



May 17, 2021

By email

Commissioner Amanda Beal
Maine Department of Agriculture, Conservation and Forestry
22 State House Station
Augusta, ME 04333

Commissioner Melanie Loyzim
Maine Department of Environmental Protection
17 State House Station
Augusta, Maine 04333

Director Megan Patterson
Maine Board of Pesticides Control
28 State House Station
Augusta, ME 04333

Re: Agency action needed to address PFAS contamination in pesticides

Dear Commissioner Beal, Commissioner Loyzim, and Director Patterson,

We write to raise the urgent issue of pesticides contaminated with per- and polyfluoroalkyl substances (“PFAS”), toxic “forever chemicals.” Recent tests conducted by the U.S. Environmental Protection Agency (“EPA”) and Public Employees for Environmental Responsibility (“PEER”) have shown alarmingly high concentrations of PFAS in pesticide products registered and used in Maine. This will only further complicate the issue of PFAS contamination of water supplies and soils that have already impacted communities and public health across the state, as you well know. We ask that your agencies take the following steps to protect Maine’s residents and environment from exposure to PFAS in pesticides:

- (1) Prohibit or suspend distribution and use of pesticides shown to contain PFAS;
- (2) Develop and implement a plan to test all pesticide products registered in Maine for PFAS contamination, prioritizing the most commonly used pesticides in the state;
- (3) Develop and implement a comprehensive environmental testing program to test for PFAS in areas where PFAS-contaminated pesticides have been applied, with a focus on

comparing PFAS levels in such areas with PFAS levels in areas where contaminated pesticides have not been applied;

- (4) Coordinate with the Department of Health and Human Services and other state agencies to develop a comprehensive plan for investigating the issue of PFAS contamination in pesticides including identifying and addressing environmental contamination and potential health impacts; and
- (5) Schedule a meeting with the undersigned staff from CLF and PEER to discuss the issue further.

Overview of PFAS & Health Effects

Per- and polyfluoroalkyl substances, known as PFAS, are human-made chemicals used in hundreds of products and industrial processes. PFAS are known as “forever chemicals” because they never fully break down in the environment. They are also highly mobile in water and bioaccumulative.

PFAS are toxic to humans in concentrations as small as parts per trillion (“ppt”).¹ These chemicals are associated with cancer and have been linked to growth, learning, and behavioral problems in infants and children; fertility and pregnancy problems, including pre-eclampsia; interference with natural human hormones; increased cholesterol; immune system problems; and, interference with liver, thyroid, and pancreatic function.² PFAS have been linked to increases in testicular and kidney cancer in human adults.³

Alarming, PFAS toxicity targets the immune system. Epidemiological studies have found decreased antibody response to vaccines,⁴ and associations between blood serum PFAS levels and both immune system hypersensitivity and autoimmune disorders like asthma and ulcerative colitis.⁵ The negative immune system effects of PFAS are extremely concerning given the ongoing COVID-19 pandemic. Recently, the Centers for Disease Control and Prevention released a “Statement on Potential Intersection between PFAS Exposure and COVID-19,” which recognized the “evidence from human and animal studies that PFAS exposure may reduce antibody responses to vaccines . . . and may reduce infectious disease resistance.”⁶

¹ U.S. Department of Health & Human Services, Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls* (June 2018), at 5–6, <https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf>.

² *Id.*

³ *Id.* at 6; Vaughn Barry et al., *Perfluorooctanoic Acid (PFOA) Exposures and Incident Cancers among Adults Living Near a Chemical Plant*, 121 ENVIRONMENTAL HEALTH PERSPECTIVES 1313, 1313 (2013), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3855514/pdf/ehp.1306615.pdf>.

⁴ Elsie M. Sunderland et. al., *A Review of the Pathways of Human Exposure to Poly- and Perfluoroalkyl Substances (PFASs) and Present Understanding of Health Effects*, 29 JOURNAL OF EXPOSURE SCIENCE AND ENVIRONMENTAL EPIDEMIOLOGY, no. 2, (2018), <https://pubmed.ncbi.nlm.nih.gov/30470793/>.

⁵ See U.S. Environmental Protection Agency, *Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA)*, 39 (May 2016), https://www.epa.gov/sites/production/files/2016-05/documents/pfoa_health_advisory_final_508.pdf.

⁶ Centers for Disease Control and Prevention and Agency for Toxic Substances and Disease Registry, *Statement on Potential Intersection between PFAS Exposure and COVID-19*, <https://www.atsdr.cdc.gov/pfas/health-effects/index.html> (last visited Mar. 29, 2021).

PFAS Contamination in Pesticides

In fall 2020, Public Employees for Environmental Responsibility (“PEER”) tested the insecticide Anvil 10 + 10 (“Anvil”) and discovered that it contains PFAS. Specifically, PEER’s tests found 250 ppt of perfluorooctanoic acid (“PFOA”), and 260 – 500 ppt of hexafluoropropylene oxide dimer acid (“HFPO-DA”), a “GenX” replacement for PFOA.⁷ PFOA was phased out of production starting in 2006 because of serious concerns over its harmful effects on human health and the environment.⁸ PEER notified the Massachusetts Department of Environmental Protection (“DEP”) and the U.S. Environmental Protection Agency (“EPA”). In December 2020, the *Boston Globe* reported on PEER’s findings, confirming that DEP had tested Anvil and found levels of multiple PFAS compounds that substantially exceed the state’s new limits on PFAS in drinking water.⁹

Anvil, manufactured by Clarke, is used widely for mosquito control. At least twenty-six states – including Maine – have used or purchased Anvil for mosquito control in recent years.¹⁰ Clarke stores and ships Anvil and some of its other pesticides in a type of plastic container called high density polyethylene (“HDPE”). Clarke’s HDPE containers are fluorinated in order to make them less permeable and reactive.¹¹ EPA testing revealed that the fluorinated containers used to store Anvil contain eight different PFAS compounds – including one type of PFAS, PFOA, for which EPA has issued a health advisory¹² – at levels ranging from 20,000-50,000 parts per trillion.¹³

EPA’s theory is that the PFAS are likely leaching from the fluorinated containers into the pesticide stored inside.¹⁴ If the fluorinated containers are the source of the PFAS in Anvil, this problem likely extends well beyond pesticides produced by Clarke. This could be a problem for

⁷ Public Employees for Environmental Responsibility, *Press Release: Aerially Sprayed Pesticide Contains PFAS* (December 1, 2020), <https://www.peer.org/aerially-sprayed-pesticide-contains-pfas/>.

⁸ See U.S. Environmental Protection Agency, *Assessing and Managing Chemicals under TSCA, Fact Sheet: 2010/2015 PFOA Stewardship Program*, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/fact-sheet-20102015-pfoa-stewardship-program#what> (last visited Mar. 29, 2021).

⁹ David Abel, *Toxic “Forever Chemicals” Found in Pesticide Used on Millions of Mass. Acres When Spraying for Mosquitoes*, BOSTON GLOBE, December 1, 2020, <https://www.bostonglobe.com/2020/12/01/metro/toxic-forever-chemicals-found-pesticide-used-millions-mass-acres-when-spraying-mosquitos/>.

¹⁰ See U.S. Environmental Protection Agency, *EPA Takes Action to Investigate PFAS Contamination* (January 14, 2021) https://www1.maine.gov/dacf/php/pesticides/documents2/bd_mtgs/mar21/6o-EPA-PFAS-files-combined.pdf (listing states, including Maine, that purchased Anvil from Clarke between 2018 and 2020).

¹¹ U.S. Environmental Protection Agency, *Per- and Polyfluoroalkyl Substances (PFAS) in Pesticide Packaging*, <https://www.epa.gov/pesticides/pfas-packaging> (last visited Mar. 29, 2021).

¹² See U.S. Environmental Protection Agency, *Per- and Polyfluoroalkyl Substances (PFAS) in Pesticide Packaging*, <https://www.epa.gov/pesticides/pfas-packaging> (last visited Mar. 29, 2021) (listing PFAS found in Anvil packaging); U.S. Environmental Protection Agency, *Drinking Water Health Advisories for PFOA and PFOS*, <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos> (last visited May 4, 2021) (explaining lifetime health advisory for PFOA and PFOS at 70 ppt).

¹³ U.S. Environmental Protection Agency, *Memorandum, EPA’s Analytical Chemistry Branch PFAS Testing: Rinses from Selected Fluorinated and Non-Fluorinated HDPE Containers*, 3 (March 4, 2021), https://www.epa.gov/sites/production/files/2021-03/documents/results-of-rinsates-samples_03042021.pdf.

¹⁴ U.S. Environmental Protection Agency, *News Release: EPA Takes Action to Investigate PFAS Contamination*, (January 14, 2021), <https://www.epa.gov/newsreleases/epa-takes-action-investigate-pfas-contamination>.

hundreds or even thousands of pesticide products, as fluorination is a common treatment for pesticide packaging.¹⁵

Additional testing conducted by PEER has revealed PFAS contamination in the mosquito and tick control pesticide Mavrik Perimeter (“Mavrik”), manufactured by Zoecon, and the mosquito control pesticide Permanone 30–30 (“Permanone”), manufactured by Bayer Environmental Science.¹⁶ Both Mavrik and Permanone are registered for use in Maine. PEER’s testing found PFAS present in Mavrik at a total concentration of 280 ppt.¹⁷ In Permanone, PEER found 3,500 ppt of PFOA and 630 ppt of HFPO-DA.¹⁸ For reference, EPA’s health advisory level for PFOA is only 70 ppt.¹⁹ EPA has not yet taken action on the discovery of PFAS in Mavrik, Permanone, and other pesticides. Clearly, these results strongly suggest that PFAS contamination of pesticides is a widespread issue, affecting an unknown number of pesticide products. In addition to Anvil, Mavrik, and Permanone, PEER has discovered PFAS contamination in at least three other pesticides, which PEER will identify once it has completed final tests to confirm the PFAS contamination levels in those pesticides.

PEER’s recent findings also suggest that leaching from fluorinated containers is not the only source of PFAS contamination in pesticides. First, the Permanone PEER tested is sold in metal barrels, not the fluorinated HDPE barrels that Anvil is stored in.²⁰ Second, both the high levels of PFAS found in PEER’s most recent tests and the fact that the tests found different PFAS in many of the pesticides suggest that there is at least one other source of contamination in addition to fluorination of pesticide packaging. Possible sources include PFAS applied to the equipment used to manufacture or package the pesticides or PFAS that are intentionally added as “inert” ingredients to the pesticide products.

PFAS may be added to pesticides as inert ingredients without the public’s knowledge. Most pesticide manufacturers do not disclose the inert ingredients in their pesticide products. Inert

¹⁵ See, e.g., Office of the Indiana State Chemist and Seed Commissioner, Press Release, January 20, 2021, https://www.oisc.purdue.edu/pesticide/pdf/pfas_in_pesticide_statement_012021.pdf (“According [to] the EPA, ‘it is estimated that roughly 20-30% of all rigid agriculture chemical packaging in North America sold into the crop protection market are packaged in fluorinated HDPE containers.’”); Jeremy C. Fox, *EPA Finds Toxic Compounds in Mosquito Spray Used in Mass.; Maker Will Change Packaging*, BOSTON GLOBE, January 14, 2021, <https://www.bostonglobe.com/2021/01/15/metro/epa-finds-toxic-compounds-mosquito-spray-used-mass-maker-will-change-packaging/> (“‘Fluorinated packaging is widely used by the agricultural industry for finished goods, including pesticides,’ [Clarke] said. ‘The potential for PFAS chemistry from the fluorinated packaging to leach into finished goods was unknown to Clarke.’”).

¹⁶ E.A. Crunden and Ariel Wittenberg, *PFAS in Pesticides: “A Problem of Epic Proportions”*, E&E NEWS, March 5, 2021, <https://www.eenews.net/stories/1063726787>; E.A. Crunden and Ariel Wittenberg, *Common Mosquito Pesticide Packed with PFAS*, E&E NEWS, March 26, 2021, <https://www.eenews.net/stories/1063728605>.

¹⁷ E.A. Crunden and Ariel Wittenberg, *PFAS in Pesticides: “A Problem of Epic Proportions”*, E&E NEWS, March 5, 2021, <https://www.eenews.net/stories/1063726787>.

¹⁸ E.A. Crunden and Ariel Wittenberg, *Common Mosquito Pesticide Packed with PFAS*.

¹⁹ U.S. Environmental Protection Agency, *Drinking Water Health Advisories for PFOA and PFOS*, <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos> (last visited May 4, 2021).

²⁰ E.A. Crunden and Ariel Wittenberg, *Common Mosquito Pesticide Packed with PFAS*. It is possible that Permanone is stored in HDPE barrels at some point in the manufacturing or distribution process, but the fact that PFAS exists in the Permanone delivered in metal barrels raises doubts that leaching from HDPE barrels fully explains the PFAS contamination PEER discovered.

ingredients must be approved by EPA, but they are not publicly disclosed if manufacturers claim them as trade secrets under federal pesticide law.²¹ EPA has approved a number of PFAS as permissible inert ingredients,²² but generally only EPA and the manufacturers know which pesticides contain PFAS.

The Department of Environmental Protection’s Authority to Regulate PFAS in the Environment

The Maine Department of Environmental Protection (“DEP”) has legal authority to protect residents and the environment from PFAS-contaminated pesticides. DEP has the broad authority to “prevent, abate and control the pollution of the air, water and land and preserve, improve and prevent diminution of the natural environment of the State.”²³ DEP already tests for the presence of PFAS in certain public water systems; certain groundwater, surface water, and private water supplies; and fish tissue.²⁴ Testing for PFAS in areas where contaminated pesticides have been applied would be in line with DEP’s ongoing investigations of PFAS contamination in Maine’s environment.

Governor Mills has prioritized a “coordinated response” by state agencies, including DEP, to “study PFAS distribution, assess the potential environmental and health impacts of PFAS, and recommend effective strategies to reduce or eliminate . . . those impacts.”²⁵ As part of that coordinated effort, DEP participated in the Maine PFAS Task Force. In its final report, the Task Force recommended “[i]dentifying and reducing uses of PFAS,” “[i]dentifying and investigating PFAS contaminants in the environment,” and “[p]roviding safe drinking water.”²⁶ Specifically, the Task Force recommend accelerating “ongoing efforts to identify prioritized locations and to sample groundwater, surface water and soil for PFAS, analyze sampling results for patterns, and refine models of PFAS fate and transport.”²⁷

Consistent with those recommendations, state lawmakers have introduced three bills addressing PFAS contamination in the environment. LD 129, as amended, directs the Commissioner of Health and Human Services to adopt rules setting a maximum contaminant level of 20 parts per trillion for six types of PFAS in Maine’s drinking water.²⁸ Recently, the Committee on Health and Human Services voted unanimously to advance LD 129 out of committee with amendments. A second bill, LD 1600 directs DEP to test certain areas of soil and groundwater for PFAS contamination.²⁹ And a third bill, LD 1503, would establish a comprehensive program

²¹ See 7. U.S.C. § 136h (permitting applicants for federal pesticide registration to declare certain information about the pesticide, including the identity of inert ingredients, as non-disclosable trade secrets).

²² See Public Employees for Environmental Responsibility, *Press Release: Aerially Sprayed Pesticide Contains PFAS* (December 1, 2020), <https://www.peer.org/aerially-sprayed-pesticide-contains-pfas/>.

²³ Me. Rev. Stat. tit. 38, § 341-A; see also Exec. Order No. 5 FY 19/20 (March 6, 2019) (recognizing that Maine law charges state agencies, including DEP, with “protecting public health and the environment from the risks of human exposure to these substances”).

²⁴ See Maine PFAS Task Force, *Managing PFAS in Maine* (January 2020), 7, <https://www.maine.gov/pfastaskforce/materials/report/PFAS-Task-Force-Report-FINAL-Jan2020.pdf>.

²⁵ Exec. Order No. 5 FY 19/20 (March 6, 2019).

²⁶ Maine PFAS Task Force, *supra* note 24 at 2.

²⁷ *Id.*, 22.

²⁸ LD 129, 130th Me. Leg., 1st Reg. Sess. (2021).

²⁹ LD 1600, 130th Me. Leg., 1st Spec. Sess. (2021).

administered by DEP for identifying and prohibiting the sale of most products, including pesticides, that contain intentionally added PFAS.³⁰ Given the legislature’s concern over PFAS contamination in Maine’s water, soil, and products, DEP should act now to investigate the extent to which PFAS-contaminated pesticides are exacerbating this issue of pressing public health concern.

The high levels of PFAS found in the pesticides sampled emphasize the need for immediate action. EPA has established a health advisory at 70 ppt for two PFAS: PFOA and PFOS.³¹ PEER’s tests of Anvil and Permanone discovered PFOA at concentrations of 250 and 3,500 ppt, respectively. These concentrations far exceed EPA’s health advisory level and underline the need for action to protect Maine’s waters and safeguard public health.

The Authority of the Board of Pesticides Control and the Department of Agriculture, Conservation and Forestry to Regulate PFAS in Pesticides

Maine law grants the Board of Pesticides Control (“the Board”), in cooperation with the Department of Agriculture, Conservation and Forestry (“DACF”), broad authority to regulate pesticide distribution, use, and application within the state.³² Under that authority, there are a range of actions that the Board and DACF could take to protect the environment and residents from exposure to PFAS-contaminated pesticides. Most significantly, the Board has the authority to cancel or suspend the state registration for any pesticide that “might cause unreasonable adverse effects on the environment,” or which poses “an imminent hazard.”³³

In addition, the Board has the authority to adopt rules “that it determines necessary to carry out the provisions of [the Maine Pesticide Control Act],” including “[p]roviding for the collection, examination and reporting of samples of pesticides or devices” and “[p]roviding for the safe handling, transportation, storage, display, distribution and disposal of pesticides and their containers.”³⁴ The Board could exercise that authority to coordinate a program to test pesticides for PFAS contamination and to address the issue of PFAS leaching from fluorinated containers. The Board also has the authority to issue “stop sale, use or removal” orders to enforce Maine’s pesticide laws and protect Maine’s residents and environment.³⁵

The Board and DACF would not be alone in exercising their authority over pesticides to protect people and the environment. For example, the New York Department of Environmental Conservation acted quickly after learning of the presence of PFAS in Anvil by “quarantine[ing]

³⁰ LD 1503, 130th Me. Leg., 1st Spec. Sess. (2021).

³¹ U.S. Environmental Protection Agency, *Drinking Water Health Advisories for PFOA and PFOS*, <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos> (last visited May 4, 2021).

³² *See, e.g.*, Me. Rev. Stat. tit. 22, § 1471-O (“The powers established under the Maine Pesticide Control Act of 1975 . . . shall be exercised by the Board of Pesticides Control.”); Me. Rev. Stat. tit. 22, § 1471-B (“The Commissioner of Agriculture, Conservation and Forestry shall provide the board with administrative services of the department, including assistance in the preparation of the board's budget.”).

³³ Me. Rev. Stat. tit. 7, § 609.

³⁴ Me. Rev. Stat. tit. 7, § 610.

³⁵ Me. Rev. Stat. tit. 7, § 612.

Anvil 10 + 10 products statewide” and “launching a comprehensive investigation into the universe and use of products stored in [fluorinated HDPE] containers.”³⁶

It is critical that the Board and DACF act swiftly to protect residents and the environment. Waiting for EPA to address the issue puts residents and the environment at unnecessary risk. EPA has so far relied primarily on voluntary action by Clarke to recall Anvil shipped in fluorinated containers. According to EPA, Clarke has “voluntarily stopped shipment of any products in fluorinated HDPE containers and is conducting its own testing to confirm EPA results and product stability in un-fluorinated containers.”³⁷ EPA has “asked states with existing stock of [Anvil] distributed in fluorinated HDPE containers to discontinue use and hold until its final disposition is determined.”³⁸ EPA’s requests for voluntary action are insufficient to address the serious dangers posed by PFAS-contaminated pesticides. EPA’s actions do not apply to Mavrik, Permanone, or any other contaminated pesticide and do not apply to consumers, certified applicators, or others who may possess or apply PFAS-contaminated pesticides. The Board and DACF must act to protect residents and the environment.

CLF and PEER’s Requests

Given the dangers PFAS pose to Maine’s residents and environment and the growing evidence of widespread PFAS contamination in pesticides, CLF and PEER reiterate our request that your agencies take the following actions:

- (1) Prohibit or suspend distribution and use of Anvil, Mavrik, Permanone, and any other pesticides shown to contain PFAS;
- (2) Develop and implement a plan to test all pesticide products registered in Maine for PFAS contamination, prioritizing the most commonly used pesticides in the state;
- (3) Develop and implement a comprehensive environmental testing program to test for PFAS in areas where PFAS-contaminated pesticides have been applied, with a focus on comparing PFAS levels in such areas with PFAS levels in areas where contaminated pesticides have not been applied;
- (4) Coordinate with the Department of Health and Human Services and other state agencies to develop a comprehensive plan for investigating the issue of PFAS contamination in pesticides, including identifying and addressing environmental contamination and potential health impacts; and
- (5) Schedule a meeting with the undersigned staff from CLF and PEER to discuss the issue further.

³⁶ New York Department of Environmental Conservation, *Statement from New York State Department of Environmental Conservation Commissioner Basil Seggos on New Investigation of Potential PFAS Contamination* (January 15, 2021), <https://www.dec.ny.gov/press/122184.html>.

³⁷ U.S. Environmental Protection Agency, *News Release: EPA Takes Action to Investigate PFAS Contamination* (January 14, 2021), <https://www.epa.gov/newsreleases/epa-takes-action-investigate-pfas-contamination>.

³⁸ *Id.*

We appreciate your prompt attention to this urgent issue of public and environmental health and await your response.

Sincerely,



Sean Mahoney
Conservation Law Foundation
Executive Vice President and Director,
CLF Maine
Tel: 207-228-2728
E-mail: smahoney@clf.org



Tim Whitehouse
Public Employees for Environmental
Responsibility
Executive Director
Tel: 202-265-7337
E-Mail: twhitehouse@peer.org



Sara Dewey
Conservation Law Foundation
Director of Farm and Food Initiative
Tel: (617) 850-1702
E-Mail: sdewey@clf.org



Colin Antaya
Conservation Law Foundation
Legal Fellow
Tel: (401) 228-1908
E-Mail: cantaya@clf.org