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Federal, State, and Local Policies Addressing Chemical Emissions from Dry Cleaners

Opportunities for Reducing Exposure at Child Care Facilities

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SECTION I

BACKGROUND

Dry cleaners are a common feature of many commercial and mixed-use areas throughout the United States. A considerable number of these businesses use tetrachloroethylene (also known as perchloroethylene), an organic solvent with well-documented health effects.[1] This report describes some of the federal, state, and local laws and regulations that have been established to reduce the potential health risks posed by the use of perchloroethylene (perc or PCE) at dry cleaners, with a focus on policies that can help reduce exposures at nearby child care facilities and other sensitive land uses. The information presented here is not an exhaustive review, but is provided to assist policymakers, advocates, and others in further developing and implementing policies and programs in the areas of environmental protection, health, land use, and child care licensing.

Health Effects of Perchloroethylene

The International Agency for Research on Cancer considers PCE "probably carcinogenic to humans," while the U.S. Environmental Protection Agency (EPA) has determined that PCE is "likely to be carcinogenic in humans by all routes of exposure," and the National Institute of Occupational Safety and Health considers the chemical a "potential" human carcinogen.[2] The state of California also includes PCE as a carcinogen on its list of chemicals known to cause cancer or reproductive toxicity.[3]

Short-term and long-term exposure to perchloroethylene may produce a variety of non-cancer health effects, including: skin, eye and respiratory irritation; nervous system effects such as headaches, dizziness and impaired coordination and memory; and liver and kidney damage.[4] In 1991, the California

[1] In 2006, EPA found that there were approximately 34,000 dry cleaning facilities in the U.S., and around three-quarters of those facilities used perchloroethylene. 71 Fed. Reg. 42724, 2725 (July 27, 2006), https://www.govinfo.gov/content/pkg/FR-2006-07-27/pdf/06-6447.pdf. The number of dry cleaners using the chemical has likely declined since then and will continue to do so, as a result of industry changes and the policies described in this report.

[2] Intl. Agency for Research on Cancer, Trichloroethylene, Tetrachloroethylene, and Some Other Chlorinated Agents at 189 (2014), https://monographs.iarc.fr/wp-content/uploads/2018/06/mono106.pdf; U.S. EPA Integrated Risk Information System: Tetrachloroethylene, https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?&substance_nmbr=106 (last updated 2012); National Institute for Occupational Safety & Health, Control of Exposure to Perchloroethylene in Commercial Drycleaning (1997), https://www.cdc.gov/niosh/docs/hazardcontrol/hc16.html.

[3] Cal. Office of Environmental Health Hazard Assessment, The Proposition 65 List, https://oehha.ca.gov/proposition-65/proposition-65-list.

[4] *See* U.S. EPA Integrated Risk Information System: Tetrachloroethylene, https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?&substance_nmbr=106 (last updated 2012); U.S. Agency for Toxic Substances & Disease Registry, ToxFAQs for Tetrachloroethylene (PERC), https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=264&tid=48; National Institute for Occupational Safety & Health, Control of Exposure to Perchloroethylene in Commercial Drycleaning (1997), https://www.cdc.gov/niosh/docs/hazardcontrol/hc16.html.

Air Resources Board identified PCE as a toxic air contaminant under state law, finding that there was no identified threshold exposure level below which adverse health effects would not be expected.[5]

Children are particularly susceptible to chemical exposures due to the fact they breathe more air, eat more food and drink more water per unit of body weight compared to adults. Furthermore, organ systems such as the nervous and respiratory systems undergo rapid growth and development, creating windows of susceptibility to environmental hazards.[6]

Potential Exposures to Perchloroethylene from Dry Cleaners

Non-occupational exposure to dry cleaning chemicals can occur following releases to air, water, land, or groundwater, though air emissions comprise most of the direct PCE releases to the environment.[7] Thus, a central concern regarding exposure to PCE is people breathing in contaminated air released directly from dry cleaning facilities.

PCE that is released to land may evaporate from shallow soils or move to the groundwater below.[8] As the Vermont Department of Health has noted, "PCE doesn't break down easily and it can stay in the soil, air pockets in the soil, groundwater and indoor air for a long time. PCE is also highly volatile, which means it can easily become a gas, and it can then contaminate the air of buildings as it travels through the foundation."[9] Whether PCE released to land will result in vapor intrusion to nearby buildings depends on a variety of factors, including the type of soil, the type and condition of the building, and weather conditions.[10]

Thus, child care facilities – both center-based child care programs and family child care – could be impacted by chemicals emitted by nearby dry cleaners in a number of ways. PCE can enter the indoor air

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[5] CARB, Staff Report: Initial Statement of Reasons for the Proposed Amendments to the Control Measure for Perchloroethylene Dry Cleaning Operations, at ES-1 (2006), https://ww3.arb.ca.gov/regact/2007/perc07/isor.pdf. EPA is currently conducting a risk evaluation of perchloroethylene under the Toxic Substances Control Act (TSCA). However, the agency does not plan to include hazards or exposure to the general population, such as PCE exposure through ambient air, surface water, drinking water or disposal pathways. *See* U.S. EPA, Draft Risk Evaluation for Perchloroethylene at 33, available at: https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/draft-risk-evaluation-perchloroethylene.

[6] *See* Agency for Toxic Substances and Disease Registry, Principles of Pediatric Environmental Health: Why Are Children Often Especially Susceptible to the Adverse Effects of Environmental Toxicants? (2013), https://www.atsdr.cdc.gov/csem/csem.asp?csem=27&po=3.

[7] U.S. EPA Region 2, Compliance Assistance for Dry Cleaners, https://archive.epa.gov/region02/capp/web/html/dryclean.html. Emissions from dry cleaned clothes is another possible source of perc exposure inside a home. N.Y. State Dept. of Health, Fact Sheet: Tetrachloroethylene (PERC) in Indoor and Outdoor Air (Rev. 2013), https://www.health.ny.gov/environmental/chemicals/tetrachloroethene/index.htm.

[8] U.S. EPA Region 2, Compliance Assistance for Dry Cleaners, https://archive.epa.gov/region02/capp/web/html/dryclean.html. U.S. Agency for Toxic Substances & Disease Registry, ToxFAQs for Tetrachloroethylene (PERC), https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=264&tid=48

[9] Vt. Dept. of Health, Dry Cleaning Chemicals, at https://www.healthvermont.gov/environment/chemicals/dry-cleaning-chemicals (also noting that in the past, chemicals used in dry cleaning weren't regulated and PCE was commonly spilled and dumped into the environment).

[10] U.S. Agency for Toxic Substances & Disease Registry, Overview of Vapor Intrusion, https://www.atsdr.cdc.gov/docs/atsdr_vapor_intrusion.pdf.

of a child care space from a nearby or adjacent facility that uses PCE. It may also enter the indoor air from PCE contamination of soil or groundwater from past use of the site or nearby contamination. Children and staff could be exposed if they drink contaminated water or if PCE in groundwater enters the indoor air of the child care facility during cooking and washing.[11]

Many dry cleaners are small commercial facilities located in populated residential/commercial areas. As noted in Section III, the state of California issued a guideline that recommends separating dry cleaners and other "sensitive" land uses by 300 feet (for dry cleaners that use one perc machine) or 500 feet (for two-machine dry cleaners).[12]

Special attention has been focused on "co-located" dry cleaners – those located within the same building as another residential or commercial use. EPA noted in 2005 that, while emission reduction technologies are generally effective at reducing PCE emissions, "empirical evidence indicates that in certain cases [involving co-located facilities] PCE exposures may remain relatively high."[13]

Both center-based (commercial) and home-based (residential) child care facilities could be located in the same building as a dry cleaner. Home-based child care located in multi-family buildings may have commercial uses on the ground/lower floors. Center-based child care facilities could be co-located with dry cleaners in a multi-use building or in a strip mall. The proximity of a child care facility to a site that formerly housed a dry cleaner also raises potential exposure risks – e.g., if the dry cleaner improperly stored chemicals or directly released chemicals into the environment.

The main approaches to addressing PCE in the air inside a child care facility are source reduction and mitigation. The specific approach depends on the source of the problem. For example, if the problem relates to air emissions from a nearby dry cleaner, it is important to identify the equipment adjustments or operational changes needed to reduce emissions. If the problem relates to chemical use by a former dry cleaner that led to spills and ground contamination, mitigation measures such as a sub-slab depressurization system might be considered to reduce indoor air levels of chemicals entering the child care facility through vapor intrusion. Where well water is contaminated with PCE, using an activated carbon filter on the water supply might reduce ingestion and evaporation of the chemical into indoor air.[14]

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[11] *See* N.Y. State Dept. of Health, Fact Sheet: Tetrachloroethylene (PERC) in Indoor and Outdoor Air (Rev. 2013), https://www.health.ny.gov/environmental/chemicals/tetrachloroethene/index.htm.

[12] Cal. Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective at Table 1-1 (2005), https://ww3.arb.ca.gov/ch/handbook.pdf. The guidance discusses health studies underlying these recommended separation distances. Id. at 27-30.

[13] 71 Federal Register (Fed. Reg.) 42724, 42736 (July 27, 2006), https://www.govinfo.gov/content/pkg/FR-2006-07-27/pdf/06-6447.pdf.

[14] N.Y. State Dept. of Health, Tenant Notification Fact Sheet for Tetrachloroethylene (Perc) (Rev. 2015), https://www.health.ny.gov/environmental/indoors/air/contaminants/perc.htm. For a discussion of air cleaning technologies for removing gases in indoor air, see U.S. EPA, Residential Air Cleaners: A Technical Summary (3rd ed.) at 28-33 (2018), https://www.epa.gov/sites/production/files/2018-07/documents/residential_air_cleaners_-_a_technical_summary_3rd_edition.pdf.

Organization of the Report

This report discusses some of the policy strategies that have been developed and implemented to reduce the impacts of dry cleaning chemicals on child care and other sensitive land uses. The focus of the report is on perchloroethylene, the main chemical of concern related to dry cleaner operations. The report does not cover all possible avenues for addressing the potential environmental impacts of PCE use by dry cleaners. The following sections discuss three types of policies, highlighting notable federal, state, and local examples of each. Section V closes out the report with a recap of the information presented.

- Environment/Public Health: Section II describes air quality regulations for reducing emissions from existing dry cleaners. Appendix A provides a brief summary of and citations to the regulations referenced throughout this section.
- Land Use/Zoning: Section III discusses local ordinances for reducing environmental exposures relating to dry cleaners in the siting of new dry cleaners or child care facilities.
- Child Care: Section IV provides an overview of how child care licensing regulations can help protect children and staff from environmental exposures relating to current and/or past dry cleaner facilities.

SECTION II

ENVIRONMENTAL AND PUBLIC HEALTH POLICIES

Air pollution control regulations are one of the central policy mechanisms for reducing perchloroethylene emissions from dry cleaning facilities. Federal regulations under the Clean Air Act establish emissions control requirements for dry cleaners that use PCE. States, local governments, and tribes carry out air permitting and/or registration programs, and EPA may delegate to them authority for implementing some or all of the federal dry cleaner standards in lieu of the federal government.[15] Thus, states, localities, and tribes may have their own regulations governing dry cleaner emissions. In some cases, those regulations include measures that are more stringent than the federal standards.

This section summarizes the federal dry cleaner regulations and describes some of the ways that state and local jurisdictions have gone further to adopt stricter air pollution control measures for reducing PCE emissions from dry cleaners. The section focuses on those provisions most relevant to the impact of dry cleaner emissions on child care facilities; federal, state, and local regulations also include a number of other operating requirements designed to reduce PCE emissions.

A. FEDERAL REGULATIONS: NATIONAL PERCHLOROETHYLENE AIR EMISSION STANDARDS

Overview

The Clean Air Act requires EPA to regulate hazardous air pollutants, and the agency promulgates National Emission Standards for Hazardous Air Pollutants (NESHAP) for certain stationary sources that emit pollutants known to cause cancer and other serious health impacts.[16] To address perchloroethylene, a hazardous air pollutant listed in the Act, EPA has promulgated the technology-based National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities.[17] The regulations, first adopted in 1993, apply to both new and existing dry cleaning facilities that use PCE. They cover facilities in the industrial and commercial dry cleaning sectors, with facilities classified as Major Source, Large Area Source, or Small Area Source based on the annual amount of PCE purchased or used for the facility. Nearly all dry cleaners in the U.S. are classified as area sources, including the dry cleaners typically found in shopping centers and commercial areas.[18]

The federal regulations include an array of measures aimed at controlling PCE emissions from individual dry cleaning systems within a facility – addressing, e.g., emissions control equipment, operations and

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[15] *See generally* EPA, Delegation of Clean Air Act Authority, https://bit.ly/2ZeAnkS. *See also* 40 Code of Federal Regulations (CFR) 63.99 (Delegated Federal Authorities).

[16] 42 United States Code (U.S.C.) §7412. *See generally*, EPA, Hazardous Air Pollutants, https://www.epa.gov/haps.

[17] 40 CFR Pt. 63, Subpt. M. EPA has also established regulations (New Source Performance Standards) for petroleum dry cleaners. Those standards, not discussed here, require certain pollution control equipment and practices aimed at reducing emissions of volatile organic compounds. 40 CFR Part 60, Subpart JJJ.

[18] 40 CFR 63.320(g),(h). *See also* 71 Fed. Reg. 42724, 42725-26 (July 27, 2006), https://www.govinfo.gov/content/pkg/FR-2006-07-27/pdf/06-6447.pdf.

maintenance practices, and recordkeeping. Some of these provisions were strengthened in 2006, when EPA amended the regulations.[19] For example, the new rule requires an enhanced leak detection and repair (LDAR) program involving the use of equipment that enables early detection of leaks from perc systems.[20]

Prohibition on the Use of PCE in Residential Buildings

Notably, the 2006 amendments initiated a phase-out on the use of PCE in dry cleaning facilities co-located with residences. In addition to reducing PCE emissions in homes generally, this action will help reduce exposure to PCE in home-based child care operations that are located in a multifamily building that includes a dry cleaner using PCE.

Two provisions of the amended regulations effectively end the use of perc dry cleaning equipment co-located with a residence. Residence is defined as "any dwelling or housing in which people reside excluding short-term housing that is occupied by the same person for a period of less than 180 days (such as a hotel room)."[21]

After December 21, 2020, federal rules prohibit the operation of perc machines in buildings that include residences

- Requirement for New PCE Equipment: "Operator shall eliminate all PCE emission from any dry cleaning machine installed after Dec 21, 2005, and that is located in a building with a residence."[22]
- Requirement for Existing PCE Equipment: "After Dec. 21, 2020, operator shall eliminate any PCE emission from any dry cleaning system that is located in a building with a residence."[23]

EPA noted that the 2020 compliance date would avoid "unacceptable adverse impact" to dry cleaning businesses; December 2020 is approximately 15 years after the rule was proposed, which corresponds to the typical lifespan of perc equipment.[24]

EPA's perc dry cleaner regulations may be implemented and enforced by EPA and/or by a state, local, or tribal agency that has been delegated this authority by EPA.[25]

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[19] The regulations were revised "to take into account new developments in production practices, processes, and control technologies" and "to protect public health with an ample margin of safety." 71 Fed. Reg. 42724 (July 27, 2006), https://www.govinfo.gov/content/pkg/FR-2006-07-27/pdf/06-6447.pdf.

[20] 40 CFR 63.322; 40 CFR 63.320(g),(h). *See also* 71 Fed. Reg. 42724, 42728 (July 27, 2006), https://www.govinfo.gov/content/pkg/FR-2006-07-27/pdf/06-6447.pdf.

[21] 40 CFR 63.321.

[22] 40 CFR 63.322(o)(4).

[23] 40 CFR 63.322(o)(5).

[24] 71 Fed. Reg. 42724, 42736 (July 27, 2006), https://www.govinfo.gov/content/pkg/FR-2006-07-27/pdf/06-6447.pdf.

[25] 40 CFR 63.326. The regulations list some authorities that cannot be delegated.

B. STATE AND LOCAL AIR QUALITY REGULATIONS FOR DRY CLEANERS

States and local governments may establish, implement, and enforce regulations that are comparable to EPA's NESHAP for dry cleaners using perchloroethylene. In its 2006 rulemaking, EPA noted that at the time, most states did not have "requirements beyond the 1993 NESHAP."[26] However, some jurisdictions have included stricter measures for controlling dry cleaner PCE emissions than those found in the federal regulations.

This section describes provisions of selected state and local environmental and health regulations that exceed the federal requirements and can help reduce exposures at child care facilities located near dry cleaners. The discussion reviews air quality regulations in California, Maine, New York, and Philadelphia, and highlights a public health code provision in New York City.

AIR QUALITY REGULATIONS PROHIBITING THE USE OF PCE IN DRY CLEANERS

One strategy that state and local governments could employ to reduce exposure to PCE is to prohibit use of the chemical at all dry cleaning facilities. For example, **California** has established regulations whose stated purpose is to "phase-out the use of perchloroethylene (Perc) from dry-cleaning and water-repelling operations.... to protect the public health, especially for Californians who live or work near dry cleaning and water-repelling facilities."[27] This phase-out began in 2008.

- As of January 1, 2008, *new* dry cleaner facilities in California were not allowed to install or operate perc machines, and existing facilities could not enter into leases for or purchase new perc equipment.[28]

- All *existing* perc machines that remain in operation in the state must be removed from service by January 1, 2023.[29] This is 15 years after the ban on new perc machines, which corresponds to the expected useful life of the equipment.[30]

In southern California, a phase-out of perc began a few years earlier. In 2002, the **South Coast Air Quality Management District** (AQMD) amended its own rule for dry cleaners, which covers much of the greater Los Angeles area and portions of three other counties.

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[26] 71 Fed. Reg. 42724, 42734 (July 27, 2006), https://www.govinfo.gov/content/pkg/FR-2006-07-27/pdf/06-6447.pdf.

[27] 17 Cal. Code Regs. § 93109(a).

[28] 17 Cal. Code Regs. § 93109(e),(f).

[29] 17 Cal. Code Regs. § 93109(h)(5). The regulations also required the removal of certain perc machines as specified in the rules. Transfer, vented, and self-service perc machines have been banned in California since November 1998. 17 Cal. Code Regs. § 93109(e)(2).

[30] 71 Fed. Reg. 42724, 42728, 42736 (July 27, 2006), https://www.govinfo.gov/content/pkg/FR-2006-07-27/pdf/06-6447.pdf.

- As of January 1, 2003, the South Coast AQMD prohibited operation of a perc system in any *new* dry cleaning facility, as well as the installation of an additional perc machine in any existing facility – five years earlier than the state's prohibition.[31]

- *Existing* perc systems may operate until December 31, 2020 – two years earlier than the state's phase-out date: "an existing facility shall be allowed to operate its perchloroethylene dry cleaning system(s) until the end of its useful life and, upon replacement, shall be allowed to operate no more than one perchloroethylene dry cleaning system per facility until December 31, 2020, provided the equipment has integral primary and secondary controls."[32]

In California, existing perc machines must be removed by Jan. 1, 2023

The state's South Coast Air Quality Management District set an earlier deadline to phase out perc use within its jurisdiction – Dec. 31, 2020

Reporting Requirements. The South Coast AQMD includes additional reporting requirements for perc facilities that are still in operation prior to the phase-out. The rule requires those facilities to submit a report (updated every four years) that includes, among other things: the distance from the center of the facility to the property line of the nearest commercial/industrial building and the nearest residence; any sensitive receptor locations within one quarter of a mile from the center of the facility; and information relating to quantity of clothing cleaned and solvents on the premises.[33]

AIR QUALITY REGULATIONS PROHIBITING THE USE OF PCE IN **CO-LOCATED** DRY CLEANERS

As noted above, federal regulations prohibited the installation of *new* perc machines in dry cleaners located in a residential building (co-residential) as of December 21, 2005, and the regulations prohibit operation of perc equipment in *existing* co-residential dry cleaners as of December 21, 2020. Some states have adopted more stringent co-location bans than found in the federal regulations by: (1) accelerating the timeline for ending perc use in existing co-residential dry cleaners; or (2) expanding the phase-out to dry cleaners co-located in *non-residential* buildings, thereby reducing risk for center-based (commercial) child care as well as home-based child care.

Co-Residential Dry Cleaner Requirements. **California's** regulations (which will phase out *all* perc dry cleaners by 2023) put in place an interim ban on co-residential dry cleaners well in advance of the date established by federal regulations. By July 1, 2010, dry cleaners in California were required to

[31] South Coast Air Quality Management District (AQMD) Rule 1421 § (d)(1)(D).

[32] South Coast AQMD Rule 1421 §§ (d)(1)(E),(F). In addition, the facility must comply with South Coast AQMD Rule 1402 requiring facilities to implement Risk Reduction Plans to achieve risk limits specified in the Rule, which sets a lifetime cancer risk of not more than 25 in a million. South Coast AQMD Rule 1402 §§(c),(f). *See also* South Coast AQMD, Perc Dry Cleaning Facilities, https://www.aqmd.gov/home/rules-compliance/compliance/toxic-hot-spots-ab-2588/iws-facilities/iws-perc-dry-cleaning.

[33] South Coast AQMD Rule 1421 § (g).

remove from service all perc machines at co-residential locations.[34] The regulations define co-location as: "sharing a common wall, floor, or ceiling with a residence or located within the same buildings."[35]

Co-Residential and *Co-Commercial Dry Cleaner Requirements*. Maine and Philadelphia are examples of jurisdictions that have adopted air regulations that phase out perc dry cleaners co-located in both residential and certain commercial buildings. New York State does not ban perc use at such facilities, but does establish additional operating restrictions.

Maine's prohibition on co-located dry cleaners includes residential buildings as well as child care and other sensitive uses. The state's air regulations define "co-located" as "a dry cleaner located in a building with a residence, a *day care center*, a health care facility, a prison, an elementary school, a middle or high school, a children's pre-school, a senior center, a youth center or other facility designed to be occupied by children or the elderly."[36]

- Maine began its phase-out of co-located dry cleaners on June 24, 2009 by prohibiting any *new or relocated* perc dry cleaning systems from being installed in a co-located facility.[37]

- After December 21, 2020, all *existing* co-located dry cleaners "must completely eliminate perchloroethylene use and remove all perchloroethylene dry cleaning equipment from the building."[38]

Maine regulations eliminate perc use by Dec. 21, 2020 in dry cleaners co-located with a residence, day care center, school, or other use occupied by children

The regulations facilitate implementation of the co-location ban by requiring annual registration of dry cleaners, including the types of equipment used and whether the dry cleaner is located in a building with a residence or with a day care center, school or other facility inhabited by children.[39]

The city of **Philadelphia** adopted air pollution control regulations in 2010 to address dry cleaner emissions. Prior to developing the rule the Department of Public Health tested a number of commercial facilities. In its rulemaking document, the agency noted that "one merits special mention—a day care center which measured at levels in excess of the 200 ppb threshold on several occasions, suggesting

[34] 17 Cal. Code Regs. § 93109(h)(3).

[35] 17 Cal. Code Regs. §§ 93109(d)(6), (45). The definition of "residence" excludes "short-term housing such as a motel or hotel room rented and occupied by the same person for a period of less than 180 days."

[36] Code Me. Regs. 06-096 §125(2)(D) (emphasis added). State officials note that this prohibition might apply to a dry cleaner located in a strip mall that also contains a child care facility, if the two businesses are in relatively close proximity to each other. ELI communications with Maine Dept. of Envtl. Protection (July 2020).

[37] Code Me. Regs. 06-096 §125(3)(A)(1).

[38] Code Me. Regs. 06-096 §125(3)(A)(3).

[39] Code Me. Regs. 06-096 §125(7)(B).

potential health risks to children." The city subsequently ordered the dry cleaner adjacent to the day care center to stop its perc dry cleaning operation.[40]

Philadelphia's rule phased out PCE use at co-located dry cleaners, defined broadly to include: "A facility sharing a common wall, floor or ceiling with a residence/residential site, sensitive facility, commercial business/site, or industrial business/site."[41] This prohibition took effect on December 31, 2013 – seven years ahead of the federal ban on residential co-location.

The city of Philadelphia prohibited perc use at dry cleaners co-located with residences, child care facilities, and other sensitive uses as of Dec. 31, 2013

- "No person shall operate, use, or allow the operation or use of, Perc or Perc Dry Cleaning Equipment at any Co-located Facility."[42]

The regulations allowed co-commercial dry cleaners to submit a petition (on or before July 1, 2013) for an exemption from the ban.[43] This potential exemption was not available, however, to co-residential or "co-sensitive" facilities. Sensitive facilities include "(K-12) grade or preschools or other early childhood education facilities…and health and community care facilities including, but not limited to, hospitals, long-term or child care centers, and family day care homes."[44]

New York State has also addressed co-commercial and co-residential perc dry cleaners. While New York does not prohibit such facilities, state regulations establish additional operating requirements. For example, a co-commercial or co-residential dry cleaner must have a vapor barrier room enclosing perc dry cleaning equipment, with entry doors open only when a person is entering or exiting. The regulations require that the room be provided with an exhaust ventilation system that is separate from the systems serving other rooms in the facility, that operates at all times the facility is open for business, and that is capable of at least one air change every five minutes.[45]

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[40] Phila. Dept. of Public Health, Air Mgmt. Reg VIX – Control of Perchloroethylene From Dry Cleaning Facilities Background Document at 19, https://www.phila.gov/media/20181101113449/DryCleaningBackgroundDocFINAL20131118.pdf.

[41] Philadelphia (PA) Air Management Reg. § I(b)(8). As an interim measure, the regulation also established a ban on perc in *new* facilities or equipment in co-residential and co-sensitive facilities as of the regulation's effective date of December 13, 2010. Phila. Air Mgmt. Reg. § IIA(4),(5).

[42] Id. § II(b)(1).

[43] Id. §II(b)(2). To receive the waiver, co-commercial facilities had to demonstrate that the airborne concentration of perc in adjoining commercial or industrial sites was at or below 40 ppb. The regulations include a number of operating requirements that apply to co-commercial facilities operating under a waiver. They also require that such facilities obtain quarterly 24-hour air samples from any co-located commercial site. If the perc concentration in the sample is greater than 40 ppb, but below 200 ppb, corrective action to bring the levels to 40 ppb or lower must be taken within 30 days; if the concentration is above 200 ppb, all perc dry cleaning operations must cease immediately until levels are reduced to 40 ppb or lower. Id. at § V.

[44] Id. § I(b)(50). *See also* City of Philadelphia, Dept. of Health, Air Management Regulation XIV: Control of Perchloroethylene from Dry Cleaning Facilities – Background Document at 21 (2010), available at: https://www.phila.gov/media/20181101113449/DryCleaningBackgroundDocFINAL20131118.pdf (noting that "Perc dry cleaning facilities located in a residential building (co-residential facilities) and facilities next to sensitive receptors (co-sensitive facilities) have to phase out all Perc after December 31, 2013.").

[45] 6 NY Code Rules & Regs. §§ 232-2.4(a)(1),(2).

State and Local Financial Incentives for Eliminating Perc at Dry Cleaners

In addition to, or in lieu of, regulatory requirements for reducing perc emissions, states and local governments can establish policies and programs to incentivize the transition to less-polluting dry cleaning equipment. **California** legislators took this approach when they enacted Assembly Bill 998 in 2003. The legislation created financial incentives for dry cleaners to switch completely from perc to other dry cleaning systems ahead of the state's January 2023 deadline for ending perc use. The legislation limits assistance to facilities switching to perc alternatives that are determined by the state Air Resources Board (ARB) to be "nontoxic and nonsmog-forming." At least 50 percent of the funds were required to be distributed in a manner that "reduces the public health risk associated with air contaminants in communities with the most significant exposure to air contaminants....including, but not limited to, communities of minority populations or low-income populations, or both." The legislation established a fee on perc manufacturers and importers to fund the program.

The ARB has implemented the law through its Non-Toxic Dry Cleaning Incentive Program, which began providing grants of $10,000 in 2005 to eligible dry cleaners who replaced their existing perc systems with either water-based cleaning systems or carbon dioxide cleaning systems. (See CARB – Non-Toxic Dry Cleaning Incentive Program (AB 998) Overview, https://ww2.arb.ca.gov/resources/documents/non-toxic-dry-cleaning-grant-program-ab998.)

The South Coast Air Quality Management District implemented an incentive program for perc alternatives by providing grants for CO2 machines ($20,000) and professional wet clean systems ($10,000) approved by the agency. The grants were offered for a limited time to encourage the transition to non-perc machines prior to the South Coast AQMD's perc phase-out deadline of December 31, 2020. (See South Coast AQMD, Financial Incentive Grant Program, http://www.aqmd.gov/home/programs/business/business-detail?title=dry-cleaner-grant.)

AIR QUALITY REGULATIONS ESTABLISHING OPERATING REQUIREMENTS TO REDUCE PCE EMISSIONS

This report does not discuss in detail the operations and maintenance requirements included in federal, state, and local air quality regulations. However, it is important to note that states and localities can go beyond federal regulations to establish stricter operating requirements for reducing PCE emissions and for ensuring compliance with regulatory requirements. Following are a few examples of such provisions.

Inspections. Requirements for regular inspections by operators is important for identifying leaks that could increase PCE emissions. Some jurisdictions expand upon the federal requirements in this regard.

- Frequency of inspections. EPA regulations require owners or operators of area sources to conduct monthly inspections for vapor leaks using a halogenated hydrocarbon detector or PCE gas analyzer and to inspect for perceptible leaks biweekly (small area sources) or weekly (large area sources).[46] All of the jurisdictions reviewed here **– California, Maine, New York, Philadelphia and the South Coast AQMD** – require weekly inspections of perc dry cleaning systems using vapor leak detection equipment. These state and local regulations further state that a facility with a leak that has not been repaired by the end of a specified period of time may not operate the dry cleaning machine until the leak is repaired.[47]

- Compliance Inspections. In **New York State**, air quality regulations require an additional layer of monitoring – annual compliance inspections. All perc dry cleaning facilities must be inspected at least once per year by an inspector registered with the state or by an individual working under the supervision of a registered inspector.[48] The state Department of Environmental Conservation maintains a list of registered inspectors, and agency staff "reviews these reports for compliance and enforcement purposes."[49]

Training. The federal regulations do not address training for operators of perc machines, but some states have enacted such requirements.

[46] 40 CFR 63.322(k),(l).

[47] *See* 17 Cal. Code Regs. § 93109(i)(3)(A),(E); 6 N.Y. Code Rules & Regs. § 232-2.5; Code Me. Regs. 06-096 § 125(5)(C); Phila. Air Mgmt. Reg. § IV(b); South Coast AQMD Rule 1421, §§ (e)(2)(A),(D). California allows seven working days to make the repairs, while the other jurisdictions allow 15.

[48] 6 N.Y. Code Rules & Regs. § 232-2.11(a)-(b).

[49] N.Y. Dept. of Envtl. Cons., DEC Registered 6 NYCRR Pt. 232 Dry Cleaner Inspectors, http://www.dec.ny.gov/chemical/8944.html.

- **California** requires each facility using perc to employ at least one operator who has successfully completed an environmental training program, and a trained operator must be on site while dry cleaning equipment is in operation.[50] The **South Coast AQMD** Rule has similar requirements.[51]

- **New York State** regulations, which direct dry cleaning facilities to be "maintained and operated to minimize the release of perc to the environment," require each owner, operator, and inspector of a perc dry cleaner to undergo training and certification. State regulations also establish mandatory on-site training for the purchaser or lessee of new perc equipment upon installation, conducted by the manufacturer or their representative.[52]

Posting Notice of Perc Use. In **New York State**, notices that contain the following statements must be posted in dry cleaning facilities with operational perc dry cleaning equipment:

> *"This dry cleaning facility uses the chemical commonly called perc (it is also called tetrachloroethene, tetrachloroethylene or perchloroethylene)."*
> *"You may request information from this dry cleaner about inspections that may have been conducted at this facility, including indoor air testing."*
> *"You may contact the New York State Department of Environmental Conservation if you smell chemical odors or see liquid leaking from the dry cleaning operations...."*
> *"If you want more information about indoor air testing or health effects from exposure to perc, call the New York State Department of Health toll free...."*[53]

[50] 17 Cal. Code Regs. § 93109(i)(1).

[51] South Coast AQMD Rule 1421, § (e)(3)(A).

[52] 6 N.Y. Code Rules & Regs. §§ 232-2.10, 232-2.9(a)(6).

[53] 6 N.Y. Code Rules & Regs. § 232-1.7(b)(1).

Policies and Programs Addressing *Perc Alternatives* for Dry Cleaning

Policies for reducing air emissions from dry cleaners focus mainly on the use of perchloroethylene. It is also important to consider the risks that may be posed by dry cleaning chemicals that are used to replace perc. In preparation for its 2007 rule phasing out perc, the California Air Resources Board summarized then-current knowledge about the potential health and environmental impacts of perc alternatives – e.g., dry cleaning systems that use water-based cleaning, CO_2, hydrocarbon solvents, and other solvents. (Cal. ARB, Staff Report: Initial Statement of Reasons for the Proposed Amendments to the Control Measure for Perchloroethylene Dry Cleaning Operations at V-2—V-8 (Dec. 2006), https://ww3.arb.ca.gov/regact/2007/perc07/isor.pdf.)

As noted above, California has provided financial assistance for transitioning from perc systems to water-based cleaning systems or carbon dioxide cleaning systems.

Although not discussed in this report, some federal, state, and local policies address perc alternatives used by dry cleaners. **New York**, for example, has established a regulatory framework for the use of alternative solvents. The state's air quality regulations for dry cleaners prohibit the use of any alternative solvent that has not been approved by the Department of Environmental Conservation, pursuant to approval criteria and processes detailed in the regulations. The regulations establish prohibitions and requirements for alternative solvent dry cleaning equipment and operations. Additionally, alternative solvent dry cleaning facilities must post notices informing the public of the chemicals they use. (6 N.Y. Code Rules & Regs. §§ 232-1.7(c), 232-3.2 – 3.7.) The Department publishes a list of approved alternative solvents on its website. (N.Y. Dept. of Envtl. Cons., Approved Alternatives Solvents for Dry Cleaning, https://www.dec.ny.gov/chemical/72273.html.)

Philadelphia's 2010 dry cleaner rule, in addition to addressing perc, restricts the use of n-Propyl Bromide (n-PB) and bans the use of dry cleaning solvents containing n-PB at any co-residential or co-sensitive facility. (Phila. Air Mgmt. Reg. §II(a)(9).)

New York City has established an indoor air nuisance standard for perc, in order to reduce exposures in co-located or adjacent occupancies. The standard is found in the New York City Health Code in a separate section on dry cleaners.[54]

Requirement for Dry Cleaners to Reduce Perc Emissions. The health code establishes the following directive to dry cleaners:

> *Dry cleaning facilities shall exhaust emissions from equipment using perchloroethylene so that no perchloroethylene vapors in excess of the nuisance level specified….enter co-located or adjacent dwellings, child occupied facilities, or other occupied premises through windows, ventilation systems, or building structural penetrations."*

Indoor Air Nuisance Standard for Perc. The nuisance level specified in the code is 30 micrograms per cubic meter (µg/m^3): "Detection of perchloroethylene vapors from dry cleaning facilities in dwellings, child-occupied facilities, or other occupied premises at levels at or above 30 micrograms per cubic meter...shall constitute a nuisance."

Prior to June 2016, this standard had been 100 µg/m^3, which was in line with the New York State Department of Health (NYSDOH) guideline for average levels of perc in indoor air. The city revised its standard after the NYSDOH changed its guideline in 2016, recommending that "the average air level not exceed 30 µg/m^3," a level that is "below the PERC air levels known to cause noncancer effects……[and] lower than the USEPA's (2012) reference concentration (RfC) for PERC of 40 µg/m^3."[55]

City Inspections and Remediation Orders. People can often smell PCE when it is present in the air at low levels.[56] When the city's Department of Health and Mental Hygiene receives a complaint of perc odors from co-located or adjacent premises, a city public health sanitarian conducts an inspection and measures perc levels in those premises. If the inspection finds levels of perc exceeding the nuisance standard, the health department "will order the owners of the dry cleaning business and/or the owner of the premises in which the dry cleaner is located to find the cause and abate the nuisance by providing proper exhaust ventilation, adjusting operation of dry cleaning equipment and installing barriers, if necessary, to prevent fumes from escaping."[57] The health code expressly authorizes the agency to issue an order "when deemed necessary to prevent or remediate such nuisance."

In recent years the health department has conducted outreach around the rule, including a mailing to 700 co-located perc dry cleaners, and conducted numerous inspections in buildings with a co-located or

[54] New York City Health Code § 131.17.

[55] NYSDOH, Fact Sheet: Tetrachloroethylene (PERC) in Indoor and Outdoor Air, https://www.health.ny.gov/environmental/chemicals/tetrachloroethene/.

[56] U.S. Agency for Toxic Substances & Disease Registry, ToxFAQs for Tetrachloroethylene (PERC), https://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=264&tid=48.

[57] NYC Dept. of Health and Mental Hygiene, Notice of Adoption of Amendments to New York City Health Code Article 131.

adjacent dry cleaner. If a city inspector finds perc levels above the nuisance standard of 30 µg/m^3 but less than 100 µg/m^3, the agency issues an order to take corrective action. If levels are between 100-300 µg/m^3, the agency issues a violation with fine. Where levels exceed 300 µg/m^3, the dry cleaning equipment will be shut down and sealed; in those cases, the health department requires an evaluation from a licensed professional engineer. The city's environmental agency must approve the remediation plan and conduct an evaluation of the equipment before the equipment can be put back into service. Problems leading to exceedances may include equipment failures such as inadequate gasket seals on perc equipment and breaches in exhaust ducts.[58]

Although most inspections have been conducted following an odor complaint, the health department recently conducted proactive sampling for perc as well as trichloroethene (TCE, which is used in pre-cleaning spot removal) in 33 locations. Residents in buildings co-located with perc dry cleaners responded to letters from the health department. Sampling in 73 percent of those residences revealed that perc concentrations were above the nuisance standard – with a range of 30 to 19,910 µg/m^3 – despite no complaints being lodged against the majority of the dry cleaners. This effort resulted in 14 orders to correct equipment, nine shut-down orders, and two orders to take corrective action to reduce TCE concentrations.[59]

Co-residential dry cleaners will be prohibited from using perc under federal regulations after December 21, 2020. The health department does not typically receive complaints about perc in child care facilities in mixed-use buildings because the city's child care licensing rules expressly prohibit co-location with dry cleaners or other businesses that present an environmental hazard.

[58] ELI communications with NYC Dept. of Health and Mental Hygiene (May-July 2020).

[59] Id.

SECTION III

LAND USE AND ZONING POLICIES

A. BACKGROUND

State law creates the framework within which local governments develop and implement land use policies for new residential, commercial, and industrial development. These state laws vary, but they typically delegate to local governments broad authority to control land use and to regulate development to advance public health and welfare. Some localities have used this authority to help ensure that "sensitive" land uses, such as child care facilities, are not located in close proximity to polluting facilities.

Some of the specific land use regulatory tools that may be available to local governments include:

- The Comprehensive Plan, also known as the Master Plan or General Plan. This document "creates the blueprint for the future development and preservation of a community….[and] guides not only the physical and economic development of the municipality, but also accommodates social, environmental and regional concerns."[60] Plans typically address a wide range of issues – e.g., housing, transportation, environment, and economic development – in establishing the policies and principles that guide land use regulations as well as individual land use decisions.

- Zoning and Related Regulations. Comprehensive Plans create the framework within which local governments adopt zoning ordinances, which "contain standards that dictate what, where and how building occurs on the land."[61] Zoning ordinances determine the allowed and prohibited uses within each defined zone and may address density, setback requirements, design standards, and other features of development within a zone.[62] Zoning regulations may also establish *conditional uses* – uses that are allowed, but only when they meet specified conditions. Closely related to zoning ordinances are subdivision regulations and land development ordinances that control the creation of building lots and that may include design criteria for reviewing proposed developments.[63]

These land use and zoning policies can be a tool for addressing potential health impacts in the siting of child care facilities or of dry cleaners. The state of California and the South Coast Air Quality Management District have issued guidance for local governments on how to use these tools to avoid incompatible land uses and reduce exposure to air pollutants. **California's** handbook, published in 2005, includes the following (non-binding) advice:

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[60] J. Nolon and P. Salkin, Land Use at 43 (West, 2006).

[61] Id.

[62] *See* J. McElfish, Nature-Friendly Ordinances at 38 (Envtl. Law Inst., 2004).

[63] *See* J. Nolon and P. Salkin, Land Use at 107-108 (West, 2006).

- "Avoid siting new sensitive land uses [including daycare centers, schools, and residences] within 300 feet of any dry cleaning operation. For operations with two or more machines provide 500 feet. For operations with 3 or more machines, consult with the local air district."
- "Do not site new sensitive land uses in the same building with perc dry cleaning operations."[64]

The **South Coast Air Quality Management District (AQMD)** provides guidance on air quality and land use for local governments within its southern California air shed. The 2005 guidance discusses land use policies that "rely on design and distance parameters to minimize emissions and lower potential health risk"[65] and suggests that local jurisdictions take a number of steps, including:

- Conduct an inventory of sources of air pollution (including perc dry cleaners) within a specified radius of a proposed sensitive site such as a child care facility;
- "Consult with the AQMD when siting new facilities with dust, odors or TAC [toxic air contaminant] emissions to avoid siting those facilities near sensitive receptors and avoid siting sensitive receptors near sources of air pollution;" and
- Consider environmental justice issues related to potential exposures, including cumulative air quality impacts, and ensure that all land use decisions are made in an equitable fashion to protect all residents from the health effects of air pollution.[66]

B. LOCAL POLICIES

The following examples illustrate how some localities have used their land use policies to address the risks from dry cleaners located near sensitive uses. These policies incorporate measures such as prohibiting the siting of perc dry cleaners in certain zones, requiring adequate physical separation between dry cleaners and sensitive uses, and requiring design features to minimize emissions or exposure.

POLICIES RESTRICTING THE SITING OF DRY CLEANERS THAT USE PCE

Some local jurisdictions have used zoning ordinances to prohibit the use of PCE in new dry cleaners.

- **Albemarle County, Virginia**. Albemarle County's zoning ordinance includes "supplementary regulations" that establish conditions for specific land uses in all zoning districts, regardless of

[64] Cal. Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective at Table 1-1 (2005), https://ww3.arb.ca.gov/ch/handbook.pdf.

[65] South Coast Air Quality Mgmt. District, Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning at 2-1 (2005), http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

[66] Id. at 2-9, 2-14.

whether the uses are permitted by right or by special use permit. In 2013, the county added a section on "dry cleaning plants" that prohibits the use of perc or petroleum solvents.[67]

- **Naples, Florida**. The city of Naples has adopted standards that are applicable to districts zoned for commercial use. In 2016, the city amended the standards to provide that, for establishments granted conditional use permits to perform laundry and dry cleaning activities on the premises, the use of perc and other petroleum solvents is prohibited.[68]

- **Doraville, Georgia**. Doraville's zoning ordinance allows dry cleaners to be located in the city's neighborhood commercial and general business districts, but prohibits the use of perc.[69]

- **Irvine, California**. The city of Irvine's General Development Standards and Land Use Regulations allow accessory retail uses such as dry cleaners on sites containing office developments, but establish conditions for these accessory (co-located) uses. The regulations expressly exclude dry cleaner operations "involving storage of hazardous solvents and chemical use."[70]

Some local jurisdictions have adopted more general land use policies to address the hazards posed by new commercial or industrial uses such as dry cleaners. The General Plan for the city of **San Jose, California** – which sets the "policy framework for decision-making on both private development projects and City capital expenditures" – includes policies addressing toxic air contaminants. The Plan calls for new projects that would emit such pollutants "to be located an adequate distance from residential areas and other sensitive receptors" or alternatively, to prepare health risk assessments and "employ effective mitigation to reduce possible health risks to a less than significant level...."[71]

Similarly, the city of **Hayward, California** adopted a General Plan in 2014 that states: "The City shall review applications for commercial and industrial uses that involve the use, storage, and transport of hazardous materials to determine the need for buffer zones or setbacks to minimize risks to homes, schools, community centers, hospitals, and other sensitive uses."[72]

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[67] Albemarle County (VA) Municipal Code, ch. 18, §§ 5.1., 5.1.49 (Ord. 13-18(1), Apr. 3, 2013). The code authorizes the county's Planning Commission to consider requests for modification or waiver of the conditions.

[68] Naples (FL) Municipal Code, Ch. 56, Art. IV, § 56-131 (Ord. 16-13747, 1/20/2016).

[69] Doraville (GA) Municipal Code, ch. 23, § 23-909.

[70] Irvine (CA) Zoning Ordinance, § 3-5-2. As noted in Section II, California law prohibits perc use in all dry cleaners as of January 1, 2023.

[71] City of San Jose (CA), Envision San Jose 2040: General Plan, § MS-11.2, at 13-14 (rev. 2011, rev. 2020), https://www.sanjoseca.gov/home/showdocument?id=22359.

[72] City of Hayward (CA), Hayward 2040 General Plan – Policy Document at 3-143 (2014), https://www.hayward-ca.gov/sites/default/files/documents/General_Plan_FINAL.pdf. The Plan defines "sensitive receptors" to include child care centers, schools, and residences. Id. at A-29.

POLICIES RESTRICTING THE SITING OF SENSITIVE USES SUCH AS CHILD CARE FACILITIES

In addition to restricting the siting of polluting facilities, land use policies can address the siting of sensitive uses such as child care facilities and residential properties near existing facilities such as dry cleaners. Some jurisdictions in California build on the state's 2005 land use guidance by requiring consideration of mitigation measures if a proposed child care facility is to be located within 300 or 500 feet of a dry cleaner.

- The city of **Oakland, California** has adopted Standard Conditions of Approval (SCA) that are designed to achieve consistency among projects that receive discretionary planning-related approvals. The SCA includes measures applicable to all new/expanded daycare centers (as well as residences, schools, and other sensitive receptors) that (1) are proposed to be located within 300 feet of a dry cleaner with one perc machine or within 500 feet of a dry cleaner with two perc machines; and (2) exceed the health risk screening criteria after a screening analysis is conducted.

  In these cases, the child care facility or other proposed use must either (1) hire a qualified consultant to prepare a Health Risk Assessment and include any identified measures to reduce the health risk to acceptable levels; or (2) incorporate the mitigation measures listed in the SCA. Those measures include installing and maintaining high efficiency air filtration and planting trees or vegetation between sensitive receptors and pollution sources.[73]

- The General Plan for the city of **Hayward, California**, described above, includes a directive applicable to the siting of child care centers near polluting facilities: "The City shall avoid locating new sensitive uses such as schools, childcare centers, and senior housing, to the extent feasible, in proximity to sources of pollution...." Where such uses are allowed, the city must "encourage building design, construction safeguards, and technological techniques to mitigate the negative impacts of hazardous materials and/or air pollution on indoor air quality."[74]

[73] City of Oakland, Standard Conditions of Approval (Item 24, Exposure to Air Pollution (Toxic Air Contaminants)) at 16-17 (rev. Nov. 2018).

[74] City of Hayward (CA), Hayward 2040 General Plan – Policy Document at 3-173 (2014), https://www.hayward-ca.gov/sites/default/files/documents/General_Plan_FINAL.pdf

SECTION IV

CHILD CARE LICENSING POLICIES

Although some federal, state, and local policies have been enacted to prohibit the use of PCE at dry cleaners, there remain many dry cleaners in the U.S. that are allowed to continue using the chemical.[75] In addition, releases from former dry cleaners may have left contaminated soil or groundwater that continue to pose vapor intrusion risks.

A direct approach to reducing the impact of dry cleaners on child care facilities is to establish child care licensing laws, rules, and other policies that address the location of new child care facilities. All 50 states, and many local jurisdictions, require child care facilities to be licensed and to comply with regulations and related policies governing operation of the facility.[76] These state and local licensing regulations typically address a variety of conditions relating to the physical premises. A 2018 ELI report discusses how the policies address potential site hazards as part of the licensing process.[77]

Some agencies have established *general* location standards that could be used to evaluate whether a child care license applicant will be located near a polluting source such as a dry cleaner. For example, **West Virginia** health regulations for child care centers require centers to be located "in a relatively noise and pollution free environment."[78] In **Virginia**, licensing regulations prohibit child care centers from being located "where conditions exist that would be hazardous to the health and safety of children."[79] Such general standards could be applied to address potential site hazards, but they do not require any affirmative steps to identify those hazards.

A small number of jurisdictions have gone further, to incorporate explicit regulatory provisions for evaluating whether a proposed child care facility might be located near a polluting source – in some cases addressing dry cleaners explicitly. Following are brief descriptions of notable policies in this area.

- **New Jersey** child care regulations prohibit *new or relocating* child care centers from being located in a building that was formerly a dry cleaner or funeral home, and more generally prohibit centers from being located "near or adjacent to areas determined by the Office of Licensing to be hazardous to the physical health and safety of the children." The regulations also state that if the child care facility is co-located with a hazardous use (including co-location in a strip mall sharing the same

[75] As noted earlier, EPA's 2006 rulemaking stated that there were approximately 34,000 dry cleaning facilities in the U.S., and around three-quarters of those facilities used perchloroethylene. 71 Fed. Reg. 42724, 2725 (July 27, 2006), https://www.govinfo.gov/content/pkg/FR-2006-07-27/pdf/06-6447.pdf. The agency estimated around 1,300 co-residential sources then in operation that would be affected by the rule's December 20, 2020 perc phase-out. Id. at 42738, 42740.

[76] *See generally* U.S. Dept. of Health & Human Svcs., National Database of Child Care Licensing Regulations, https://childcareta.acf.hhs.gov/licensing.

[77] Envtl. Law Inst., Addressing Environmental Site Hazards at Child Care Facilities: A Review of State Policy Strategies (2018), https://www.eli.org/research-report/addressing-environmental-site-hazards-child-care-facilities-review-state-policy-strategies.

[78] W.V. Code St. Rules §§ 64-21-5 (5.1).

[79] 22 Va. Admin. Code § 40-185-280(A).

roof) or has a hazardous use nearby (hazardous uses listed in the regulations include dry cleaners), among other criteria, the applicant must follow state health department regulations to obtain a written Safe Building Interior Certification (SBIC) affirming that all conditions of the indoor environmental assessment have been satisfied for the interior of the building.[80]

- **New York State** requires applicants for a day care center or group family day care license to certify in writing that the "building, its property and premises, and the surrounding neighborhood and environment are free from environmental hazards." The regulations note that such hazards include dry cleaners. If potential hazards are identified, applicants must contact the relevant state agencies, take any necessary steps to ensure the site is free from health risks, and provide documentation of any required testing and remediation.[81]

- **Delaware** revised its child care licensing rules in 2019 to establish requirements for child care facilities located in a commercial building that previously contained or currently contains a dry cleaner, nail salon, or any other use "that may result in an unacceptable indoor air quality." In such cases, a license will not be issued or renewed unless the applicant "obtains indoor air sampling....that shows there is no impact" to the child care facility.[82]

- **New York City** child care licensing regulations establish that child care programs obtaining their first license may not be co-located in any building or premises containing commercial or manufacturing establishments associated with environmental hazards, including those associated with dry cleaners. A permit will not be issued or renewed for any child care program unless the "building or premises are free of environmental hazards," including those from dry cleaners. If a program learns of a "commercial activity or condition that may result in potential exposure to environmental hazards," it must submit written notice to the licensing agency. The agency may order assessment, abatement, and remediation if it "determines that a condition may expose children or other persons to environmental hazards at the premises occupied by any program."[83]

States and localities can also address potential site hazards through non-regulatory, inter-agency programs that encourage and help child care facilities to identify and address potential site hazards. **Connecticut** established a leading model for such efforts in 2010. The Connecticut Department of Public Health's Screening Assessment for Environmental Risk (SAFER) Program works with the child care licensing agency and other state agencies to determine whether a child care facility might be affected by hazardous chemicals. The SAFER program uses a number of tools for obtaining information, including a

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[80] N.J. Admin. Code §§ 3A:52- 5.3(i), 3A:52-2.3. *See also* N.J. Department of Health, Indoor Environmental Health Assessment Overview, https://www.state.nj.us/health/ceohs/environmental-occupational/indoor-envi-education-facilities/.

[81] 18 N.Y. Codes Rules and Regs. §§ 416.2, §418-1.2. *See also* N.Y. State Office of Children & Family Services, Environmental Hazards Guidance Sheet, Environmental Hazard Information Form, and Directions for Completing the Environmental Hazards Statement, http://www.ocfs.state.ny.us/main/documents/docsChildCare.asp.

[82] 9 Del. Admin. Code §§ 101(46), 103(61).

[83] New York City Health Code § 47.57(g).

property history questionnaire developed for license applicants and GIS mapping to identify industrial sites located in proximity to a new child care center or group child care home. The program also provides assistance if follow-up is needed – e.g., by conducting site visits, making recommendations to reduce exposure, and coordinating follow-up work.[84]

State officials in **Vermont** recently undertook a project focused exclusively on assessing potential hazards from historic and current dry cleaners located near active child care facilities. State environment and health officials worked with the state child care licensing agency to identify several child care facilities located within 200 feet of these dry cleaners. The health and environmental agencies conducted soil gas and/or indoor air sampling at the child care facilities and determined that no mitigation, evacuation, or relocation was required. Funding for the sampling was provided by Vermont's Environmental Contingency Fund, which also would have been used for any necessary remediation if the responsible party would or could not fund the work.[85]

An important resource for taking action to address environmental site hazards at child care facilities is *Choose Safe Places for Early Care and Education: Guidance Manual*, published in 2017 by the Agency for Toxic Substances and Disease Registry (ATSDR), the federal agency that addresses public health issues from contaminated sites. The manual offers practical tools to a range of stakeholders who can play a role in ensuring that child care facilities "are located on sites where hazards have been considered, addressed, and mitigated to protect children's health." The manual is available on the agency's website, which includes additional tools and resources that can help states and localities take action.[86] The agency's Choose Safe Places for Early Care and Education program currently funds around half of the states to help prevent child care facilities from opening in places that have environmental hazards.

State Dry Cleaner Remediation Funds

In the 1990s, a number of states set up formal mechanisms to ensure funding for future investigation and remediation of dry cleaning facilities, given the large number of such facilities throughout the U.S. and the likelihood of some level of contamination at many of the sites. Dry cleaning businesses participate in their state Dry Cleaner Remediation Fund by paying fees to the fund in exchange for some level of financial relief in cleaning up contaminated sites. For information about sources of funding for assessing and remediating site contamination at child care facilities generally, see Envtl. Law Inst., Funding for Environmental Assessment and Remediation at Child Care Facilities: A Review of Selected Resources (2019), https://www.eli.org/research-report/funding-environmental-assessment-and-remediation-child-care-facilities-review-selected-resources.

[84] Conn. Dep't of Public Health, Child Day Care SAFER Program Protocol, Forms, and Background Information, https://bit.ly/3ddtAM1.

[85] ELI communications with the Vermont Departments of Health and Environmental Conservation (April-June 2019).

[86] Agency for Toxic Substances and Disease Registry, Choose Safe Places for Early Care and Education, https://www.atsdr.cdc.gov/safeplacesforece/index.html.

SECTION V
SUMMARY

This report describes three areas of policy that have been used at the federal, state, and local levels to reduce the impacts of perchloroethylene emissions from dry cleaners: environmental and health requirements for dry cleaner operations, land use and zoning requirements for new dry cleaners and child care facilities, and licensing requirements for new and existing child care facilities. The examples described here are not exhaustive, but they illustrate formal and direct approaches to addressing the potential hazards posed by PCE use at dry cleaners located near child care facilities.

Environment/Health. Federal, state, and local agencies all play a role in regulating dry cleaner air emissions. The air permitting process provides a vehicle for reducing emissions from dry cleaners generally, including those that might be located near existing child care facilities. It also may help state and local agencies identify where dry cleaners are (or were) located in relation to existing or proposed child care facilities.

EPA took a significant step forward in its regulation of dry cleaners by phasing out PCE-using dry cleaners co-located with residences by the end of 2020. Some states and localities have gone further. Maine expanded EPA's co-location ban to include all buildings with child care; Philadelphia did the same several years ago, establishing its prohibition beginning in 2014. And perc use by dry cleaners will be eliminated entirely in a large area of southern California by the end of 2020 and throughout that state by the end of 2022. These and other jurisdictions, including the state of New York, have also established more stringent operating and equipment requirements aimed at limiting PCE emissions and reducing leaks.

New York City has taken a somewhat different approach – establishing a nuisance standard for PCE in indoor air, which serves as a trigger for the city to ensure that dry cleaners take corrective action to reduce air emissions.

Land Use. Local land use and zoning policies provide a mechanism for determining where dry cleaners may be located. These formal policies can help ensure that proximity to sensitive land uses is addressed. Indeed, a number of cities and counties have used zoning ordinances to prohibit perc use by dry cleaners generally or in specified zones. Others have used their land use planning documents to require consideration of buffers and other tools in the siting of dry cleaners and other land uses that emit pollutants.

These policies can also be used to address the reverse situation: the siting of child care facilities near existing dry cleaners. Although zoning requirements for child care facilities more commonly address issues such as parking and noise related to the facility, some localities have adopted land use and zoning provisions that address the risks from nearby polluting facilities, such as dry cleaners. Such provisions may establish requirements for assessing risks and considerations for appropriate distance and/or mitigation measures.

Child Care Licensing. The child care licensing process also provides an opportunity for considering potential environmental site hazards posed by active or former polluting facilities. This can be especially valuable during the initial license application, before a child care facility begins operations. States and local jurisdictions have adopted a variety of child care licensing and health regulations designed to address potential site hazards, and some identify dry cleaners specifically.

For example, New Jersey and New York require license applicants to undertake a broad examination into current and prior land uses that may affect a child care facility, with New Jersey's child care licensing and health regulations establishing the most detailed regulatory requirements. New Jersey, Delaware, and New York City include provisions expressly prohibiting or restricting co-location of child care facilities with dry cleaners. The licensing process can also be an opportunity for implementing voluntary programs to identify potential site hazards and to provide technical and financial assistance for assessing and remediating hazards.

Air quality, land use, and child care licensing are not the only policy tools available to state and local jurisdictions that wish to reduce risks posed by dry cleaners. Local jurisdictions might have other permitting processes that provide an opportunity to consider risks posed by dry cleaners located near child care and other sensitive uses. For example, **Minneapolis** makes use of the business licensing process to ban PCE use by dry cleaners. The Minneapolis Municipal Code requires dry cleaners to obtain a business license in order to operate and requires the facility to be "kept in a clean and sanitary condition and good repair." In 2019, the city amended the ordinance to prohibit the use of perc: "No dry cleaning machine, new or used, shall use tetrachloroethylene, otherwise known as 'perc,' as a solvent. Tetrachloroethylene shall also not be used for other means of spot cleaning or any other use in the dry cleaning facility."[87]

Some local jurisdictions require an occupancy permit or certificate when a business moves into a location that previously housed a different use or occupancy, even if new construction or renovation is not involved. This process might involve a separate inspection by the local building or other permitting agency to ensure that the use is allowed and that any applicable health and safety or other permitting requirements have been met. Such inspections offer another opportunity for identifying potential hazards from nearby dry cleaners.

[87] Minneapolis Code t. 13, ch. 301 (Ord. No. 2019-030). Prior to enacting the ban, the city "used its business assistance programs to help dry cleaners throughout Minneapolis switch away from perchloroethylene to solvents safer or employees, neighbors and customers" and worked closely with industry. City of Minneapolis, Minneapolis Bans "Perc" in Dry Cleaning (8/22/19), https://bit.ly/30D6sCA.

APPENDIX

SELECTED STATE AND LOCAL AIR QUALITY REGULATIONS FOR PERC DRY CLEANERS

Following are brief summaries of and citations to the state and local air pollution regulations highlighted in Section II of the report – California, South Coast Air Quality Management District, Maine, New York State, and Philadelphia.

CALIFORNIA

Citation

- Regulations: 17 California Code of Regulations §93109, https://bit.ly/2NH2SkM

Background

In 1993, the California Air Resources Board (ARB) adopted the Airborne Toxic Control Measure for Emissions of Perchloroethylene from Dry Cleaning Operations (Dry Cleaning ATCM), which established equipment, operations and maintenance, record keeping, and reporting requirements for perc dry cleaners. From 2003 to 2005, the ARB conducted an evaluation of the Dry Cleaning ATCM that compared perc dry cleaning to the available alternatives, in order to determine whether the rules continued to adequately protect public health. The agency found that there remain residual health risks and that "some members of the public that live very close to Perc dry cleaning facilities continue to be exposed to elevated levels of Perc." The agency also found that "less emissive Perc dry cleaning technology has been proven and is available." As a result, the agency amended the Dry Cleaning ATCM significantly in 2007 and added requirements for perc manufacturers and distributors.[88]

Key Requirements

- No new installation of perc machines starting on January 1, 2008.
- Removal of perc machines from service at co-residential facilities by July 1, 2010.
- Beginning July 1, 2010, perc machines that are 15 years or older must be removed from service, with all perc machines prohibited by 2023.
- More stringent operations/equipment requirements – e.g., not operating perc machines during repair delays, more frequent leak inspections, training.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Citation

- Regulations: South Coast Air Quality Management District Rule 1421 - http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1421.pdf

[88] See at II-1 (2006), https://ww3.arb.ca.gov/regact/2007/perc07/isor.pdf.

Background

The South Coast AQMD and other local air districts in California have primary responsibility for enforcing the state's Dry Cleaning ATCM. The South Coast AQMD rule governing perc dry cleaners was adopted 1994 and amended in 1997 and 2002, and includes provisions that are stricter than the state regulations.

Key Provisions

- Prohibition on installing new perc facilities/machines as of December 31, 2002.
- Prohibition on using perc as of December 31, 2020.

MAINE

Citation

- Regulations: 06-096 Code of Maine Rules ch. 125, https://www.maine.gov/sos/cec/rules/06/096/096c125.doc

Background

The Maine Department of Environmental Protection adopted its Perchloroethylene Dry Cleaning Regulation in 1991. Amendments in 2009 and 2013 aligned the regulation with the federal NESHAP and added some notable provisions that go beyond the federal regulations.

Key Provisions

- Ban on perc dry cleaners co-located with "a day care center, a health care facility, a prison, an elementary school, a middle or high school, a children's pre-school, a senior center, a youth center or other facility designed to be occupied by children or the elderly" by December 21, 2020.
- More stringent operations/equipment requirements – e.g., not operating perc machines during repair delays, more frequent leak inspections.

NEW YORK STATE

Citation

- Regulations: 6 N.Y. Code of Rules & Regulations Part 232, https://bit.ly/2ZiR0ut

Background

New York's Dry Cleaning Facilities regulations first took effect in 1997. The regulations are applicable to dry cleaners that use perc and alternative solvents. The agency's 2018 rule revision incorporated significant changes. The Department of Environmental Conservation noted at the time that EPA had classified perc as a likely human carcinogen and that "airborne exposure continues to be a public health concern to residents and commercial occupants at co-located dry cleaning facilities; spills and groundwater contamination continue to be a potential remedial problem; and occupational exposure to employees or perc dry cleaning facilities is a well-documented health issue." The 2018 rule added

measures to reduce perc and alternative solvent emissions and "address advancements in technology and changes in the industry regarding the use of alternative dry cleaning solvents."[89]

Key Provisions

- More stringent operations/equipment requirements – e.g., vapor barriers for co-located facilities, training/certification for operators, more frequent leak inspections, not operating perc machines during repair delays, posting notice of chemicals used in the facility.
- Annual third-party compliance inspections for perc facilities.
- State approval for use of alternative solvents.

PHILADELPHIA

Citation

- Regulations: Philadelphia Air Management Regulation XIV (AMR XIV), https://www.phila.gov/documents/dry-cleaning-regulations/

Background

On June 24, 2010, the Philadelphia Air Pollution Control Board approved AMR XIV – Control of Emissions from Dry Cleaning Facilities, and the regulations became effective on December 13, 2010. Prior to adopting the regulations, the city reviewed the approximately 132 dry cleaning facilities in the city, of which 125 used PCE and seven used exempt solvents. The city found that most of these facilities were co-located with either a commercial or residential entity.[90]

Key Provisions

- Ban on perc use by 2014 in dry cleaners co-located with residences, child care, and other sensitive uses.
- Testing and control measures at remaining co-commercial dry cleaning facilities.
- More stringent operations/equipment requirements – e.g., not operating perc machines during repair delays, more frequent leak inspections.

[89] N.Y. State Register ENV-19-17-00003-A (2/28/18), https://bit.ly/2Bf6nfp.

[90] Phila. Dept. of Public Health, Air Mgmt. Reg VIX – Control of Perchloroethylene From Dry Cleaning Facilities Background Document at 19 , https://www.phila.gov/media/20181101113449/DryCleaningBackgroundDocFINAL20131118.pdf. The city subsequently ordered the dry cleaner adjacent to the day care center to stop its perc dry cleaning operation.

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