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Background Document
For Proposed Amendments To

301 CMR 41.00
Toxic or Hazardous Substance List

Regulatory Authority:
M.G.L. Chapter 21I, §§ 4 and 9

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CONTENTS

INTRODUCTION

These draft regulations prepared by the Executive Office of Energy and Environmental Affairs (EEA), as chair of the Administrative Council on Toxic Use Reduction (TUR), amend the Toxic or Hazardous Substance List regulations, (301 CMR 41.00), in accordance with decisions made by the Administrative Council, pursuant to its duties under the Toxics Use Reduction Act M.G.L. c. 21I, as amended in July 2006 (TURA). TURA expands the Toxic Chemical Release Inventory (TRI) reporting requirements required by the Federal Emergency Planning and Community Right to Know Act (EPCRA) Section 313 to include reporting on chemical use, chemical waste (byproduct), and on the results of a biennial assessment of whether there are ways companies could reduce chemical use and waste that make good business sense.

Two of the proposed actions are mandated by TURA, which requires that changes made by the United States Environmental Protection Agency (USEPA) to the EPCRA Section 313 Toxic Chemical List) be mirrored in the TURA Toxic or Hazardous Substance List. The other was approved by the TUR Administrative Council to further protect the health and safety of Massachusetts citizens, workers and the environment.

Specifically, the Council voted to:

1) list the nonylphenol category, added by USEPA to the EPCRA Section 313 Toxic Chemical List on September 30, 2014;
2) list the hexabromocyclododecane (HBCD) category that the USEPA added to EPCRA Section 313 on November 28, 2016;
3) list the category hereafter referred to as C1-C4 Halogenated Hydrocarbons/Halocarbons Not Otherwise Listed (C1-C4 NOL).

In addition, a technical correction has been made adding 12 chemicals to 301 CMR 41.00 under section 41:03(6) to clarify that these substances are reportable as part of the appropriate EPRCA category rather than as individual chemicals.

BACKGROUND AND PURPOSE

Unanimously passed by the legislature in 1989 and enacted in 1990, the Massachusetts Toxics Use Reduction Act (TURA) was the first comprehensive state pollution prevention law in the United States. The Act expanded on the existing Federal EPCRA Section 313 TRI requirement that manufacturers using more than threshold amounts of certain listed toxic substances report on the quantity of those substances released to the environment. Under TURA, certain facilities are required to report on the quantities of listed substances used and wasted in production and conduct a biennial examination of whether it would be economically advantageous to reduce the use and waste of these substances. TURA also provides free and confidential technical assistance to Massachusetts businesses, toxics use reduction grants, and research and training programs designed to promote the voluntary adoption of cost-effective toxics use reduction techniques. This unique combination of regulatory requirements and incentives furthers TURA's goal of protecting public health, the environment, and workers, while helping businesses find financial savings, product improvements, and greater efficiency in production processes.

Taking into account adjustments in production, between 1990 and 2014, the TURA program has helped Massachusetts manufacturers voluntarily reduce toxics use by 73% and toxic waste by 85%. Preliminary analysis of the most recent data shows that between 2007 and 2016:

1) Toxic chemical use (per unit of product produced) by all covered industrial sectors dropped by 28%;
1) Releases to the environment declined by 44%;
2) 88% of the companies that reported in this time period reduced the use or one or more chemical;
3) 55% of the companies that reported in this time period eliminated reportable uses of one or more chemical; and,
4) 31% reduced use of all reportable chemicals.

These reductions have brought cost savings to these businesses through reduced chemical purchases, reduced waste management and pollution control costs while simultaneously lowering chemical transportation risks, workplace hazards, and toxics in products. They have also helped Massachusetts businesses remain competitive in a global marketplace increasingly aware of toxics issues.

TURA established an Administrative Council on Toxics Use Reduction that has the responsibility, among other duties, to make the adjustments to the Toxic or Hazardous Substance List mandated by the statute as well as any other adjustments they believe are needed to meet the goals of the Act. As the chair of the Council, the Secretary of Energy and Environmental Affairs promulgates the Council's actions in regulations.

DESCRIPTION OF THE PROPOSED REGULATIONS

Reporting Clarification: Addition of 12 Substances to 301 CMR 41.00 Section 41:03(6), Eliminating the Requirement to Submit Individual Reports

The TURA Toxic or Hazardous Substance List is a combination of the Federal EPCRA Section 313 Toxic Chemical List and the Federal Comprehensive Environmental Response Compensation and Liability Act (CERCLA) List, as amended by substances added or removed by the Administrative Council. The lists have two types of chemicals; individually listed substances, and substances that are considered to be part of a "category" and reported as such: The use of all substances in the category are combined and reported as one. Some of the CERCLA chemicals on the TURA list were also reportable under EPCRA Section 313 list categories.

In 2010, the TURA list was amended to state that CERCLA chemicals that were also reportable under an EPCRA Section 313 category were no longer individually retained on the toxic or hazardous substance list and should only be reported under the category. A technical correction has been made adding 12 chemicals to this section to accurately reflect the reporting requirements of these chemicals belonging to an EPCRA chemical category that no longer need to be individually reported. The chemicals to be added to section 41.03(6) include the following:

CAS#	Chemical Name
56-55-3	Benz[a]anthracene
205-99-2	Benzo[b]fluoranthene
207-08-9	Benzo[k]fluoranthene
189-55-9	Benzo[r,s,t]pentaphene
218-01-9	Benzo[a]phenanthrene
50-32-8	Benzo[a]pyrene
95-57-8	2-Chlorophenol
218-01-9	Chrysene
53-70-3	Dibenz[a,h]anthracene
189-55-9	Dibenz[a,i]pyrene
57-97-6	7,12-Dimethylbenz[a]anthracene
81-81-2	Warfarin (also Warfarin and salts)

Addition of 2 EPCRA Section 313 Chemical Categories to 301 CMR 41.00 Section 41.03(9) and 41.03 (10) as Mandated by TURA Statute

Nonylphenol Category

On September 30, 2014, USEPA added the nonylphenol category consisting of 6 nonylphenols to EPCRA section 313. USEPA's technical evaluation of that data concluded that nonylphenols can reasonably be anticipated to cause, because of its toxicity, significant adverse effects in aquatic organisms and therefore meets the EPCRA Section 313 listing criteria. As required by the statute, the TURA Administrative Council voted in March of 2016 to list the nonylphenol category. These substances are included in the nonylphenol category and will be added to 301 CMR 41.00 section 41.03(9):

CAS#	Chemical Name
104-40-5	4-Nonylphenol
11066-49-2	Isononylphenol
25154-52-3	Nonylphenol
26543-97-5	4-Isononylphenol
84852-15-3	4-Nonylphenol, branched
90481-04-2	Nonylphenol, branched

Any facility in a TURA-covered business/manufacturing sector with 10 or more full-time employee equivalents (FTEs) using at least 25,000 pounds per year of the nonylphenol category for manufacturing or processing or 10,000 pounds per year of the nonylphenol category for other uses are subject to the regulation. The manufacturers affected by this change have been submitting EPCRA Section 313 TRI reports on this substance since calendar year 2016. Under TURA, facilities in Massachusetts must track use during calendar year 2017 and report above threshold use by July, 2018.

HBCD Category

On November 28, 2016, the USEPA added the hexabromocyclododecane (HBCD) category to EPCRA section 313. EPA determined that HBCD can reasonably be anticipated to cause developmental and reproductive effects in humans and is highly toxic to aquatic and terrestrial organisms. Because HBCD bioaccumulates and is persistent in the environment, the USEPA determined it meets the EPCRA Section 313 criteria for a Persistent, Bioaccumulative, and Toxic (PBT) chemical, lowering its reporting threshold to 100 pounds per year for any use. On June 5, 2017, pursuant to the statute, the TURA Administrative Council voted to list the HBCD category. These substances are included in the HBCD category and will be added to 301 CMR 41.03(10):

CAS#	Chemical Name
25637-99-4	Hexabromocyclododecane
3194-55-6	1,2,5,6,9,10 hexabromocyclododecane

Any facility in a TURA-covered business/manufacturing sector with 10 or more full-time employee equivalents (FTEs) using at least 100 pounds per year of the HBCD category are subject to the regulation. Manufacturers in Massachusetts are required to submit an EPCRA Section 313 TRI report for use in calendar year 2017 on or before July 1, 2018. Under TURA, facilities in Massachusetts must track use during calendar year 2018 and report above threshold use by July, 2019.

Addition of the C1-C4 Halogenated Hydrocarbons/Halocarbons Not Otherwise Listed (C1-C4 NOL) Category to 301 CMR 41.00 Section 41.03(11)

The Administrative Council on Toxics Use Reduction may add additional substances to the Toxic or Hazardous Substance List (301 CMR 41.00). The proposal to add C1-C4 NOL resulted from discussions surrounding the addition of n-propyl bromide (nPB) to the TURA List in 2009. At public meetings between 2014 and 2018, the Administrative Council discussed its support for a policy to prevent businesses from making regrettable substitutions (replacing a toxic chemical with a similarly toxic chemical due to lack of information). The TURA Science Advisory Board evaluated a range of similar

chemicals (now C1-C4 NOL), in order to support an effort to avoid regrettable substitutions. Some chemicals that meet the criteria for this category are not currently manufactured or used, but are expected to pose health and environmental concerns if they were to be manufactured and used.

This C1-C4 category is defined as chemicals with 4 or fewer carbons, at least one halogen, and only hydrogen as the other constituent, that are not already individually listed on the TURA List. This includes fully halogenated chemicals that contain no hydrogen.

The substances in this category would include halogenated unbranched alkanes with 1 to 4 carbons, halogenated branched alkanes with 4 carbons, halogenated cyclic alkanes with 3 or 4 carbons, halogenated alkenes with 2 to 4 carbons, and potentially halogenated alkynes (this last is theoretically possible, but not commercially available). Substances included in C1-C4 NOL may be used as solvents, propellants, refrigerants, blowing agents, fire extinguishing agents, intermediates, and a variety of other uses.

In February of 2018, the Administrative Council voted to add the C1-C4 NOL category to the TURA List. If added, the category would be subject to reporting thresholds of 25,000 pounds per year for manufacturing or processing and 10,000 pounds per year for other uses. TURA covered facilities would need to track chemical use during calendar year 2019 and report for use by July 2020.

Chemical categories are used in the TURA list in a number of cases. In many cases, a category is defined using a chemical structure and text description, with a non-exhaustive list of CAS numbers provided as guidance to assist the regulated community. The TURA program's approach to categories has generally been based on the approach used under the federal Emergency Planning and Community Right-to-Know Act (EPCRA).

Defining a chemical category is appropriate in a number of circumstances, and can provide several advantages compared with listing chemicals individually. Advantages to use of categories include avoiding adverse substitutions; providing clear information to users in the absence of a defined list of CAS numbers; and addressing a set of chemicals with similar health or environmental effects together.

The proposed C1-C4 NOL category provides all the benefits described above. A number of the chemicals may be reasonably anticipated to be used as substitutes for one another; for example, solvents may be used as substitutes for other solvents, and refrigerants may be substituted for one another or used together in mixtures. A number of possible compounds exist for which CAS numbers have not been generated. Across the group of chemicals, specific health and environmental impacts (e.g. neurotoxicity) appear frequently.

By defining and listing a C1-C4 NOL category, the TURA program can efficiently address this group of chemicals. The TURA program can provide clear, proactive guidance to businesses that may be considering newly adopting chemicals in this category, including those that are not yet on the market or not yet widely used.

ECONOMIC IMPACTS

The cost associated with annual reporting to MassDEP consists of a base fee and a per-substance fee up to a fee maximum. In the case of a category, filers would add together their use of all substances in the category (excluding those that are already individually listed) in order to make threshold determinations. The base fee depends on the size (number of employees) of the facility; the per-substance fee is the same for all facilities, and is set at $1,100. Small businesses (companies with less than 10 employees) are specifically exempt and do not report to TURA. If a facility were already a TURA filer, then reporting on an additional substance would add $1,100 to the amount already paid by that facility unless that facility had reached the maximum. The fees associated with TURA reporting are as follows:

Number of employees	Base fee	Base fee + one substance
10-49	$1,850	$2,950
50-99	$2,775	$3,875
100-499	$4,625	$5,725
> 500	$9,250	$10,350

Companies also incur costs associated with TUR report and plan preparation. Facilities will incur larger preparation costs the first time they file a Form S with the MassDEP and prepare a toxics plan, than they will in subsequent reporting and planning years. As companies adjust to the routine of TUR reporting, the cost of implementation declines.

OTA provides assistance to first-time filers, and its services are provided at no charge. Covered facilities may take advantage of OTA's assistance to mitigate these first-time costs, and OTA will be reaching out to new filers to offer its help.

After two years of reporting toxics use, companies are required to engage in TUR planning. Only those companies that have never had to do planning before would experience the major portion of the costs described below. For companies that only need to report the newly reportable substance or category, the cost of hiring a planner will likely be in the range of $1,000 - $3,000. Companies that want to have their own in-house TUR planner can qualify either by relying on past work experience in toxics use reduction or by having a staff member take the TUR Planners' training course. Those companies with experienced staff can become certified for as little as $100. For those that want staff to take a course the cost will be between $650- $2000 depending on whether the company has previously filed a TURA report. Listing of the nonylphenol category, the HBCD category, or the C1-C4 NOL category will result in minimal incurred costs for companies that have already had to do planning as they will already have incurred these costs of establishing the planning process and acquiring the trained expertise needed to review the plan.

The cost of planning depends on the number of substances used and the complexity of the process, but experience has shown that establishing a plan has many potential benefits for companies. Massachusetts companies with in-house toxics use reduction planners have reported ancillary benefits from having an employee on staff that is knowledgeable about methods for reducing the costs and liabilities of toxics use. Companies that use external consultation have reported experiencing benefits from bringing in a trained practitioner who may have wide experience in toxics use reduction and related matters. Additionally, through the process of planning and reducing or eliminating higher hazard substances,

companies have found ways to make their workplaces and products safer. Some companies have reported that the process motivated personnel to find ways to eliminate the costs of managing highly hazardous and highly regulated waste products and releases. Others have found that they were able to: expand their markets, better comply with other regulations and reduce their overall regulatory burden, lower their insurance, emergency planning and response costs, and lower the risk of litigation resulting from accidents, exposures and contamination.

Adding the categories discussed herein to the TURA List would help to fulfill the intent of TURA, provide important guidance and incentives to Massachusetts businesses, and help businesses move toward safer alternatives and avoid making regrettable substitutions. Listing does not require any business to stop using these substances, but will likely cause them to exercise greater care. Many businesses affected by past designations have found they were able to eliminate use, or reduce use below the threshold for coverage under TURA.

Impact: Clarifying the Reporting Requirement for 12 Chemicals Added to 301 CMR 41.00 Section 41:03(6)

These 12 substances will no longer be individually retained on the toxic chemical list, but will still be reportable as part of an EPCRA section 313 category. This measure is a technical change to the regulation that clarifies the reporting requirement for the regulated party.

Impact: Nonylphenol Category Added to 301 CMR 41.00 section 41.03 (9)

Any facility in a TURA-covered business with 10 or more full-time employees using at least 25,000 pounds per year of the nonylphenol category for manufacturing or processing or 10,000 cumulative pounds per year of the nonylphenol category for other uses would be subject to the regulation. Nonylphenols are used in a variety of industrial applications and consumer products as detergents, emulsifiers, wetting agents, and de-foaming agents. In 2016, one Massachusetts company reported use of nonylphenols to EPA under EPCRA Section 313.

Impact: HBCD Category Added to 301 CMR 41.00 section 41.03 (10)

Any facility in a TURA-covered business with 10 or more full-time employees using at least 100 pounds per year of chemicals in the HBCD category would be subject to the regulation. The HBCD category is classified as a PBT under EPCRA which results in the lowered reporting threshold. HBCD is a brominated flame retardant used mainly in expanded polystyrene foam (EPS) and extruded polystyrene foam (XPS). EPS and XPS are used primarily for thermal insulation boards in the building and construction industry. HBCD may also be used as a flame retardant in textiles. EPA estimates that 101 facilities will be affected by this rule nationwide. The TURA program estimates there will be between zero and two filers of this category in Massachusetts. This substance is already reportable under the EPCRA Section 313 TRI program. The first TRI reports are due July 1, 2018.

Impact: C1-C4 NOL Category Added to 301 CMR 41.00 section 41.03 (11)

The TURA program has identified 85 substances that meet the structure criteria for this category and are already included on the TURA list. This includes trichloroethylene (TCE), perchloroethylene (PCE or

"perc"), and 1-bromopropane (n-propyl bromide, or nPB), which are designated as TURA Higher Hazard Substances (HHS). It also includes other substances, such as chloroform, 1,2-trans dichloroethylene and Freon 113 which are listed at regular thresholds. These and other listed substances are not included in C1-C4 NOL. Reporting on these and other listed substances would not change with the addition of this category.

To develop an estimate of the number and type of companies likely to be affected by listing C1-C4 NOL, the TURA program consulted sources including the TURA data; facilities reporting under EPCRA Tier II requirements; RCRA hazardous waste data; and past experience. Only facilities with ten or more Full-Time Employees (FTEs) in covered Standard Industrial Classification (SIC) codes would be covered by this addition to the TURA List.

The Toxics Use Reduction Institute (TURI) reviewed the EPCRA Tier II data for those substances meeting the C1-C4 NOL criteria and not already listed under TURA. To develop an expected number of TURA filers, the data set was limited based on TURA reportable SIC codes, employee numbers, and on-site quantity of chemical reported. Based on this analysis, the number of facilities that are likely to report on the category based upon Tier II is approximately 14.

As shown in Table 1, 9 substances in the proposed C1-C4 NOL category were reported under Tier II in Massachusetts in 2015. Most are reported by only a handful of facilities, while others appear to be used more widely. The most commonly reported substance in the category is 1,1,1,2-tetrafluoroethane (R134a), a refrigerant.

Table 1: 2015 Tier II data

Chemical name	Tier II reports	Expected number of TURA filers
1,1,1-Trifluoroethane [HFC-143a]	1	1
1,1,1,2-Tetrafluoroethane [R134a]	21	5
1,1-difluoroethane [HFC-152a]	1	1
Fluoroform [HFC-23]	2	0
Pentafluoroethane	1	1
Refrigerant (NOS*)	35	3
R-410	2	0
Solvent (NOS*)	10	3
Tetrafluoromethane [PFC-14]	3	0
Total	76	14

This table shows Tier II reports for substances that meet the chemical structure criteria for the C1-C4 NOL category and are not already reportable individually under TURA. To develop an expected number of TURA filers, TURI limited the Tier II data set based on TURA reportable SIC codes, employee numbers, and roughly on quantity of substance reported as present on-site.
* Not otherwise specified

It is likely that a small number of additional filers are not captured in the data shown above. Conversely, facilities may report a significant amount as stored on site under Tier II, while still not exceeding the annual TURA thresholds for use.

If a facility uses a substance in the C1-C4 NOL category in a refrigeration system, the amount used initially to charge or to recharge the system would be counted towards the 10,000 pound use determination threshold. It is unlikely that C1-C4 NOL use for refrigeration will be consistently above reporting threshold from year to year. Most facilities with a good operations and maintenance program for their refrigeration system will not exceed the annual reporting threshold. If a facility exceeds the reporting threshold for the C1-C4 NOL category due to a one-time charging of a refrigeration system, this is unlikely to occur in consecutive years, in which case they would not need to complete a TUR Plan.

SMALL BUSINESS IMPACT STATEMENT

TURA requires that companies carefully track toxics use and examine ways to reduce the use of substances that pose dangers to health, safety and the environment when they are used, stored, shipped, and incorporated into products. Companies are not required to implement specific toxics use reduction options identified in their plan, nor does coverage under TURA require that companies stop using substances that they deem important to their operations. Participation in TURA can be of general benefit, not just to the Commonwealth, but to the companies regulated by the Act.

There would be some additional cost to companies that would begin reporting a substance or substances as part of a category, including preparing annual toxics use reports and biennial toxics use reduction plans, and paying toxics use fees. This proposal is for facilities to add together their use of all substances in the category for reporting purposes; detailed reporting by individual substance would not be required. While this could make it easier for small businesses to track and report, the TURA program would not receive detailed information on use of individual substances within the category.

The TURA program is in a good position to offer services to small businesses interested in reducing or eliminating their use of these substances. The program has substantial experience with and expertise in working with small businesses and has a history of working successfully with users on these issues.

Small businesses do not always feel that they have the time or the resources to fully evaluate either the risks and costs imposed by their current use of highly hazardous substances, or to investigate alternatives. The use of toxic or hazardous substances can cause accidents, high-cost management, and potential liabilities pertaining to regulation, litigation and insurance, as well as reducing the attractiveness of products and commercial partnerships. Motivating small businesses to consider reducing such use, and helping them to understand their options, has significant benefits that cannot be quantified in advance. However, the history of the program supports the expectation that many companies will be motivated to engage in the effort to become safer, and many will use the resources of the program to supplement their efforts.

Activities of both OTA and TURI already provide infrastructure which could help smaller users to reduce their use of these substances. Several on-going program activities would help meet the demand for services.

- Both the OTA and the TURI Lab have significant experience helping large and small users identify safer alternatives to these substances for a variety of uses and both are available as a resource for small businesses entering the program. The TURI Lab has conducted solvent cleaning alternative testing since 1993, assisting businesses in making the transition to less toxic alternatives without compromising performance.
- The TURA program's ability to help facilities identify and select the best possible alternative for a given use is particularly important given that some of the available alternatives are preferable to others not only from an effectiveness standpoint but from a safety, health, and environmental perspective. The TURA program is able to assist facilities both in researching and identifying the alternatives that pose the fewest health and environmental concerns.
- TURI has an academic research grant program that can target seed funding to researchers who are developing safer alternatives to these substances used in a specific application. When specific

industry needs are identified, along with companies willing to share performance criteria, materials and/or other forms of expertise, TURI can identify university researchers interested in focusing their R&D efforts for solutions. If a specific application of the use of these substances presents an on-going challenge for companies with respect to shifting to safer alternatives, TURI could direct R&D efforts to find feasible solutions.

Agricultural Impacts

Pursuant to MGL c. 30A, Section 5, state agencies must evaluate the impact of proposed programs on agricultural resources within the Commonwealth. The proposed revisions are intended to further reduce the use and release of toxic substances into the environment. The proposed regulations are not expected to have any negative impacts on agricultural production in Massachusetts. This action can reduce the costs, severity and frequency and the likelihood of land or water contamination requiring remediation or treatment.

IMPACTS ON MUNICIPALITIES

Pursuant to Executive Order 145, state agencies must assess the fiscal impact of new regulations on the Commonwealth's municipalities. Municipalities are statutorily exempt from TURA and therefore the proposed amendments will have no direct effect on them. However, municipalities are likely to benefit from reduced pollution and associated risks to the extent the proposed amendments reduce the use of toxic substances in their jurisdictions. This action can reduce the costs, severity and frequency of emergencies requiring response from municipal authorities, the incidence of exposures requiring medical treatment, and the likelihood of land or water contamination requiring remediation or treatment.

MASSACHUSETTS ENVIRONMENTAL POLICY ACT (MEPA)

Pursuant to 301 CMR 11.03(12) (MEPA Regulations), these proposed regulations will not reduce standards for environmental protection, opportunities for public participation in permitting or other review processes, or public access to information generated or provided in accordance with these regulations. Promulgation of these regulations, therefore, does not require the filing of an Environmental Notification Form under MEPA.

IMPACTS ON OTHER PROGRAMS – AIR TOXICS

Federal

A number of chemicals in the C1 to C4 category are individually listed air toxics (like trichloroethylene, tetrachloroethylene, and chloroform) and the reporting of these chemicals will not change as a result of this proposed rule.

The US EPA regulates CFCs, halons, HCFCs and HFCs under the Clean Air Act and its amendments. EPA regulations include a market-based system for the phase-out of ozone depleters; controls on ozone depleters as used in refrigeration and automobile air conditioning; prohibitions on certain nonessential uses; labeling requirements; and procurement guidelines, among other elements.

In December 2016, EPA finalized a rule under its Significant New Alternatives Policy (SNAP) program. This rule "expands the list of acceptable substitutes; lists unacceptable substitutes; and changes the status of a number of substitutes that were previously listed as acceptable, based on information showing

that other substitutes are available for the same uses that pose lower risk overall to human health and/or the environment." Among other provisions, it identifies acceptable options for certain substances for refrigeration, air conditioning, and fire suppression; identifies specific unacceptable options for refrigeration and air conditioning; changes the status of some previously listed options; and adds propane as an acceptable option for refrigeration applications under certain conditions, in new equipment.

In November 2016, EPA finalized a rule updating the refrigerant management requirements under the Clean Air Act. Existing regulations required that "persons maintaining, servicing, repairing, or disposing of air-conditioning and refrigeration equipment containing more than 50 pounds of refrigerant observe certain service practices that reduce emissions of ozone-depleting refrigerant." The new rule updates and extends these requirements. The updates include "strengthened leak repair requirements, recordkeeping requirements for the disposal of appliances containing more than five and less than 50 pounds of refrigerant," and other requirements. The requirements are also extended to cover certain "non-ozone depleting substitute refrigerants, such as hydrofluorocarbons," in order to address the global warming impacts of these chemicals.

Massachusetts

Massachusetts requires reporting on greenhouse gas emissions that exceed 5000 CO2 equivalents per year. In addition, Massachusetts has a Stationary Equipment Refrigerant Policy. As described in the Massachusetts Clean Energy and Climate Plan for 2020, the goal is to "reduce emissions of HFCs by requiring actions that will reduce the amount of refrigerant that leaks from refrigeration systems, buying time while less harmful replacement compounds are developed." The policy focuses on "leak detection and monitoring, leak repair, system retrofit and retirement, required service practices, and recordkeeping and reporting" and encourages "eventual replacement of non-residential refrigeration equipment at the end of its life by equipment using no-GWP [Global Warming Potential] or lower GWP substances, where such alternatives are available and practicable."

Toxics use reduction is defined as in-plant changes in production processes or raw materials that reduce, avoid, or eliminate the use of toxic or hazardous substances or generation of hazardous byproducts per unit of product, so as to reduce risks to the health of workers, consumers, or the environment, without shifting risks between workers, consumers, or parts of the environment. The proposed regulations will likely reduce the use and release of C1-C4 NOL substances, some of which are ozone depleters or GWP substances. Reductions in released air pollutants has been documented following similar regulation of nPB. Reported data show a 40% reduction in the release of nPB in the first four years of reporting under TURA.

PUBLIC PARTICIPATION

Meetings of the three TURA advisory bodies are open to the public and attendees in addition to the committee or board members are included in discussion. The TURA advisory structure includes the Science Advisory Board which consists of individuals with extensive expertise in fields such as toxicology, epidemiology and occupational medicine. The TURA Advisory Committee is made up of stakeholders representing Massachusetts large and small businesses, public health policy groups, environmental groups, labor and worker advocacy groups, the Massachusetts Attorney General's office,

and the general public. The Administrative Council consists of the leadership from six environmental, public health, and public safety state agencies.

Development of the C1-C4 NOL category originally resulted from discussions surrounding the addition of n-propyl bromide (nPB) to the TURA list in 2009. The TURA Science Advisory Board discussed certain halogenated hydrocarbons that could be easily used to substitute for nPB, were not regulated, and posed similar environmental and health hazards. At public meetings of the Advisory Committee and Administrative Council, both boards discussed preventing businesses from making regrettable substitutions (replacing a toxic chemical with an equally toxic chemical due to lack of information). Between 2016 and 2018, the C1-C4 NOL category was discussed at public meetings of the Advisory Committee and Administrative Council.

Industry stakeholders that were notified about public meetings where the C1-C4 NOL, HBCD and nonylphenol categories were discussed and voted on included: the American Chemistry Council (ACC), Halogenated Solvents Industry Alliance (HSIA), Associated Industries of Massachusetts (AIM), Massachusetts Chemistry and Technology Alliance (MCTA), and companies that use these chemicals and distribute products that contain the chemical.

M.G.L. Chapter 30A requires the Executive Office of Energy and Environmental Affairs to give public notice and provide an opportunity to review the proposed regulations at least 21 days prior to holding a public hearing. The hearing will be held in accordance with the procedures of M.G.L. Chapter 30A. The public hearing notice, proposed regulations and background document are available at this URL: https://www.mass.gov/orgs/administrative-council-on-toxics-use-reduction

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