with developing an exposure control plan, performing inspections, documenting efforts to reduce exposure and occurrences of exposure, respiratory protection and dermal PPE, and training on the use of respiratory protection and dermal PPE.

EPA also considered the estimated costs of alternative regulatory actions to regulated entities. Estimated costs for regulatory alternatives can be found in the Economic Analysis for this final rule (Ref. 5).

A sensitivity analysis was conducted based on the low estimates of the number of affected entities in the 2020 Risk Evaluation for Carbon Tetrachloride. Based on these estimates, the total cost of the final rule is $2.1 million dollars annualized over 20 years at both a 3 and 7% discount rate. The total benefit of the final rule is estimated to range from $0.016 million dollars to $0.018 million dollars annualized over 20 years at a 3% period discount rate, and ranges from $0.008 million dollars to $0.009 million dollars annualized over 20 years at a 7 percent discount rate. The net benefit of the rule under this sensitivity analysis is −$2.1 million dollars annualized over 20 years at a 3% discount rate and a 7% discount rate. At a 2% discount rate, the cost of the rule assuming the low number of affected entities is $2.1 million, the benefit is $0.02 million, and the net benefit is −$2.1 million.

3. Cost Effectiveness of the Regulatory Action and of 1 or More Primary Alternative Regulatory Actions Considered by the Administrator

For the COUs that EPA determined drive the unreasonable risk of injury to health from CTC, both the final rule and the primary alternative action, which is analyzed in the Economic Analysis,

reduce unreasonable risk to the extent necessary such that unreasonable risk is no longer presented. In achieving this result, however, the estimated costs of the final rule and the primary alternative regulatory action differ as described in Units I.E. and V.D.2. The costs of achieving the desired outcome via the final rule or the primary alternative regulatory action can be compared to evaluate cost-effectiveness. The measure of cost-effectiveness considered is the annualized cost of each regulatory option per microrisk reduction in cancer cases estimated to occur as a result of each regulatory option, where a microrisk refers to a one in one million reduction in the risk of a cancer case. The cost-effectiveness of the final rule ranges from $681 to $1,000 dollars per microrisk reduction at a 3% discount rate, and from $656 to $963 dollars per microrisk reduction at a 7% discount rate. The cost-effectiveness of the primary alternative regulatory action ranges from $611 to $897 dollars per microrisk reduction at a 3% discount rate, and from $778 to $1,142 dollars at a 7% discount rate.

The primary difference between the final and primary alternative option is that the alternative requires prescriptive controls for conditions of use which fall under the WCPP in the final rule. For two such conditions of use (Processing by incorporation into formulation, mixture, or reaction products in agricultural products manufacturing, vinyl chloride manufacturing, and other basic organic and inorganic chemical manufacturing; and Industrial and commercial use as a processing aid in the manufacture of agricultural products and vinyl chloride), the Economic Analysis analyzed a primary alternative action of prohibition for the vinyl chloride sub-uses only. In the proposed rule, EPA proposed prohibition for these sub-uses of vinyl chloride that at the time EPA did not have reasonably available information to indicate the uses were ongoing but later received public comments from one entity indicating that the incorporation of CTC into formulation, mixtures, or reaction products in vinyl chloride manufacturing and the industrial and commercial use of CTC as an industrial processing aid in the manufacture of vinyl chloride were ongoing. While the final rule requires a WCPP for these sub-uses, the primary alternative analyzes the costs and benefits of prohibiting these sub-uses of vinyl chloride.

Since the regulated universe in both the final and primary alternative regulatory actions is identical, the cost-effectiveness of the regulatory actions varies based on the differences in the requirements of each action. Section 3.9 of the Economic Analysis provides a summary of the unquantified costs and uncertainties in the cost estimates that may impact the respective cost-effectiveness of the final rule and the primary alternative regulatory action considered.

VI. TSCA Section 9 Analysis and Section 26 Considerations

A. TSCA Section 9(a) Analysis

TSCA section 9(a) provides that, if the Administrator determines, in the Administrator's discretion, that an unreasonable risk may be prevented or reduced to a sufficient extent by an action taken under a Federal law not administered by EPA, the Administrator must submit a report to the agency administering that other law that describes the risk and the activities that present such risk. TSCA section 9(a) describes additional procedures and requirements to be followed by EPA and the other Federal agency following submission of any such report. As discussed in this unit, the Administrator does not determine that unreasonable risk from CTC under the conditions of use may be prevented or reduced to a sufficient extent by an action taken under a Federal law not administered by EPA. EPA's TSCA section 9(a) analysis is presented in Unit VII.A. of the proposed rule (88 FR 49215, July 28, 2023) (FRL–8206–01–OCSPP), and responses to comments about that analysis can be found in the Response Agree. Comments, Section 10.1 (Ref. 11).

TSCA section 9(d) instructs the Administrator to consult and coordinate TSCA activities with other Federal agencies for the purpose of achieving the maximum enforcement of TSCA while imposing the least burden of duplicative requirements. For this rulemaking, EPA has coordinated with appropriate Federal executive departments and agencies, including OSHA, to, among other things, identify their respective authorities, jurisdictions, and existing laws with regard to risk evaluation and risk management of CTC.

As discussed in more detail in the proposed rule, OSHA requires that employers provide safe and healthful working conditions by setting and enforcing standards and by providing training, outreach, education, and assistance. OSHA, in 1971, established a PEL for CTC of 10 ppm of air as an 8-hour TWA with an acceptable ceiling concentration of 25 ppm and an acceptable maximum peak above the acceptable ceiling concentration for an eight-hour shift of 200 ppm, maximum duration of 5 minutes in any 4 hours. However, the exposure limits established by OSHA are higher than the exposure limit that EPA determined would be sufficient to address the unreasonable risk identified under TSCA from occupational inhalation exposures associated with certain conditions of use. Gaps exist between OSHA's authority to set workplace standards under the OSH Act and EPA's obligations under TSCA section 6 to eliminate unreasonable risk presented by chemical substances under the conditions of use, as further discussed in Units II.C. and VII.A. of the proposed rule.

EPA concludes that TSCA is the only regulatory authority able to prevent or reduce unreasonable risk of CTC to a sufficient extent across the range of conditions of use, exposures, and populations of concern. An action under TSCA is able to address occupational unreasonable risk and would reach entities that are not subject to OSHA. Moreover, the timeframe and any exposure reduction as a result of updating OSHA regulations for CTC cannot be estimated, while TSCA imposes a much more accelerated two-year statutory timeframe for proposing and finalizing requirements to address unreasonable risk. Finally, as discussed in greater detail in the proposed rule, the 2016 amendments to TSCA altered both the manner of identifying unreasonable risk and EPA's authority to address unreasonable risk, such that risk management is increasingly distinct from provisions of the OSH Act (88 FR 49180) (FRL–8206–01–OCSPP). For these reasons, in the Administrator's discretion, the Administrator has analyzed this issue and does not determine that unreasonable risk presented by CTC may be prevented or reduced to a sufficient extent by an action taken under a Federal law not administered by EPA.

B. TSCA Section 9(b) Analysis

If EPA determines that actions under other Federal laws administered in whole or in part by EPA could eliminate or sufficiently reduce a risk to health or the environment, TSCA section 9(b) instructs EPA to use these other authorities to protect against that risk "unless the Administrator determines, in the Administrator's discretion, that it is in the public interest to protect against such risk" under TSCA. In making such a public interest finding, TSCA section 9(b)(2) states: "the Administrator shall consider, based on information reasonably available to the Administrator, all relevant aspects of

the risk . . . and a comparison of the estimated costs and efficiencies of the action to be taken under this title and an action to be taken under such other law to protect against such risk."

Although several EPA statutes have been used to limit CTC exposure (Ref. 10), regulations under those EPA statutes largely regulate releases to the environment, rather than the occupational exposures. While these limits on releases to the environment may be protective in the context of their respective statutory authorities, regulation under TSCA is also appropriate for occupational exposures and in some cases can provide upstream protections that would prevent the need for release restrictions required by other EPA statutes (*e.g.*, Resource Conservation and Recovery Act (RCRA), CAA, CWA). Updating regulations under other EPA statutes would not be sufficient to address the unreasonable risk of injury to the health of workers and occupational non-users who are exposed to CTC under its conditions of use. EPA's TSCA section 9(b) analysis is presented in the proposed rule (88 FR 49216) (FRL–8206–01–OCSPP), and responses to comments on that analysis can be found in the Response to Comments, section 10.2 (Ref. 11).

For these reasons, the Administrator does not determine that unreasonable risk from CTC under its conditions of use, as evaluated in the 2020 Risk Evaluation for Carbon Tetrachloride (Ref.1), could be eliminated or reduced to a sufficient extent by actions taken under other Federal laws administered in whole or in part by EPA.

C. TSCA Section 14 Requirements

EPA is also providing notice to manufacturers, processors, and other interested parties about potential impacts to CBI. Under TSCA sections 14(a) and 14(b)(4), if EPA promulgates a rule pursuant to TSCA section 6(a) that establishes a ban or phase-out of a chemical substance, the protection from disclosure of any CBI regarding that chemical substance and submitted pursuant to TSCA will be "presumed to no longer apply," subject to the limitations identified in TSCA section 14(b)(4)(B)(i) through (iii). Pursuant to TSCA section 14(b)(4)(B)(iii), the presumption against protection from disclosure will apply only to information about the specific conditions of use that this rule prohibits. Manufacturers or processors seeking to protect such information may submit a request for nondisclosure as provided by TSCA sections 14(b)(4)(C) and 14(g)(1)(E). Any request for nondisclosure must be submitted within 30 days after receipt of notice from EPA under TSCA section 14(g)(2)(A) stating EPA will not protect the information from disclosure. EPA anticipates providing such notice via the Central Data Exchange (CDX).

D. TSCA Section 26 Considerations

As explained in the 2023 proposed rule (88 FR 49216, July 29, 2023) (FRL–8206–01–OCSPP), EPA fulfilled TSCA section 26(h) by using scientific information, technical procedures, measures, methods, protocols, methodologies, and models consistent with the best available science. Comments received on the proposed rule about whether EPA adequately assessed reasonably available information under TSCA section 26 on the risk evaluation, and responses to those comments, can be found in Section 10.4 of the Response to Comments document (Ref. 11).

VII. References

The following is a listing of the documents that are specifically referenced in this document. The docket includes these documents and other information considered by EPA, including documents that are referenced within the documents that are included in the docket, even if the referenced document is not physically located in the docket. For assistance in locating these other documents, please consult the technical person listed under **FOR FURTHER INFORMATION CONTACT.**

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VIII. Statutory and Executive Order Reviews

Additional information about these statutes and Executive Orders can be found at *https://www.epa.gov/laws-regulations/laws-and-executive-orders.*

A. Executive Order 12866: Regulatory Planning and Review and Executive Order 14094: Modernizing Regulatory Review

This action is a "significant regulatory action" as defined in Executive Order 12866 (58 FR 51735, October 4, 1993), as amended by Executive Order 14094 (88 FR 21879, April 11, 2023). Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for Executive Order 12866

review. Documentation of any changes made in response to the Executive Order 12866 review is available in the docket. EPA prepared an analysis of the potential costs and benefits associated with this action. This analysis, *Economic Analysis of the Regulation of Carbon Tetrachloride Under TSCA Section 6(a)* (Ref. 5), is available in the docket and summarized in Units I.E. and V.D.

B. Paperwork Reduction Act (PRA)

The information collection activities in this final rule have been submitted to OMB for approval under the PRA, 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) document that EPA prepared has been assigned EPA ICR No. 2744.02 and OMB Control No. 2070–0228 (Ref. 56). You can find a copy of the ICR in the docket for this rule, and it is briefly summarized here. The information collection requirements are not enforceable until OMB approves them. There are two primary provisions of the final rule that may increase burden under the PRA. The first is downstream notification, which would be carried out by updates to the relevant SDS and which will required for manufacturers, processors, and distributors in commerce of CTC, who will provide notice to companies downstream upon shipment of CTC about the prohibitions. The information submitted to downstream companies through the SDS will provide knowledge and awareness of the restrictions to these companies.

The second primary provision of the final rule that may increase burden under the PRA is WCPP-related information generation, recordkeeping, and notification requirements (including development of exposure control plans; exposure level monitoring and related recordkeeping; development of documentation for a PPE program and related recordkeeping; development of documentation for a respiratory protection program and related recordkeeping; development and notification to potentially exposed persons (employees and others in the workplace) about how they can access the exposure control plans, exposure monitoring records, PPE program implementation documentation, and respirator program documentation; ordinary business records, such as invoices and bills-of-lading related to the continued distribution of CTC in commerce, as well as records documenting compliance with the proposed workplace chemical protection program requirements and proposed restrictions on the laboratory use of CTC.

Respondents/affected entities: Persons that manufacture, process, use, distribute in commerce or dispose of carbon tetrachloride (see Unit I.A.).

Respondent's obligation to respond: Mandatory under TSCA section 6(a) and 40 CFR part 751.

Estimated number of respondents: 72.

Frequency of response: On occasion.

Total estimated burden: 86,186 hours per year. Burden is defined at 5 CFR 1320.3(b).

Total estimated cost: $14,800,653 per year, including $9,360,626 in annualized capital or operation and maintenance costs.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number for the EPA's regulations in 40 CFR are listed in 40 CFR part 9. When OMB approves this ICR, the Agency will announce that approval in the **Federal Register** and publish a technical amendment to 40 CFR part 9 to display the OMB control number for the approved information collection activities contained in this final rule.

C. Regulatory Flexibility Act (RFA)

I certify that this action will not have a significant economic impact on a substantial number of small entities under the RFA, 5 U.S.C. 601 *et seq.* The small entities subject to the requirements of this action are small businesses that manufacture/import, process, or distribute the chemicals subject to this final rule. The Agency identified seven small firms in the small entity analysis that are potentially subject to the rule. The names and NAICS codes of these entities can be found in Section 6.2.2 of the Economic Analysis (Ref. 5). It is estimated that five of the seven small companies would incur a rule cost-to-company revenue impact ratio of less than one percent, and two companies would experience an impact of between one and three percent. The companies estimated to experience a greater than one percent rule cost-to-revenue impact would potentially be subject to the rule under the Disposal and the Manufacturing conditions of use, both of which would require a WCPP under the final rule. To avoid understating impacts to small entities, EPA used the highest per-facility cost presented in the EA ($615,457). Per-facility costs were estimated by dividing the total costs by the number of affected facilities for each use. Details of this analysis are in the Economic Analysis (Ref. 5), which is in the docket for this action. Based on the low number of affected small entities and the low impact, EPA does not expect this action to have a significant impact on a substantial number of small entities.

D. Unfunded Mandates Reform Act (UMRA)

This action does not contain an unfunded mandate of $100 million (in 1995 dollars and adjusted annually for inflation) or more as described in UMRA, 2 U.S.C. 1531–1538, and does not significantly or uniquely affect small governments. The action will affect entities that use CTC. It is not expected to affect State, local or Tribal governments because the use of CTC by government entities is minimal. The costs involved in this action are estimated not to exceed $183 million in 2023$ ($100 million in 1995$ adjusted for inflation using the GDP implicit price deflator) or more in any one year. The total quantified annualized social cost of the final rule is $19,736,400 (at 3% discount rate) and $18,995,752 (at 7% discount rate).

E. Executive Order 13132: Federalism

EPA has concluded that this action has federalism implications, as specified in Executive Order 13132 (64 FR 43255, August 10, 1999), because regulation under TSCA section 6(a) may preempt State law. EPA provides the following preliminary federalism summary impact statement. The Agency consulted with State and local officials early in the process of developing the proposed action to permit them to have meaningful and timely input into its development. This included a consultation meeting on December 17, 2020. EPA invited the following national organizations representing State and local elected officials to this meeting: National Governors Association; National Conference of State Legislatures, Council of State Governments, National League of Cities, U.S. Conference of Mayors, National Association of Counties, International City/County Management Association, National Association of Towns and Townships, County Executives of America, and Environmental Council of States. A summary of the meeting with these organizations, including the views that they expressed, is available in the docket (Ref. 16). EPA provided an opportunity for these organizations to provide follow-up comments in writing but did not receive any such comments.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have Tribal implications as specified in Executive

Order 13175 (65 FR 67249, November 9, 2000) because it will not have substantial direct effects on Tribal governments, on the relationship between the Federal Government and the Indian Tribes, or on the distribution of power and responsibilities between the Federal Government and Indian Tribes. CTC is not manufactured, processed, or distributed in commerce by Tribes, and therefore, this rulemaking would not impose substantial direct compliance costs on Tribal governments. Thus, Executive Order 13175 does not apply to this action.

Notwithstanding the lack of Tribal implications as specified by Executive Order 13175, EPA consulted with Tribal officials during the development of this action, consistent with the EPA Policy on Consultation and Coordination with Indian Tribes, which EPA applies more broadly than Executive Order 13175.

The Agency held a Tribal consultation from December 7, 2020, through March 12, 2021, with meetings held on January 6 and 12, 2021. Tribal officials were given the opportunity to meaningfully interact with EPA concerning the current status of risk management. During the consultation, EPA discussed risk management under TSCA section 6(a), findings from the 2020 Risk Evaluation for Carbon Tetrachloride, types of information to inform risk management, principles for transparency during risk management, and types of information EPA sought from Tribes (Ref. 17). EPA briefed Tribal officials on the Agency's risk management considerations and Tribal officials raised no related issues or concerns to EPA during or in follow-up to those meetings (Ref. 17). EPA received no written comments as part of this consultation.

G. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) directs Federal agencies to include an evaluation of the health and safety effects of the planned regulation on children in Federal health and safety standards and explain why the regulation is preferable to potentially effective and reasonably feasible alternatives. This action is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it is not a significant regulatory action under section 3(f)(1) of Executive Order 12866, and because EPA does not believe that the environmental health or safety risks addressed by this action will have a disproportionate risk to children as reflected by the conclusions of the CTC risk evaluation. This action's health and risk assessments and impacts on both children and adults from occupational use from inhalation and dermal exposures are described in Units II.C.3, V.A., and the 2020 Risk Evaluation for Carbon Tetrachloride (Ref. 1). While the Agency found risks to children and adults from occupational use, the Agency determined that risks to children were not disproportionate. EPA's *Policy on Children's Health* applies to this action. Information on how the Policy was applied and on the action's health and risk assessments are contained in Unit II.D.2.c., and the 2020 Risk Evaluation for CTC and the Economic Analysis for this final rule (Refs. 1, 5).

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use

This action is not a "significant energy action" as defined in Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution or use of energy and has not been designated by the Administrator of the Office of Information and Regulatory Affairs as a significant energy action.

I. National Technology Transfer and Advancement Act (NTTAA)

Pursuant to the NTTAA section 12(d), 15 U.S.C. 272, the Agency has determined that this rulemaking involves environmental monitoring or measurement, specifically for occupational inhalation exposures to CTC. Consistent with the Agency's Performance Based Measurement System (PBMS), EPA will not require the use of specific, prescribed analytic methods. Rather, the Agency will allow the use of any method that meets the prescribed performance criteria. The PBMS approach is intended to be more flexible and cost-effective for the regulated community; it is also intended to encourage innovation in analytical technology and improved data quality. EPA is not precluding the use of any method, whether it constitutes a voluntary consensus standard or not, as long as it meets the performance criteria specified.

For this rulemaking, the key consideration for the PBMS approach is the ability to accurately detect and measure airborne concentrations of CTC at the ECEL and the ECEL action level. Some examples of methods which meet the criteria are included in the appendix of the ECEL memo (Ref. 15). EPA recognizes that there may be voluntary consensus standards that meet the proposed criteria (Ref. 57).

J. Executive Orders 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations and 14096: Revitalizing Our Nation's Commitment to Environmental Justice for All

EPA believes that the human health or environmental conditions that exist prior to this action result in or have the potential to result in disproportionate and adverse human health or environmental effects on communities with environmental justice concerns in accordance with Executive Orders 12898 (59 FR 7629, February 16, 1994) and 14096 (88 FR 25251, April 26, 2023). As described more fully in the Economic Analysis for this rulemaking (Ref. 5), EPA analyzed the baseline conditions facing communities near CTC and HFO manufacturing facilities as well as those of workers in the same industry and county as CTC facilities and HFO manufacturing facilities. The analysis of local demographics found that, across the entire population within 1- and 3-miles of CTC facilities, there are higher percentages of people who identify as Black and living below the poverty line and a similar percentage of people who identify as Hispanic compared to the national averages. CTC facilities are concentrated in Texas and Louisiana, especially near Houston and Baton Rouge. As summarized in Unit V.A., the screening level fenceline analysis for CTC calculated risk estimates to select populations within the general population living or working near particular facilities exceeding the 1×10^{-6} benchmark value (Ref. 49). In cases where communities with environmental justice concerns are also fenceline communities, EPA expects that the finalized prohibition of increased emissions associated with WCPP requirements would prevent an increase in health and environmental impacts due to this rule.

The worker analysis was performed at the county and industry level. In eight of the 12 counties with CTC facilities that reported Basic Chemical Manufacturing, workers who identify as Black were over-represented compared to their percentage of the national demographics for that industry; at the national level, 11% of workers in the Basic Chemical Manufacturing industry identify as Black. In addition, there were eight counties with CTC facilities that reported Waste Treatment and Disposal; workers in that industry in those counties were more likely to earn less than the national average for that industry across several demographic

groups, as outlined in the Economic Analysis.

EPA believes that it is not practicable to assess whether this action is likely to result in disproportionate and adverse effects on communities with environmental justice concerns. EPA was unable to quantify the distributional effects of the regulatory action under consideration and compare them to baseline conditions for several reasons. Limitations include a lack of data regarding exposure reductions that will occur as a result of the rule and on the sociodemographic characteristics of workers in CTC facilities. Another key limitation that prevents evaluation of the distributional effects of the rule is a lack of knowledge of the actions regulated entities will take in response to the rule.

EPA additionally identified and addressed environmental justice concerns by conducting outreach to advocates of communities that might be subject to disproportionate exposure to CTC. On February 2 and 18, 2021, EPA held public meetings as part of this consultation. These meetings were held pursuant to and in compliance with Executive Order 12898 and Executive Order 14008, entitled "Tackling the Climate Crisis at Home and Abroad" (86 FR 7619, February 1, 2021). EPA received one written comment following these public meetings, in addition to oral comments provided during the meetings (Ref. 18). Commenters supported strong regulation of CTC to protect lower-income communities and workers. In addition, commenters recommended EPA conduct analysis of additional exposure pathways, including air and water.

The information supporting this Executive Order review is contained in Units I.E., II.D., V.D., VI.A. and in the Economic Analysis (Ref. 5). EPA's presentations and fact sheets for the environmental justice consultations related to this rulemaking, are available at *https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/materials-june-and-july-2021-environmental-justice*. These materials and a summary of the consultation are also available in the public docket for this rulemaking.

K. Congressional Review Act (CRA)

This action is subject to the CRA, 5 U.S.C. 801 *et seq.*, and the EPA will submit a rule report to each House of the Congress and to the Comptroller General of the United States. This action is not a "major rule" as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 751

Environmental protection, Chemicals, Export notification, Hazardous substances, Import certification, Reporting and recordkeeping.

Michael S. Regan,
Administrator.

Therefore, for the reasons stated in the preamble, 40 CFR chapter I is amended to read as follows:

PART 751—REGULATION OF CERTAIN CHEMICAL SUBSTANCES AND MIXTURES UNDER SECTION 6 OF THE TOXIC SUBSTANCES CONTROL ACT

■ 1. The authority citation for part 751 continues to read as follows:

Authority: 15 U.S.C. 2605, 15 U.S.C. 2625(l)(4).

■ 2. Add subpart H to read as follows:

Subpart H—Carbon Tetrachloride

Sec.

751.701 General.
751.703 Definitions.
751.705 Prohibition of Certain Industrial and Commercial Uses and Manufacturing, Processing, and Distribution in Commerce of Carbon Tetrachloride for those Uses.
751.707 Workplace Chemical Protection Program (WCPP).
751.709 Workplace Restrictions for the Industrial and Commercial Use as a Laboratory Chemical, Including the Use of Carbon Tetrachloride as a Laboratory Chemical by the U.S. Department of Defense.
751.711 Downstream Notification.
751.713 Recordkeeping Requirements.

§ 751.701 General.

(a) *Applicability.* This subpart sets certain restrictions on the manufacture (including import), processing, distribution in commerce, use, or disposal of carbon tetrachloride (CASRN 56–23–5) to prevent unreasonable risk of injury to health in accordance with TSCA section 6(a).

(b) *Trace quantities exclusion.* Unless otherwise specified in this subpart, the prohibitions and restrictions of this subpart do not apply to carbon tetrachloride that is solely present unintentionally in trace quantities with another chemical substance or mixture.

(c) *Owner and operator requirements.* Any requirement for an owner *or* operator, or an owner *and* operator, is a requirement for any individual that is either an owner or an operator.

§ 751.703 Definitions.

The definitions in subpart A of this part apply to this Subpart unless otherwise specified in this section. In addition, the following definitions apply:

ECEL has the same meaning as in § 751.5 and for CTC, is an airborne concentration of carbon tetrachloride of 0.03 parts per million (ppm) calculated as an eight (8)-hour time-weighted average (TWA).

ECEL action level means a concentration of airborne carbon tetrachloride of 0.02 parts per million (ppm) calculated as an eight (8)-hour time-weighted average (TWA).

§ 751.705 Prohibition of Certain Industrial and Commercial Uses and Manufacturing, Processing, and Distribution in Commerce of Carbon Tetrachloride for Those Uses.

(a) Prohibitions. (1) After June 16, 2025, all persons are prohibited from manufacturing, processing, distributing in commerce (including making available) and using carbon tetrachloride for the following conditions of use:

(i) Processing condition of use: Incorporation into formulation, mixture or reaction products in petrochemical-derived manufacturing except in the manufacture of vinyl chloride.

(ii) Industrial and commercial conditions of use:

(A) Industrial and commercial use as an industrial processing aid in the manufacture of petrochemicals-derived products except in the manufacture of vinyl chloride.

(B) Industrial and commercial use in the manufacture of other basic chemicals (including manufacturing of chlorinated compounds used in solvents, adhesives, asphalt, and paints and coatings), except for use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine.

(C) Industrial and commercial use in metal recovery.

(D) Industrial and commercial use as an additive.

(2) After December 18, 2025, all persons are prohibited from manufacturing, processing, distributing in commerce (including making available) and using carbon tetrachloride for industrial and commercial specialty uses by the U.S. Department of Defense except as provided in § 751.709.

(b) [Reserved].

§ 751.707 Workplace Chemical Protection Program (WCPP).

(a) *Applicability.* The provisions of this section apply to the following conditions of use of carbon tetrachloride, including manufacturing and processing for export, except to the

extent the conditions of use are prohibited by § 751.705:

(1) Domestic manufacture, except where carbon tetrachloride is manufactured solely as a byproduct.

(2) Import.

(3) Processing as a reactant in the production of hydrochlorofluorocarbons, hydrofluorocarbons, hydrofluoroolefins and perchloroethylene.

(4) Processing: Incorporation into formulation, mixture, or reaction products for agricultural products manufacturing, vinyl chloride manufacturing, and other basic organic and inorganic chemical manufacturing.

(5) Processing: Repackaging for use as a laboratory chemical.

(6) Processing: Recycling.

(7) Industrial and commercial use as an industrial processing aid in the manufacture of agricultural products and vinyl chloride.

(8) Industrial and commercial use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine.

(9) Disposal.

(b) *Existing chemical exposure limit (ECEL)*—(1) *Eight-hour time-weighted average (TWA) ECEL.* Beginning September 20, 2027 for Federal agencies or Federal contractors acting for or on behalf of the Federal government, or by September 9, 2026 for non-Federal owners and operators, or beginning four months after introduction of carbon tetrachloride into the workplace if carbon tetrachloride commences after June 11, 2026, the owner or operator must ensure that no person is exposed to an airborne concentration of carbon tetrachloride in excess of the ECEL, consistent with the requirements of paragraph (d)(1)(i) of this section and, if necessary, paragraph (f) of this section.

(2) *Exposure monitoring*—(i) *General.* (A) Owners or operators must determine each potentially exposed person's exposure, without regard to respiratory protection, by either:

(1) Taking a personal breathing zone air sample of each potentially exposed person's exposure; or

(2) Taking personal breathing zone air samples that are representative of the 8-hour TWA of each exposure group.

(B) Personal breathing zone air samples are representative of the 8-hour TWA of all potentially exposed persons in an exposure group if the samples are of at least one person's full-shift exposure who represents the highest potential carbon tetrachloride exposures in that exposure group. Personal breathing zone air samples taken during one work shift may be used to represent potentially exposed person exposures on other work shifts where the owner or operator can document that the tasks performed and conditions in the workplace are similar across shifts.

(C) Exposure samples must be analyzed using an appropriate analytical method by a laboratory that complies with the Good Laboratory Practice Standards in 40 CFR part 792 or a laboratory accredited by the American Industrial Hygiene Association (AIHA) or another industry-recognized program.

(D) Owners or operators must ensure that methods used to perform exposure monitoring produce results that are accurate, to a confidence level of 95 percent, to within plus or minus 25 percent for airborne concentrations of carbon tetrachloride.

(E) Owners and operators must re-monitor within 15 working days after receipt of any exposure monitoring when results indicate non-detect, unless an Environmental Professional as defined at 40 CFR 312.10 or a Certified Industrial Hygienist reviews the exposure monitoring results and determines re-monitoring is not necessary.

(ii) *Initial monitoring.* By June 21, 2027 for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or by June 11, 2026 for non-Federal owners and operators, or within 30 days of introduction of carbon tetrachloride into the workplace, whichever is later, each owner or operator covered by this section must perform initial monitoring of potentially exposed persons. Where the owner or operator has monitoring results from monitoring conducted within five years prior to February 18, 2025 and the monitoring satisfies all other requirements of this section, the owner or operator may rely on such earlier monitoring results to satisfy the requirements of this paragraph (b)(2)(ii).

(iii) *Periodic monitoring.* The owner or operator must establish an exposure monitoring program for periodic monitoring of exposure to carbon tetrachloride in accordance with Table 1.

TABLE 1 TO § 751.707(b)(3)(iii)—PERIODIC MONITORING REQUIREMENTS

Air concentration condition	Periodic exposure monitoring requirement
If all initial exposure monitoring is below the ECEL action level (<0.02 ppm 8-hour TWA).	Periodic exposure monitoring is required at least once every five years.
If the most recent exposure monitoring indicates that airborne exposure is above the ECEL (> 0.03 ppm 8-hour TWA).	Periodic exposure monitoring is required within three months of the most recent exposure monitoring.
If the most recent exposure monitoring indicates that airborne exposure is at or above the ECEL action level but at or below the ECEL (≥0.02 ppm 8-hour TWA, ≤0.03 ppm 8-hour TWA).	Periodic exposure monitoring is required within six months of the most recent exposure monitoring.
If the two most recent (non-initial) exposure monitoring measurements, taken at least seven days apart within a 6-month period, indicate exposure is below the ECEL action level (<0.02 ppm 8-hour TWA).	Periodic exposure monitoring is required within five years of the most recent exposure monitoring.
If the owner or operator engages in a condition of use for which WCPP ECEL would be required but does not manufacture, process, use, or dispose of carbon tetrachloride in that condition of use over the entirety of time since the last required monitoring event.	The owner or operator may forgo the next periodic exposure monitoring event. However, documentation of cessation of use of carbon tetrachloride is required; and periodic monitoring would be required when the owner or operator resumes the condition of use.

(iv) *Additional exposure monitoring.* (A) The owner or operator must conduct additional exposure monitoring within a reasonable timeframe whenever there has been a change in the production, process, control equipment, personnel or work practices that may reasonably be expected to result in new or additional exposures above the ECEL or when the owner or operator has any reason to believe that new or additional exposures above the ECEL action level have occurred.

(B) Whenever start-ups or shutdowns, or ruptures, malfunctions or other breakdowns or unexpected releases occur that may lead to exposure to

potentially exposed persons, the owner or operator must conduct the additional exposure monitoring within a reasonable timeframe after the conclusion of the start-up or shutdown and/or the cleanup, repair or remedial action of the malfunction or other breakdown or unexpected release. Prior monitoring data cannot be used to meet this requirement.

(v) *Observation of monitoring.* (A) Owners and operators must provide potentially exposed persons or their designated representatives an opportunity to observe any monitoring of occupational exposure to CTC that is conducted under this section and designed to characterize their exposure.

(B) When monitoring observation requires entry into a regulated area, the owner or operator must provide the observers with the required PPE.

(C) Only persons who are authorized to have access to facilities classified in the interest of national security must be permitted to observe exposure monitoring conducted in such facilities.

(vi) *Notification of monitoring results.* (A) The owner or operator must inform each person whose exposures are monitored or who is part of a monitored exposure group and their designated representatives of any monitoring results within 15 working days of receipt of those monitoring results.

(B) This notification must include the following:

(*1*) Exposure monitoring results;

(*2*) Identification and explanation of the ECEL and ECEL action level;

(*3*) Statement of whether the monitored airborne concentration of carbon tetrachloride exceeds the ECEL action level or ECEL;

(*4*) If the ECEL is exceeded, descriptions of any exposure controls implemented by the owner or operator to reduce exposures to or below the ECEL, as required by paragraph (d)(1) of this section;

(*5*) Explanation of any required respiratory protection provided in accordance with paragraphs (b)(3)(iv), (d)(1)(i), and (f) of this section;

(*6*) Quantity of carbon tetrachloride in use at the time of monitoring;

(*7*) Location of carbon tetrachloride use at the time of monitoring;

(*8*) Manner of carbon tetrachloride use at the time of monitoring; and

(*9*) Identified releases of carbon tetrachloride;

(C) Notice must be written in plain language and either provided to each potentially exposed person and their designated representatives individually in a language that the person understands, or posted in an appropriate and accessible location outside the regulated area with an English-language version and a non-English language version representing the language of the largest group of workers who do not read English.

(3) *Regulated areas*—(i) *Establishment.* By September 20, 2027 for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or by September 9, 2026 for non-Federal owners and operators, or within three months after receipt of any exposure monitoring that indicates exposures exceeding the ECEL, the owner or operator must establish and maintain a regulated area wherever airborne concentrations of carbon tetrachloride exceeds or can reasonably be expected to exceed the ECEL.

(ii) *Access.* The owner or operator must limit access to regulated areas to authorized persons.

(iii) *Demarcation.* The owner or operator must demarcate regulated areas from the rest of the workplace in a manner that adequately establishes and alerts persons to the boundaries of the area and minimizes the number of authorized persons exposed to carbon tetrachloride within the regulated area.

(iv) *Provisions of respirators.* (A) The owner or operator must ensure that each person who enters a regulated area is supplied with a respirator selected in accordance with paragraph (f) of this section and must ensure that all persons within the regulated area are using the provided respirators whenever carbon tetrachloride exposures may exceed the ECEL.

(B) An owner or operator who has implemented all feasible controls as required in paragraph (d)(1)(i) of this section, and who has established a regulated area as required by paragraph (b)(3)(i) of this section where carbon tetrachloride exposure can be reliably predicted to exceed the ECEL only on certain days (for example, because of work or process schedule) must have persons use respirators in that regulated area on those days.

(v) *Prohibited activities.* (A) The owner or operator must ensure that, within a regulated area, persons do not engage in non-work activities which may increase CTC exposure.

(B) The owner or operator must ensure that while persons are wearing respirators in the regulated area, they do not engage in activities which interfere with respirator performance.

(c) *Direct dermal contact controls (DDCC).* Beginning September 20, 2027 for Federal agencies or Federal contractors acting for or on behalf of the Federal government, or by June 16, 2025 for non-Federal owners and operators, or within 30 days of introduction of carbon tetrachloride into the workplace, whichever is later, owners or operators must ensure that all persons are separated, distanced, physically removed, or isolated to prevent direct dermal contact with carbon tetrachloride or from contact with equipment or materials on which carbon tetrachloride may exist consistent with the requirements of paragraph (d)(1)(ii) of this section and, if necessary, paragraph (f) of this section.

(d) *Exposure control procedures and plan—(1) Methods of compliance—(i) ECEL.* (A) By December 3, 2027, the owner or operator must institute one or a combination of elimination, substitution, engineering controls, or administrative controls to reduce exposure to or below the ECEL except to the extent that the owner or operator can demonstrate that such controls are not feasible, in accordance with the hierarchy of controls.

(B) If the feasible controls required under paragraph (d)(1)(i)(A) of this section that can be instituted do not reduce exposures for potentially exposed persons to or below the ECEL, then the owner or operator must use such controls to reduce exposure to the lowest levels achievable by these controls and must supplement those controls with the use of respiratory protection that complies with the requirements of paragraph (f) of this section.

(C) Where an owner or operator cannot demonstrate exposure to carbon tetrachloride has been reduced to or below the ECEL through the use of controls required under paragraphs (d)(1)(i)(A) and (B) of this section, and has not demonstrated that it has appropriately supplemented with respiratory protection that complies with the requirements of paragraph (f) of this section, this will constitute a failure to comply with the ECEL.

(D) The owner or operator must ensure that any engineering controls instituted under paragraph (d)(1)(i)(A) of this section do not increase emissions of carbon tetrachloride to ambient air outside the workplace.

(ii) *Direct dermal contact controls (DDCC).* (A) The owner or operator must institute one or a combination of elimination, substitution, engineering controls, or administrative controls to prevent all persons from direct dermal contact with carbon tetrachloride except to the extent that the owner or operator can demonstrate that such controls are not feasible.

(B) If the feasible controls required under paragraph (d)(1)(ii)(A) of this section that can be instituted do not

prevent direct dermal contact with carbon tetrachloride, then the owner or operator must use such controls to reduce direct dermal contact to the extent achievable by these controls and must supplement those controls by the use of dermal protection that complies with the requirements of paragraph (f) of this section.

(C) Where an owner or operator cannot demonstrate that direct dermal contact to carbon tetrachloride is prevented through the use of controls required under paragraphs (d)(1)(ii)(A) and (B) of this section, and has not demonstrated that it has appropriately supplemented with dermal protection that complies with the requirements of paragraph (f) of this section, this will constitute a failure to comply with the DDCC requirements.

(2) *Exposure control plan.* By December 3, 2027, each owner and operator must establish and implement an exposure control plan.

(i) *Exposure control plan contents.* The exposure control plan must include documentation of the following:

(A) Identification of exposure controls that were considered, including those that were used or not used to meet the requirements of paragraphs (d)(1)(i)(A) and (d)(1)(ii)(A) of this section, in the following sequence: elimination, substitution, engineering controls and administrative controls;

(B) For each exposure control considered, a rationale for why the exposure control was selected or not selected based on feasibility, effectiveness, and other relevant considerations;

(C) A description of actions the owner or operator must take to implement exposure controls selected, including proper installation, regular inspections, maintenance, training or other actions;

(D) A description of regulated areas, how they are demarcated, and persons authorized to enter the regulated areas;

(E) Attestation that exposure controls selected do not increase emissions of carbon tetrachloride to ambient air outside of the workplace and whether additional equipment was installed to capture or otherwise prevent increased emissions of carbon tetrachloride to ambient air;

(F) Description of activities conducted by the owner or operator to review and update the exposure control plan to ensure effectiveness of the exposure controls, identify any necessary updates to the exposure controls, and confirm that all persons are properly implementing the exposure controls;

(G) An explanation of the procedures for responding to any change that may reasonably be expected to introduce additional sources of exposure to carbon tetrachloride, or otherwise result in increased exposure to carbon tetrachloride, including procedures for implementing corrective actions to mitigate exposure to carbon tetrachloride.

(ii) *Exposure control plan requirements.* (A) The owner or operator must not implement a schedule of personnel rotation as a means of compliance with the ECEL.

(B) The owner or operator must maintain the effectiveness of any controls instituted under this paragraph (d).

(C) The exposure control plan must be reviewed and updated as necessary, but at least every five years, to reflect any significant changes in the status of the owner or operator's approach to compliance with paragraphs (b) through (d) of this section.

(iii) *Availability of exposure control plan.* (A) Owners or operators must make the exposure control plan and associated records, including ECEL exposure monitoring records, ECEL compliance records, DDCC compliance records, and workplace participation records described in § 751.713(b), available to potentially exposed persons and their designated representatives.

(B) Owners or operators must notify potentially exposed persons and their designated representatives of the availability of the exposure control plan and associated records within 30 days of the date that the exposure control plan is completed and at least annually thereafter.

(C) Notice of the availability of the exposure control plan and associated records must be provided in plain language writing to each potentially exposed person in a language that the person understands or posted in an appropriate and accessible location outside the regulated area with an English-language version and a non-English language version representing the language of the largest group of workers who do not read English.

(D) Upon request by the potentially exposed person or their designated representative(s), the owner or operator must provide the specified records at a reasonable time, place, and manner. If the owner or operator is unable to provide the requested records within 15 days, the owner or operator must, within those 15 days, inform the potentially exposed person or designated representative(s) requesting the record(s) of the reason for the delay and the earliest date when the record will be made available.

(e) *Workplace information and training.* (1) By September 20, 2027 for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or by September 9, 2026 for non-Federal owners and operators, the owner or operator must institute a training program and ensure that persons potentially exposed to carbon tetrachloride participate in the program according to the requirements of this paragraph (e).

(2) The owner or operator must ensure that each potentially exposed person is trained prior to or at the time of a potential exposure to carbon tetrachloride.

(3) The owner or operator must ensure that information and training is presented in a manner that is understandable to each person required to be trained and in multiple languages as appropriate, such as, based on languages spoken by potentially exposed persons in the workplace.

(4) The following information and training must be provided to all persons potentially exposed to carbon tetrachloride:

(i) The requirements of this section, as well as how to access or obtain a copy of these requirements in the workplace;

(ii) The quantity, location, manner of use, release, and storage of carbon tetrachloride and the specific operations in the workplace that could result in exposure to carbon tetrachloride, particularly noting where each regulated area is located;

(iii) Methods and observations that may be used to detect the presence or release of carbon tetrachloride in the workplace (such as monitoring conducted by the owner or operator, continuous monitoring devices, visual appearance or odor of carbon tetrachloride when being released);

(iv) The acute and chronic health hazards of carbon tetrachloride as detailed on relevant Safety Data Sheets; and

(v) The principles of safe use and handling of carbon tetrachloride and measures potentially exposed persons can take to protect themselves from carbon tetrachloride, including specific procedures the owner or operator has implemented to protect potentially exposed persons from exposure to carbon tetrachloride, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.

(5) The owner or operator must re-train each potentially exposed person as necessary, but at minimum annually, to ensure that each such person maintains the requisite understanding of the principles of safe use and handling of carbon tetrachloride in the workplace.

(6) Whenever there are workplace changes, such as modifications of tasks or procedures or the institution of new tasks or procedures, that increase exposure, and where such exposure exceeds or can reasonably be expected to exceed the ECEL action level or increase potential for direct dermal contact with carbon tetrachloride, the owner or operator must update the training as necessary to ensure that each potentially exposed person is re-trained.

(f) *Personal protective equipment (PPE).* (1) *General.* The provisions of this paragraph (f) apply to any owner or operator that is required to provide respiratory protection pursuant to paragraphs (b)(3)(iv) or (d)(1)(i)(B) of this section or dermal protection pursuant to paragraphs (c) or (d)(1)(ii)(B) of this section or § 751.709(b)(3) or (4).

(2) *Respiratory protection.* (i) By September 20, 2027 for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or by September 9, 2026 for non-Federal owners and operators, or within three months after receipt of any exposure monitoring that indicates exposures exceeding the ECEL, if an owner or operator is required to provide respiratory protection pursuant to paragraph (f)(1) of this section, the owner or operator must ensure that each potentially exposed person is provided with a respirator according to the requirements of this section.

(ii) For purposes of this paragraph (f)(2), cross-referenced provisions in 29 CFR 1910.134 applying to an "employee" apply equally to potentially exposed persons and cross-referenced provisions applying to an "employer" also apply equally to owners or operators. Other terms in cross-referenced provisions in 29 CFR 1910.134 that are defined in 29 CFR 1910.134(b) have the meaning assigned to them in that paragraph.

(iii) By September 20, 2027 for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or by September 9, 2026 for non-Federal owners and operators, or within three months after receipt of any exposure monitoring that indicates exposures exceeding the ECEL, if an owner or operator is required to provide respiratory protection pursuant to (f)(1) of this section, the owner or operator must develop and administer a written respiratory protection program consistent with the requirements of 29 CFR 1910.134(c)(1), (c)(3) and (c)(4).

(iv) Owners and operators must select respiratory protection required by paragraph (f)(2)(i) of this section based on a medical evaluation consistent with the requirements of 29 CFR 1910.134(e). If a potentially exposed person cannot use a negative-pressure respirator that would otherwise be required by paragraph (f)(1) of this section, then the owner or operator must provide that person with an alternative respirator. The alternative respirator must have less breathing resistance than the negative-pressure respirator and provide equivalent or greater protection. If the person is unable to use an alternative respirator, then the person must not be permitted to enter the regulated area.

(v) Owners and operators must select respiratory protection that properly fits each affected person and communicate respirator selections to each affected person consistent with the requirements of 29 CFR 1910.134(f).

(vi) Owners and operators must provide, ensure use of, and maintain (in a sanitary, reliable, and undamaged condition) respiratory protection that is of safe design and construction for the applicable condition of use consistent with the requirements of 29 CFR 1910.134(g) through (j).

(vii) Prior to or at the time of initial assignment to a job involving potential exposure to carbon tetrachloride, owners and operators must provide training to all persons required to use respiratory protection consistent with 29 CFR 1910.134(k).

(viii) Owners and operators must retrain all persons required to use PPE at least annually, or whenever the owner or operator has reason to believe that a previously trained person does not have the required understanding and skill to properly use PPE, or when changes in the workplace or in PPE to be used render the previous training obsolete.

(ix) Owners or operators must select and provide to persons appropriate respirators as indicated by the most recent monitoring results as follows:

(A) If the measured exposure concentration is at or below the 0.03 ppm: no respiratory protection is required.

(B) If the measured exposure concentration is above 0.03 ppm and less than or equal to 0.3 ppm (10 times ECEL): Any National Institute for Occupational Safety and Health (NIOSH)-Approved air-purifying half mask respirator equipped with organic vapor cartridges or canisters; or any NIOSH Approved Supplied-Air Respirator (SAR) or Airline Respirator operated in demand mode equipped with a half mask; or any NIOSH Approved Self-Contained Breathing Apparatus (SCBA) in demand mode equipped with a half mask [APF 10].

(C) If the measured exposure concentration is above 0.3 ppm and less than or equal to 0.75 ppm (25 times ECEL): Any NIOSH Approved Powered Air-Purifying Respirator (PAPR) equipped with a loose-fitting facepiece or hood/helmet equipped with organic vapor cartridges or canisters; any NIOSH Approved continuous flow supplied air respirator equipped with a loose-fitting facepiece; or any NIOSH Approved Supplied-Air Respirator (SAR) or Airline Respirator in a continuous-flow mode equipped with a loose-fitting facepiece or helmet/hood [APF 25].

(D) If the measured exposure concentration is above 0.75 ppm and less than or equal to 1.5 ppm (50 times ECEL): Any NIOSH Approved air-purifying full facepiece respirator equipped with organic vapor cartridges or canisters; any NIOSH Approved PAPR with a half mask equipped with organic vapor cartridges or canisters; any NIOSH Approved SAR or Airline Respirator in a continuous flow mode equipped with a half mask; any NIOSH Approved SAR or Airline Respirator operated in a pressure-demand or other positive-pressure mode with a half mask; or any NIOSH Approved SCBA in demand-mode equipped with a full facepiece or helmet/hood [APF 50].

(E) If the measured exposure concentration is above 1.5 ppm and less than or equal to 30 ppm (1,000 times ECEL): Any NIOSH Approved PAPR equipped with a full facepiece equipped with organic vapor cartridges or canisters; any NIOSH Approved SAR or Airline Respirator in a continuous-flow mode equipped with full facepiece; any NIOSH Approved SAR or Airline Respirator in pressure-demand or other positive-pressure mode equipped with a full facepiece and an auxiliary self-contained air supply; or any NIOSH Approved SAR or Airline Respirator in a continuous-flow mode equipped with a helmet or hood and that has been tested to demonstrated performance at a level of a protection of APF 1,000 or greater [APF 1000].

(F) If the measured exposure concentration is greater than 30 ppm (1,000 times ECEL): Any NIOSH Approved SCBA in a pressure-demand or other positive-pressure mode equipped with a full facepiece helmet/hood [APF 10,000].

(G) If the exposure concentration is unknown: Any NIOSH Approved combination supplied air respirator equipped with a full facepiece and operated in pressure demand or other positive pressure mode with an auxiliary self-contained air supply; or any NIOSH Approved SCBA operated in

pressure demand or other positive pressure mode and equipped with a full facepiece or helmet/hood [APF 1000+].

(x) Owners and operators must select and provide respirators as required in paragraph (f)(2) of this section consistent with the requirements of 29 CFR 1910.134(d)(1)(iv), and with consideration of workplace and user factors that affect respirator performance and reliability.

(xi) Owners and operators who select air-purifying respirators must either:

(A) Select respirators that have an end-of-service-life indicator (ESLI) that is NIOSH Approved® for carbon tetrachloride; or

(B) Implement a change schedule for canisters and cartridges based on objective information or data that ensures that canisters and cartridges are changed before the end of their service life. The written respiratory protection program required by paragraph (f)(2)(iii) of this section must include a description of the information and data relied upon, the basis for reliance on the information and data, and the basis for the canister and cartridge change schedule.

(xii) Owners and operators must ensure that respirators are used in compliance with the terms of the respirator's NIOSH certification.

(xiii) Owners and operators must conduct regular evaluations of the workplace, including consultations with potentially exposed persons using respiratory protection, consistent with the requirements of 29 CFR 1910.134(l), to ensure that the provisions of the written respiratory protection program required under paragraph (f)(2)(iii) of this section are being effectively implemented.

(xiv) The respiratory protection requirements in this paragraph (f)(2) represent the minimum respiratory protection requirements, such that any respirator affording a higher degree of protection than the required respirator may be used.

(3) *Dermal protection.* (i) Beginning September 20, 2027 for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or by June 16, 2025 for non-Federal owners and operators, if an owner or operator is required to provide dermal protection pursuant to paragraph (f)(1), the owner or operator must ensure that each potentially exposed person is provided with dermal PPE according to the requirements of this section.

(ii) Owners or operators must supply and require the donning of dermal PPE that separates and provides a barrier to prevent direct dermal contact with carbon tetrachloride in the specific work area where it is selected for use, selected in accordance with this paragraph and provided in accordance with 29 CFR 1910.132(h), to each person who is reasonably likely to be dermally exposed in the work area through direct dermal contact with carbon tetrachloride. For the purposes of this subsection, provisions in 29 CFR 1910.132(h) applying to an "employee" also apply equally to potentially exposed persons, and provisions applying to an "employer" also apply equally to owners or operators.

(iii) Owners or operators must select and provide dermal PPE in accordance with 29 CFR 1910.133(b) and additionally as specified in this paragraph (f)(3) to each person who is reasonably likely to be dermally exposed in the work area through direct dermal contact with carbon tetrachloride. For the purposes of this paragraph (f)(3)(iii), provisions in 29 CFR 1910.133(b) applying to an "employer" also apply equally to owners or operators.

(iv) Owners or operators must select and provide to persons appropriate dermal PPE based on an evaluation of the performance characteristics of the PPE relative to the task(s) to be performed, conditions present, and the duration of use. Replacement PPE must be provided immediately if any person is dermally exposed to CTC longer than the breakthrough time period for which testing has demonstrated that the PPE will be impermeable or if there is a chemical permeation or breakage of the PPE. Dermal PPE must include, but is not limited to, the following items:

(A) Impervious gloves selected based on specifications from the manufacturer or supplier or by individually prepared third-party testing.

(B) Impervious clothing covering the exposed areas of the body (*e.g.*, long pants, long sleeved shirt).

(v) Owners or operators must demonstrate that each item of gloves and other clothing selected provides an impervious barrier to prevent direct dermal contact with carbon tetrachloride during normal and expected duration and conditions of exposure within the work area by evaluating the specifications from the manufacturer or supplier or individually prepared third-party testing of the dermal PPE, or of the material used in construction of the dermal PPE, to establish that the dermal PPE will be impervious to carbon tetrachloride alone and in likely combination with other chemical substances in the work area.

(vi) Dermal PPE that is of safe design and construction for the work to be performed must be provided, used, and maintained in a sanitary, reliable, and undamaged condition. Owners and operators must select PPE that properly fits each affected person and communicate PPE selections to each affected person.

(vii) Owners or operators must provide training in accordance with 29 CFR 1910.132(f) to all persons required to use dermal protection prior to or at the time of initial assignment to a job involving exposure to carbon tetrachloride. For the purposes of this paragraph (f)(3)(vii), provisions in 29 CFR 1910.132(f) applying to an "employee" also apply equally to potentially exposed persons, and provisions applying to an "employer" also apply equally to owners or operators.

(viii) Owners and operators must retrain each person required to use dermal protection at least annually or whenever the owner or operator has reason to believe that a previously trained person does not have the required understanding and skill to properly use dermal protection, or when changes in the workplace or in dermal protection to be used render the previous training obsolete.

§ 751.709 Workplace Restrictions for the Industrial and Commercial Use as a Laboratory Chemical, Including the Use of Carbon Tetrachloride as a Laboratory Chemical by the U.S. Department of Defense.

(a) *Applicability.* The provisions of this section apply to the industrial and commercial use of carbon tetrachloride as a laboratory chemical, including the U.S. Department of Defense's industrial and commercial use of carbon tetrachloride as a laboratory chemical in chemical weapons destruction.

(b) *Laboratory chemical requirements.* (1) After December 18, 2025 for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or after June 16, 2025 for non-Federal owners and operators, owners or operators must ensure laboratory ventilation devices such as fume hoods or glove boxes are in use and functioning properly and that specific measures are taken to ensure proper and adequate performance of such equipment to minimize exposures to potentially exposed persons in the area when carbon tetrachloride is used as a laboratory chemical, except for the U.S. Department of Defense's use of carbon tetrachloride as a laboratory chemical in chemical weapons destruction.

(2) After December 18, 2025, the U.S. Department of Defense must ensure that

advanced engineering controls are in use and functioning properly and that specific measures are taken to ensure proper and adequate performance of such equipment to minimize exposures to potentially exposed persons in the area during the industrial/commercial use of carbon tetrachloride as a laboratory chemical in chemical weapons destruction.

(3) After December 18, 2025 for Federal agencies and Federal contractors acting for or on behalf of the Federal government, or after June 16, 2025 for non-Federal owners and operators, owners or operators must ensure that all persons reasonably likely to be exposed from direct dermal contact to carbon tetrachloride when carbon tetrachloride is used as a laboratory chemical, except for the U.S. Department of Defense's industrial and commercial use of carbon tetrachloride as a laboratory chemical in chemical weapons destruction, are provided with dermal PPE and training on proper use of PPE in a manner consistent with § 751.707(f)(3).

(4) After December 18, 2025, U.S. Department of Defense must ensure that all persons reasonably likely to be exposed from direct dermal contact to carbon tetrachloride through the industrial and commercial use of carbon tetrachloride as a laboratory chemical in chemical weapons destruction are provided with dermal PPE and training on proper use of PPE in a manner consistent with § 751.707(f)(3), except that the date listed in paragraph (f)(3)(i) does not apply.

§ 751.711 Downstream Notification.

(a) Beginning on February 18, 2025, each person who manufactures (including imports) carbon tetrachloride for any use must, prior to or concurrent with the shipment, notify companies to whom carbon tetrachloride is shipped, in writing, of the restrictions described in this Subpart in accordance with paragraph (c) of this section.

(b) Beginning on June 16, 2025, each person who processes or distributes in commerce carbon tetrachloride for any use must, prior to or concurrent with the shipment, notify companies to whom carbon tetrachloride is shipped, in writing, of the restrictions described in this Subpart in accordance with paragraph (c) of this section.

(c) The notification required under paragraphs (a) and (b) of this section must occur by inserting the following text in Sections 1(c) and 15 of the Safety Data Sheet (SDS) provided with the carbon tetrachloride:

After June 16, 2025, this chemical substance (as defined in TSCA section 3(2)) may not be distributed in commerce or processed in greater than trace quantities for the following purposes: Incorporation into formulation, mixture or reaction products in petrochemical-derived manufacturing except in the manufacture of vinyl chloride; Industrial and commercial use as an industrial processing aid in the manufacture of petrochemicals-derived products except in the manufacture of vinyl chloride; Industrial and commercial use in the manufacture of other basic chemicals (including manufacturing of chlorinated compounds used in solvents, adhesives, asphalt, and paints and coatings), except for use in the elimination of nitrogen trichloride in the production of chlorine and caustic soda and the recovery of chlorine in tail gas from the production of chlorine; Industrial and commercial use in metal recovery; Industrial and commercial use as an additive; and beginning December 18, 2025, industrial and commercial specialty uses by the U.S. Department of Defense.

§ 751.713 Recordkeeping Requirements.

(a) *General records.* After February 18, 2025, all persons who manufacture (including import), process, distribute in commerce, or engage in industrial or commercial use of carbon tetrachloride must maintain ordinary business records, such as downstream notifications, invoices and bills-of-lading related to compliance with the prohibitions, restrictions, and other provisions of this subpart.

(b) *Workplace Chemical Protection Program compliance*—(1) *ECEL exposure monitoring.* For each monitoring event, owners or operators subject to the ECEL described in § 751.707(b) must document and retain records of the following:

(i) Dates, duration, and results of each sample taken;

(ii) The quantity, location(s) and manner of use of carbon tetrachloride in use at the time of each monitoring event;

(iii) All measurements that may be necessary to determine the conditions that may affect the monitoring results;

(iv) Name, workplace address, work shift, job classification, work area, and type of respiratory protection (if any) by each monitored person;

(v) Identification of all potentially exposed persons that a monitored person is intended to represent if using a representative sample, consistent with § 751.707(b)(2)(i)(A) and (B);

(vi) Sampling and analytical methods used as described in § 751.707(b)(2)(i)(D);

(vii) Compliance with the Good Laboratory Practice Standards in 40 CFR part 792, or use of laboratory accredited by the AIHA or another industry-recognized program, as required by § 751.707(b)(2)(i)(C); and

(viii) Information regarding air monitoring equipment, including: type, maintenance, calibrations, performance tests, limits of detection, and any malfunctions;

(ix) Re-monitoring determinations conducted by an Environmental Professional as defined at 40 CFR 312.10 or a Certified Industrial Hygienist, if results indicated non-detect; and

(x) Notification of exposure monitoring results in accordance with § 751.707(b)(2)(v).

(2) *ECEL compliance.* Owners or operators subject to the ECEL described in § 751.707(b) must retain records of:

(i) Exposure control plan as described in § 751.707(d)(2);

(ii) Implementation of the exposure control plan as described in § 751.707(d)(2), including:

(A) Any regular inspections, evaluations, and updating of the exposure controls to maintain effectiveness;

(B) Confirmation that all persons are implementing the exposure controls; and

(C) Each occurrence and duration of any start-up, shutdown, ruptures, or malfunction of the facility that causes an exceedance of the ECEL, any subsequent corrective actions taken by the owner or operator during the start-up, shutdown, ruptures, or malfunctions to mitigate exposures to CTC, and documentation indicating that additional monitoring was completed within a reasonable timeframe.

(iii) Respiratory protection used by each potentially exposed person and PPE program implementation as described in § 751.707(f)(2) including:

(A) The name, workplace address, work shift, job classification, work area of each potentially exposed person, and the type of respiratory protection provided to each potentially exposed person;

(B) The basis for the specific respiratory protection selection in accordance with § 751.707(f)(2); and

(C) Fit testing and training in accordance with § 751.707(f)(2).

(iv) Information and training as required in § 751.707(e).

(3) *DDCC compliance.* Owners or operators subject to DDCC requirements described in § 751.707(c) must retain records of:

(i) Exposure control plan as described in § 751.707(d)(2);

(ii) Dermal protection used by each potentially exposed person and PPE program implementation as described in § 751.707(f)(3), including:

(A) The name, workplace address, work shift, job classification, and work area of each person reasonably likely to

directly handle carbon tetrachloride or handle equipment or materials on which carbon tetrachloride may be present and the type of PPE selected to be worn by each of these persons;

(B) The basis for specific PPE selection (*e.g.*, demonstration based on permeation testing or manufacturer specifications that each item of PPE selected provides an impervious barrier to prevent exposure during expected duration and conditions of exposure, including the likely combinations of chemical substances to which the PPE may be exposed in the work area);

(C) Appropriately sized PPE and training on proper application, wear, and removal of PPE, and proper care/disposal of PPE;

(D) Occurrence and duration of any direct dermal contact with carbon tetrachloride that occurs during any activity or malfunction at the workplace that causes direct dermal exposures to occur and/or glove breakthrough, and corrective actions to be taken during and immediately following that activity or malfunction to prevent direct dermal contact to carbon tetrachloride; and

(E) Training in accordance with § 751.707(f)(3).

(iii) Information and training provided as required in § 751.707(e).

(4) *Workplace participation.* Owners or operators must document the notice to and ability of any potentially exposed person that may reasonably be affected by carbon tetrachloride inhalation exposure or direct dermal contact and their designated representatives to readily access the exposure control plans, facility exposure monitoring records, PPE program implementation records, or any other information relevant to carbon tetrachloride exposure in the workplace.

(c) *Workplace requirements for laboratory use compliance.* Owners and operators subject to the laboratory chemical requirements described in § 751.709 must retain records of:

(1) Dermal protection used by each potentially exposed person and PPE program implementation, as described in § 751.713(b)(3)(ii); and

(2) Documentation identifying criteria that the owner or operator will use to determine and implement control measures to reduce potentially exposed persons' exposure to carbon tetrachloride including laboratory ventilation devices;

(3) Documentation identifying: implementation of a properly functioning laboratory ventilation devices using manufacturer's instructions for installation, use, and maintenance of the devices including inspections, tests, development of maintenance procedures, the establishment of criteria for acceptable test results, and documentation of test and inspection results, except for the U.S. Department of Defense's use of carbon tetrachloride as a laboratory chemical in chemical weapons destruction; and

(4) For the U.S. Department of Defense's use of carbon tetrachloride as a laboratory chemical in chemical weapons destruction, documentation identifying implementation of advanced engineering controls that are in use and functioning properly and specific measures taken to ensure proper and adequate performance.

(d) *Retention.* Owners or operators must retain the records required under this section for a period of five years from the date that such records were generated.

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