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# TOO LITTLE, TOO LATE: CONGRESS’S ATTEMPT TO REGULATE FOREVER CHEMICALS THROUGH MILITARY APPROPRIATIONS

MICHAEL HEARD SNOW\*

## I. THE UBIQUITOUS SPREAD OF A CLASS OF NEARLY INDESTRUCTIBLE INDUSTRIAL CHEMICALS

*Most people in the United States have been exposed to PFAS and have PFAS in their blood.*<sup>1</sup>

Per- and polyfluoroalkyl substances, shortened to “PFAS,” are a broad class of approximately 4,000 to 6,000 industrial chemicals characterized by a carbon chain saturated with fluorine molecules.<sup>2</sup> This structure, dominated by carbon-fluorine bonds, is one of the most stable known chemical structures—and it is this stability that lies at the core of both the usefulness and the greatest issues surrounding PFAS.<sup>3</sup> They are generally non-reactive except at tailored “active sites” and they never break down naturally—leading to the nickname “forever chemicals.”<sup>4</sup> The persistence of their structures creates a plethora of desirable characteristics: PFAS are grease-resistant, waterproof, fireproof, stain-proof, and

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<sup>1</sup> *Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) in the U.S. Population*, AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, U.S. DEP’T OF HEALTH & HUMAN SERVS., <https://www.atsdr.cdc.gov/pfas/pfas-in-population.html> [<https://perma.cc/UY7X-358H>] (last visited Nov. 2, 2020).

<sup>2</sup> ORG. FOR ECON. COOPERATION & DEV., TOWARD A NEW COMPREHENSIVE GLOBAL DATABASE OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFASs) 6, 10 (2018), [https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV-JM-MONO\(2018\)7&doclanguage=en](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ENV-JM-MONO(2018)7&doclanguage=en) [<https://perma.cc/67XR-C9ZU>]; Alex Ebert & Maya Goldman, *PFAS Sleuths Seek ‘Forever Chemical’ Fingerprints*, BLOOMBERG L. NEWS (July 9, 2019), [https://www.bloomberglaw.com/document/XEMJBLNS000000?udv\\_expired=true](https://www.bloomberglaw.com/document/XEMJBLNS000000?udv_expired=true) [<https://perma.cc/5ABW-FY7K>].

<sup>3</sup> See Zhanyun Wang et al., *A Never-Ending Story of Per- and Polyfluoroalkyl Substances (PFASs)?*, 51 ENV’T SCI. TECH. 2508, 2508 (2017).

<sup>4</sup> See *id.*

chemically inert.<sup>5</sup> They can be used to put out fires, or cause grease to bead and run off a shirt, or to manufacture waterproof boots.<sup>6</sup> They are ideal for a wide variety of industries, including cosmetics, firefighting, food packaging, inks, oil production, mining, and textiles.<sup>7</sup> PFAS have been used to make numerous well-known products such as Teflon, Scotch Gard, and Gore-Tex.<sup>8</sup> This stability also creates a variety of undesirable characteristics.<sup>9</sup> PFAS persist in the environment long after introduction stops, they have been found to be extremely mobile in water, environmentally persistent, and bio-accumulative.<sup>10</sup> They have been found in surface and drinking water throughout the United States, are known to travel through groundwater systems, and can accumulate in people's blood,<sup>11</sup> where they cause a variety of detrimental health effects.<sup>12</sup>

The Center for Disease Control ("CDC") has found four PFAS<sup>13</sup> in the bloodserum of nearly all people tested for in the Fourth National

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<sup>5</sup> See, e.g., *id.* at 2508–09.

<sup>6</sup> See, e.g., *id.*; Xindi C. Hu et al., *Detection of Poly- and Perfluoroalkyl Substances (PFASs) in U.S. Drinking Water Linked to Industrial Sites, Military Fire Training Areas and Wastewater Treatment Plants*, 3 ENV'T SCI. TECH. LETTERS 344, 344–45 (2016).

<sup>7</sup> E.g., Wang et al., *supra* note 3, at 2508.

<sup>8</sup> See Keith Matheny, *Internal Documents Show 3M Hid PFAS Dangers for Decades*, DETROIT FREE PRESS (May 11, 2019), <https://www.freep.com/story/news/local/michigan/2019/05/09/3-m-lawsuit-pfas-water-contamination-michigan/3291156002/> [<https://perma.cc/EW9N-GYAJ>].

<sup>9</sup> See, e.g., Wang et al., *supra* note 3, at 2508.

<sup>10</sup> *Per and Polyfluoroalkyl Substances (PFAS)*, FOOD & DRUG ADMIN., <https://www.fda.gov/food/chemicals-and-polyfluoroalkyl-substances-pfas> [<https://perma.cc/N6WM-BV39>] (last updated July 31, 2020). Bioaccumulation occurs when the net accumulation of a compound in an organism is greater than elimination leading to a concentration of the compound in said organism. E.g., *Bioaccumulation*, SCIENCE DIRECT, <https://www.science-direct.com/topics/pharmacology-toxicology-and-pharmaceutical-science/bioaccumulation> [<https://perma.cc/94DR-EWXQ>] (last visited Nov. 2, 2020).

<sup>11</sup> *Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) in the U.S. Population*, *supra* note 1.

<sup>12</sup> Gloria Post et al., *Key Scientific Issues in Developing Drinking Water Guidelines for Perfluoroalkyl Acids: Contaminants of Emerging Concern*, PLOS BIOL., Dec. 20, 2017, at 1–2; Andrew B. Lindstrom et al., *Application of WWTP Biosolids and Resulting Perfluorinated Compound Contamination of Surface and Well Water in Decatur, Alabama, USA*, 45 ENV'T SCI. TECH. 8015, 8021 (2011); Gloria Post et al., *Occurrence of Perfluorinated Compounds in Raw Water from New Jersey Public Drinking Water Systems*, 47 ENV'T SCI. TECH. 13266, 13266–75 (2013); Laurel A. Schaidler et al., *Septic Systems as Sources of Organic Wastewater Compounds in Domestic Drinking Water Wells in a Shallow Sand and Gravel Aquifer*, SCI. TOTAL ENV'T, 470, 473–74 (2016).

<sup>13</sup> PFOS, PFOA, PFHxS or perfluorohexane sulfonic acid, and PFNA or perfluorononanoic acid.

Report on Human Exposure to Environmental Chemicals indicating widespread exposure by Americans.<sup>14</sup>

While several specific PFAS—perfluorooctanesulfonic acid (“PFOS”), perfluorononanoic acid (“PFNA”), and perfluorooctanoic acid (“PFOA”)—have recently surfaced in the public and regulatory consciousness, the vast majority of the class remains unstudied and unregulated.<sup>15</sup> Out of the thousands of compounds, robust studies have been done on only around twelve.<sup>16</sup> Out of which, there is reliable toxicology data for a few.<sup>17</sup> There is a widely accepted consensus in scientific literature that exposure to PFAS leads to “adverse human health effects” as noted by the Environmental Protection Agency (“EPA”).<sup>18</sup>

Through decades of use, compounded by chemical persistence, PFAS have been found throughout the environment in water, sediment, soil, waste, compost, plants, animals, and humans.<sup>19</sup>

This Note will analyze some of the budding regulatory regimes for PFAS at the state and federal level. It will explore how PFAS-relevant articles and riders passed in the 2020 National Defense Authorization Act (“NDAA”)<sup>20</sup> will change the current PFAS regime, and how proposed, but unsuccessful parts of the Act could, and should be implemented. The NDAA broached new ground by requiring the Department of Defense (“DOD”) to regulate PFAS as if it were a hazardous substance under a plethora of environmental laws including the Clean Air Act (“CAA”), the

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<sup>14</sup> CTR. FOR DISEASE CONTROL & PREVENTION, FOURTH NATIONAL REPORT ON HUMAN EXPOSURE TO ENVIRONMENTAL CHEMICALS, UPDATED TABLES, JANUARY 2019, VOLUME ONE, 379–434 (2019); *National Biomonitoring Program: Per- and Polyfluorinated Substances (PFAS) Factsheet*, CTR. FOR DISEASE CONTROL & PREVENTION, U.S. DEP’T OF HEALTH & HUMAN SERVS., [https://www.cdc.gov/biomonitoring/PFAS\\_FactSheet.html](https://www.cdc.gov/biomonitoring/PFAS_FactSheet.html) [<https://perma.cc/U7LA-BQRC>] (last visited Nov. 2, 2020).

<sup>15</sup> Wang et al., *supra* note 3, at 2508.

<sup>16</sup> See Ebert & Goldman, *supra* note 2.

<sup>17</sup> *Id.*

<sup>18</sup> *E.g.*, *Basic Info on PFAS*, EPA, <https://www.epa.gov/pfas/basic-information-pfas> [<https://perma.cc/XB3T-UTRL>] (last visited Nov. 2, 2020).

<sup>19</sup> See, e.g., Para Zareitalabad et al., *Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) in Surface Waters, Sediments, Soils and Wastewater—A Review on Concentrations and Distribution Coefficients*, 91 CHEMOSPHERE 725 (2013); *Risk Management for Per- and Polyfluoroalkyl Substances (PFASs) under TSCA*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-management-and-polyfluoroalkyl-substances-pfass#tab-3> [<https://perma.cc/88MR-UWQ9>] (last visited Nov. 2, 2020); *PA Department of Health Fact Sheet—PFOS and PFOA*, PA. DEP’T OF HEALTH, <http://files.dep.state.pa.us/RegionalResources/SERO/SEROPortalFiles/Community%20Info/EastonRoadPFC/PA%20Department%20of%20Health%20Fact%20Sheet-%20PFOS%20and%20PFOA.pdf> [<https://perma.cc/EK4T-X4PL>] (last visited Nov. 2, 2020).

<sup>20</sup> National Defense Authorization Act for Fiscal Year 2020, H.R. 2500, 116th Cong. (2019).

Safe Drinking Water Act (“SDWA”), the Resource Conservation and Recovery Act (“RCRA”), the Toxic Substance Control Act (“TSCA”), and the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”).<sup>21</sup> It also funds information gathering about the chemicals and sets a federal definition for PFAS.<sup>22</sup> Throughout the bill, Congress creates requirements for the DOD to act as if PFAS are listed hazardous substances but stops short of explicitly requiring the substances to be listed by the EPA—a necessary condition for triggering significant portions of toxic substance law.<sup>23</sup> Facially the 2020 NDAA sets different standards of protection based on military affiliation and potentially triggers CERCLA liability through an ambiguous article for two PFAS: PFOA and PFOS.<sup>24</sup>

This Note will focus on exploring each of these issues in more depth and will argue that in line with the purpose of CERCLA and the wording of specific sections in the NDAA, that when Congress explicitly intends to unleash CERCLA it must be available to all parties and not be a sword reserved to the DOD. The Note will finish with policy and legal recommendations for addressing PFAS contamination.

## II. TRACE EXPOSURE TO PFAS CAN CAUSE DETRIMENTAL HEALTH EFFECTS

The EPA wrote on the 16th of May 2000, that “[PFAS] appears to combine persistence, bioaccumulation, and toxicity properties to an extraordinary degree.”<sup>25</sup>

A full-scale toxicological study would not come out until 2013, completely as a result of one community’s class action law suit.<sup>26</sup> The “C-8

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<sup>21</sup> See Wendi Wilkes, *PFAS Provisions in the 2020 NDAA*, ASS’N OF STATE DRINKING WATER ADM’RS (Dec. 10, 2019), <https://www.asdwa.org/2019/12/10/pfas-provisions-in-the-2020-ndaa/#> [<https://perma.cc/SN82-P4QF>].

<sup>22</sup> See *PFAS Federal Legislation*, STATE ENERGY & ENV’T IMPACT CTR., NYU SCH. OF LAW, <https://www.law.nyu.edu/centers/state-impact/press-publications/research-reports/pfas-federal-legislation#> [<https://perma.cc/HC8B-VNJD>] (last visited Nov. 2, 2020).

<sup>23</sup> See, e.g., *id.*

<sup>24</sup> See, e.g., *id.*

<sup>25</sup> Email by Charles Auer, Director of the EPA Office of Pollution Prevention and Toxics to a deputy secretary of Australia’s environment department (May 16, 2000, 11:06 EST); Christopher Knaus, *US Warned Australia over Toxic Firefighting Chemical 17 Years Ago*, THE GUARDIAN (Aug. 2, 2017), <https://www.theguardian.com/australia-news/2017/aug/03/us-warned-australia-over-toxic-firefighting-chemical-17-years-ago> [<https://perma.cc/R7T7-2GBZ>].

<sup>26</sup> Wendee Nicole, *PFOA and Cancer in a Highly Exposed Community: New Findings from the C8 Science Panel*, 121 ENV’T HEALTH PERSPECTIVES A340 (2013).

Science Panel,”<sup>27</sup> named after the number of carbons atoms in a molecule of PFOS or PFOA was funded through a multimillion-dollar class-action settlement procedure with DuPont over widespread exposure that stemmed from water contamination in the Ohio River Valley.<sup>28</sup> Under the terms of the settlement, DuPont had to pay \$70,000,000 for a health and education project, the installation of water treatment technology for six water districts and private wells, and to clean PFAS in the water supply to “the lowest practicable levels.”<sup>29</sup> DuPont also agreed to pay \$30,000,000 to fund a health study on the effects of exposure; if the study found a correlation then DuPont had to make available \$235,000,000 for health testing, treatment, and monitoring of class members.<sup>30</sup> Conversely, if the study found no statistical correlation, members waived their right to sue on those issues.<sup>31</sup> The C-8 study was not just the first comprehensive PFAS study, but one of the most extensive toxicological studies ever done in humans.<sup>32</sup> The C-8 study found a correlation between PFAS exposure and several cancers<sup>33</sup> (specifically testicular cancer<sup>34</sup> and kidney cancer),<sup>35</sup> ulcerative colitis (“UC”),<sup>36</sup> thyroid disease,<sup>37</sup> pregnancy-induced hypertension,<sup>38</sup> and

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<sup>27</sup> For more in-depth reporting on the story of the case that led to the C-8 study and settlement bringing PFAS national attention through DuPont’s knowing contamination of people’s drinking water—and showcasing gems like the following in-house council email revealed during discovery: “The lawyer for the farmer finally realizes the surfactant [C-8] issue . . . Fuck him”—see Mariah Blake, *Welcome to Beautiful Parkersburg, West Virginia*, HUFFPOST, <https://highline.huffingtonpost.com/articles/en/welcome-to-beautiful-parkersburg/> [<https://perma.cc/3KNP-V2AR>] (last visited Nov. 2, 2020).

<sup>28</sup> Lauren Richter et al., *Non-stick Science: Sixty Years of Research and (In)action on Fluorinated Compounds*, 48 SOC. STUD. SCI. 691, 704 (2018).

<sup>29</sup> *C8 Class Action Settlement*, HILL, PETERSON, CARPER, BEE & DEITZLER, <https://www.hpcbd.com/Personal-Injury/DuPont-C8/C8-Class-Action-Settlement.html> [<https://perma.cc/L2J7-EWL6>] (last visited Nov. 2, 2020).

<sup>30</sup> *Id.*

<sup>31</sup> *Id.*

<sup>32</sup> Vaughn Barry et al., *Perfluorooctanoic Acid (PFOA) Exposures and Incident Cancers among Adults Living Near a Chemical Plant*, 121 ENV’T HEALTH PERSP. 1313–18 (2013).

<sup>33</sup> *Id.* at 1313, 1316, and 1318.

<sup>34</sup> C8 SCI. PANEL, PROBABLE LINK EVALUATION OF CANCER (2012), [http://www.c8sciencepanel.org/pdfs/Probable\\_Link\\_C8\\_Cancer\\_16April2012\\_v2.pdf](http://www.c8sciencepanel.org/pdfs/Probable_Link_C8_Cancer_16April2012_v2.pdf) [<https://perma.cc/H3CQ-G3BQ>].

<sup>35</sup> *Id.*

<sup>36</sup> C8 SCI. PANEL, PROBABLE LINK EVALUATION OF AUTOIMMUNE DISEASES 1 (2012), [http://www.c8sciencepanel.org/pdfs/Probable\\_Link\\_C8\\_Autoimmune\\_Disease\\_30Jul2012.pdf](http://www.c8sciencepanel.org/pdfs/Probable_Link_C8_Autoimmune_Disease_30Jul2012.pdf) [<https://perma.cc/H77J-FMTM>].

<sup>37</sup> C8 SCI. PANEL, PROBABLE LINK EVALUATION OF THYROID DISEASE 1 (2012), [http://www.c8sciencepanel.org/pdfs/Probable\\_Link\\_C8\\_Thyroid\\_30Jul2012.pdf](http://www.c8sciencepanel.org/pdfs/Probable_Link_C8_Thyroid_30Jul2012.pdf) [<https://perma.cc/VASQ-69L6>].

<sup>38</sup> C8 SCI. PANEL, PROBABLE LINK EVALUATION OF PREGNANCY-INDUCED HYPERTENSION

high cholesterol.<sup>39</sup> Since C-8, multiple studies built on the findings that even trace amounts of PFAS can cause severe long-term health effects,<sup>40</sup> including DNA methylation in firefighters,<sup>41</sup> renal gene expression changes,<sup>42</sup> atopic dermatitis in children,<sup>43</sup> birth defects in lab animals,<sup>44</sup> immunotoxicity,<sup>45</sup> endocrine disruption,<sup>46</sup> and other health complications.<sup>47</sup> The effects on the immune system have recently taken greater precedent in light of the COVID-19 pandemic.<sup>48</sup> “Exposed children have been reported to have decreased responses to common childhood vaccines, an impairment that lingers into teenage years. Studies of adults

AND PREECLAMPSIA 1 (2012), [http://www.c8sciencepanel.org/pdfs/Probable\\_Link\\_C8\\_PIH\\_5Dec2011.pdf](http://www.c8sciencepanel.org/pdfs/Probable_Link_C8_PIH_5Dec2011.pdf) [<https://perma.cc/6KSW-PK73>].

<sup>39</sup> C8 SCI. PANEL, PROBABLE LINK EVALUATION FOR HEART DISEASE 1 (2012), [http://www.c8sciencepanel.org/pdfs/Probable\\_Link\\_C8\\_Heart\\_Disease\\_29Oct2012.pdf](http://www.c8sciencepanel.org/pdfs/Probable_Link_C8_Heart_Disease_29Oct2012.pdf) [<https://perma.cc/UXX6-9N64>]; VT. DEP'T OF HEALTH, PFOA EXPOSURE & HEALTH STUDIES 1 (2016), [http://www.healthvermont.gov/sites/default/files/documents/2016/12/Env\\_DW\\_PFOA\\_c8\\_health\\_project\\_summary.pdf](http://www.healthvermont.gov/sites/default/files/documents/2016/12/Env_DW_PFOA_c8_health_project_summary.pdf) [<https://perma.cc/NZ3X-DHH6>].

<sup>40</sup> E.g., Alissa Cordner et al., *Guideline Levels for PFOA and PFOS in Drinking Water: The Role of Scientific Uncertainty, Risk Assessment Decisions, and Social Factors*, 29 J. EXPOSURE SCI. & ENV'T EPIDEMIOLOGY 157, 164 (2018).

<sup>41</sup> Jin Zhou et al., *DNA Methylation among Firefighters*, PLOS ONE (Mar. 26, 2019), at 1.

<sup>42</sup> Akiko Sakuma et al., *Changes in Hepato-Renal Gene Expression in Microminipigs Following a Single Exposure to a Mixture of Perfluoroalkyl Acids*, PLOS ONE (Jan. 4, 2019), at 1.

<sup>43</sup> Hui-Ju Wen et al., *Prenatal Perfluorooctanoic Acid Exposure and Glutathione S-transferase T1/M1 Genotypes and their Association with Atopic Dermatitis at 2 Years of Age*, PLOS ONE (Jan. 16, 2019), at 1.

<sup>44</sup> *Perfluoroalkyls—ToxFAQs*, AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, <https://www.atsdr.cdc.gov/toxfaqs/tfacts200.pdf> [<https://perma.cc/TB8V-T5HE>] (last visited Nov. 2, 2020).

<sup>45</sup> Philippe Grandjean & Esben Budtz-Jørgensen, *Immunotoxicity of Perfluorinated Alkylates: Calculation of Benchmark Doses Based on Serum Concentrations in Children*, ENV'T HEALTH (Apr. 19, 2013) at 1, 6 (the study concluded that based on immunotoxicity in children, drinking water level standards were too low).

<sup>46</sup> Sally S. White et al., *Endocrine Disrupting Properties of Perfluorooctanoic Acid*, 127 J. STEROID BIOCHEMISTRY & MOLECULAR BIOL. 16, 24 (2011).

<sup>47</sup> Including low birth weight, infertility, early onset menopause, increased impulsivity in children, and low semen quality. See, e.g., *Drinking Water Health Advisories for PFOA and PFOS*, EPA, <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos> [<https://perma.cc/C42Q-VJZL>] (last visited Nov. 2, 2020); *What Are the Health Effects?*, AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY (Jan. 10, 2018), <https://www.atsdr.cdc.gov/pfas/health-effects.html> [<https://perma.cc/ZCT5-7V66>]. There is also potential that natal exposure can cause brain birth defects. Cheryl R. Stein et al., *Perfluorooctanoate Exposure and Major Birth Defects*, 47 REPROD. TOXICOLOGY 15 (2014).

<sup>48</sup> Jamie Dewitt et al., *Op-ed: PFAS Chemicals—the Other Immune System Threat*, ENV'T HEALTH NEWS (July 6, 2020), <https://www.ehn.org/pfas-and-immune-system-2646344962.html> [<https://perma.cc/B7AZ-N9TU>].

exposed to PFAS also have shown diminished responses to flu vaccines.”<sup>49</sup> The Agency for Toxic Substances & Disease Registry has released a statement acknowledging that since PFAS has been shown to reduce antibody responses, there is potential for interactions between the two emerging public health concerns.<sup>50</sup>

A. *Contamination Sites and Prevalence*

*[H]umans are exposed on a daily basis [to PFAS] through intake of contaminated food, water, and air, irrespective of proximity to industry.*<sup>51</sup>

Throughout the United States, where testing has been done, thousands of PFAS-contaminated sites have been identified.<sup>52</sup> The Pentagon has identified 401 military sites with PFAS contamination,<sup>53</sup> and 1621 groundwater wells serving military sites have tested above EPA safe levels for PFOA and PFOS.<sup>54</sup> Northeastern University’s Social Science Environmental Health Research Institute has identified 353 discrete contamination sites so far throughout the United States.<sup>55</sup> In conjunction with the Environmental Working Group and funded by the National Science Foundation, they have worked on an interactive map of sites throughout the country.<sup>56</sup>

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<sup>49</sup> *Id.*

<sup>50</sup> *What Are the Health Effects?*, *supra* note 47.

<sup>51</sup> White et al., *supra* note 45, at 16.

<sup>52</sup> *Mapping the PFAS Contamination Crisis: New Data Show 2,230 Sites in 49 States*, ENV’T WORKING GROUP, [https://www.ewg.org/interactive-maps/2019\\_pfas\\_contamination/map/](https://www.ewg.org/interactive-maps/2019_pfas_contamination/map/) [<https://perma.cc/DH3T-D7Q3>] (last visited Nov. 2, 2020).

<sup>53</sup> U.S. Dep’t of Def., Deputy Assistant Secretary of Defense (Environment, Safety & Occupational Health), Addressing Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA) (Mar. 2018), <https://denix.osd.mil/derp/home/documents/pfos-pfoa-briefing-to-the-hasc/> [<https://perma.cc/36KQ-FQC4>].

<sup>54</sup> *Id.*

<sup>55</sup> *Public SSEHRI PFAS Contamination Site Tracker*, NE. UNIV. SOC. SCI. ENV’T HEALTH RSCH. INST., <https://docs.google.com/spreadsheets/d/10y4u1KG6gegnw3zoTUTbXxQiEqitU1ufPIGvGiETtcg/edit#gid=129706709> [<https://perma.cc/2VK9-29X7>] (last updated July 31, 2020).

<sup>56</sup> *Mapping the PFAS Contamination Crisis: New Data Show 2,230 Sites in 49 States*, *supra* note 52; *Poly- and Perfluorinated Chemicals: The Social Discovery of a Class of Emerging Contaminants (PFAS)*, NE. UNIV. SOC. SCI. ENV’T HEALTH RSCH. INST., <https://www.northeastern.edu/environmentalhealth/poly-and-perfluorinated-chemicals-the-social-discovery-of-a-class-of-emerging-contaminants-pfas/> [<https://perma.cc/SJ8V-PZ6B>] (last visited Nov. 2, 2020).

Although agencies have known about the potential toxicity of PFAS for decades, there has been minimal movement toward regulation.<sup>57</sup> Reports from as far back as 1987 by the DOD warn of the toxicity of PFAS foams, and the EPA was urging other governments not to use PFAS for firefighting as long as twenty years ago.<sup>58</sup>

After extensive production of PFOA and PFOS from 1940–2006, several of the largest chemical companies voluntarily phased out the two chemicals through a program with EPA.<sup>59</sup> This phase out program has created a “whack-a-mole” problem by leading to industrial replacements with other PFAS compounds that have no toxicological data.<sup>60</sup>

To date, the majority of litigation surrounding PFAS has been through state common law and class action lawsuits.<sup>61</sup> There are multiple problems with relying on the common law for addressing these types of harms.<sup>62</sup> It is very hard to satisfy the causation element for long-term exposure of this kind—a recurring theme in environmental law prior to statutory protections.<sup>63</sup>

Plaintiffs can run into issues proving causation and with sovereign immunity. Producers for products were often required by the DOD

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<sup>57</sup> *DoD PFAS Timeline*, ENV'T WORKING GROUP, <https://www.ewg.org/dodpfastimeline/> [<https://perma.cc/89C5-LRRV>] (last visited Nov. 2, 2020); Scott Faber, *It's Time to End EPA's Long History of Failing to Act on 'Forever Chemicals'*, ENV'T WORKING GROUP (Jan. 9, 2020), <https://www.ewg.org/news-and-analysis/2020/01/it-s-time-end-epa-s-long-history-failing-act-forever-chemicals> [<https://perma.cc/WR7D-SCBG>].

<sup>58</sup> See Jared Hayes & Scott Faber, *Mapping PFAS Chemical Contamination at 206 U.S. Military Sites: The Pentagon's 50-Year History with PFAS Chemicals*, ENV'T WORKING GROUP (Mar. 6, 2019), <https://www.ewg.org/research/pfas-chemicals-contaminate-least-110-us-military-sites/pentagon-s-50-year-history-pfas> [<https://perma.cc/92VH-ZXXW>]; Knaus, *supra* note 25.

<sup>59</sup> *PFOA Stewardship Program*, EPA, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-management-and-polyfluoroalkyl-substances-pfass#tab-3> [<https://perma.cc/AZB7-7US7>] (last visited Nov. 2, 2020); *Basic Info on PFAS*, *supra* note 18.

<sup>60</sup> See, e.g., Jesse Saffron, *PFAS Front and Center at Fellows Talk in Chapel Hill*, ENV'T FACTOR (Oct. 2019), <https://factor.niehs.nih.gov/2019/10/community-impact/pfas-discussion/index.htm> [<https://perma.cc/9EXC-TX86>].

<sup>61</sup> See *In re Aqueous Film-Forming Foams Products Liability Litigation*, 357 F. Supp. 3d 1391, 1395 (J.P.M.L. 2018) (seventy-five consolidated PFAS cases); Aaron Leibowitz, *3M Fire Suppressant MDL Will Be Heard In South Carolina*, LAW360 (Dec. 11, 2018, 3:07 PM), <https://www.law360.com/articles/1109934> [<https://perma.cc/Z22P-FP8V>]; Rita Ferreira, *PFAS Sparks a Wave of Litigation in the U.S. Chemical Industry*, SUSTAINALYTICS (Dec. 5, 2020), <https://www.sustainalytics.com/esg-blog/pfas-chemical-industry-litigation-esg-risk/> [<https://perma.cc/X8WU-J4DY>]; *C8 Class Action Settlement*, *supra* note 29.

<sup>62</sup> See Steve Gold, *Causation in Toxic Torts: Burdens of Proof, Standards of Persuasion, and Statistical Evidence*, 96 YALE L.J. 376 (1986).

<sup>63</sup> See generally JOHN S. APPLGATE ET AL., *THE REGULATION OF TOXIC SUBSTANCES AND HAZARDOUS WASTES, CASES AND MATERIALS* (3rd ed. 2018).

to use PFAS in military products: primarily firefighting foams.<sup>64</sup> Exploring in depth the state of the common law, toxic torts, and barriers to recovery for plaintiffs and classes harmed by PFAS is beyond the scope of this Note—instead this Note will focus on how states have used legislation to address problems surrounding PFAS and how the federal government can address PFAS contamination through already existing pathways, or in the future through proposed legislative changes to bring PFAS into the fold of current toxic substances law.

### III. REGULATION OF PFAS AT THE STATE LEVEL

There is an increasing split in state laws and regulations on what the maximum safe containment limits (“MCLs”) for PFAS should be.<sup>65</sup> In the absence of movement at the federal level to regulate PFAS, the states have begun regulation of the substances.<sup>66</sup> The standard for setting safe levels of PFAS exposure are commonly measured in nanograms per liter (ng/l), which is equivalent to one part per trillion.<sup>67</sup> One part per trillion is about the equivalent of a single drop of water in an Olympic-sized swimming pool.<sup>68</sup>

Vermont was the first state in 2016 to set an enforceable standard for PFOA and PFOS at 20ng/l,<sup>69</sup> New Jersey<sup>70</sup> has established MCLs for

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<sup>64</sup> Hayes & Faber, *supra* note 58.

<sup>65</sup> See Gerald B. Silverman, *Analysis of state-by-state differences in PFAS regulation*, THE PFAS PROJECT LAB, NE. UNIV. (October 2, 2018), <https://pfasproject.com/2018/10/02/analysis-of-state-by-state-differences-in-pfas-regulation/> [<https://perma.cc/U4G7-52ND>].

<sup>66</sup> *Id.*

<sup>67</sup> Richard Rediske, *PFAS Problems and Concerns for Drinking Water*, ANNIS WATER RES. INST., <https://www.miottawa.org/Departments/BOC/WaterQuality/pdf/2018/Presentations/11%20-%20Rediske%20Water%20Quality%20Forum.pdf> [<https://perma.cc/Y8K9-S5XJ>] (last visited Nov. 2, 2020).

<sup>68</sup> Steve Maxwell, *New Per- and Polyfluoroalkyl Substances (PFAS) Rules Coming to New Jersey*, CIV. & ENV'T CONSULTANTS, INC. (Jan. 31, 2019), <https://www.cecinc.com/blog/2019/01/31/new-per-and-polyfluoroalkyl-substances-pfas-rules-coming-to-new-jersey/> [<https://perma.cc/RKQ6-PG5Y>].

<sup>69</sup> Memorandum from Sarah Vose, State Toxicologist, to Chuck Schwer, Dir., Waste Mgmt. 1 (June 22, 2016), [https://anrweb.vt.gov/PubDocs/DEC/PFOA/PFOA%20-%20PFOS%20Health%20Advisories/Vermont/PFOA\\_PFOS\\_HealthAdvisory\\_June\\_22\\_2016.pdf](https://anrweb.vt.gov/PubDocs/DEC/PFOA/PFOA%20-%20PFOS%20Health%20Advisories/Vermont/PFOA_PFOS_HealthAdvisory_June_22_2016.pdf) [<https://perma.cc/5MNB-38HE>]. This was expanded to include five other PFAS substances in 2018. The five PFAS that Vermont currently regulates are PFOA, PFOS, PFHxS, PFHpA and PFNA. News Release, Ben Truman, Dep't of Health, Elle O'Casey, Agency of Nat. Res., Health Department Updates Health Advisory for PFAS (July 10, 2018), <https://www.healthvermont.gov/media/newsroom/updated-pfas-health-advisory-july-10-2018> [<https://perma.cc/TKH4-KRH2>].

<sup>70</sup> New Jersey was the first state to regulate PFNA and currently has the strictest regulations of any state for PFAS.

PFOA (14ng/l), PFNA, and PFOS (both 13ng/l);<sup>71</sup> Minnesota has set MCLs for PFOS, PFOA, and three other PFAS compounds from 15ng/l to 27ng/l.<sup>72</sup> The EPA has set a non-enforceable recommended lifetime exposure limit at 70ng/l for PFOA and PFOS but no other compounds.<sup>73</sup>

State regulation is also increasing. In Summer 2019, there were fifty-nine bills introduced in eighteen states and twenty policies regulating PFAS adopted in ten states.<sup>74</sup> As of July 2020, there were 152 bills introduced in thirty states.<sup>75</sup> And eight states<sup>76</sup> had adopted various enforceable MCLs, while four states<sup>77</sup> have proposed limits.<sup>78</sup>

While some states have implemented legally binding maximum advisory levels lower than the EPA's for PFOA and PFOS,<sup>79</sup> other states have adopted the EPA guidelines or have set higher guidelines than the EPA.<sup>80</sup> Several state attorneys general have filed suit against chemical manufacturers, while administrative agencies and legislatures have initiated bans, set binding health guidelines, and started state-wide testing programs.<sup>81</sup>

<sup>71</sup> N.J. DEP'T OF ENV'T PROT., STATEWIDE PFAS DIRECTIVE (2019), <https://www.nj.gov/dep/docs/statewide-pfas-directive-20190325.pdf> [<https://perma.cc/Y5AC-ESWL>].

<sup>72</sup> *Perfluoroalkyl Substances (PFAS): PFAS Activities in Minnesota*, MINN. DEP'T OF HEALTH, <https://www.health.state.mn.us/communities/environment/hazardous/topics/pfcs.html#guidancerelease> [<https://perma.cc/B86X-RSQ9>] (last visited Nov. 2, 2020).

<sup>73</sup> *Drinking Water Health Advisories for PFOA and PFOS*, *supra* note 47; *PFAS Laws and Regulations*, EPA, <https://www.epa.gov/pfas/pfas-laws-and-regulations#main-content> [<https://perma.cc/SE9Z-XURD>] (last updated July 30, 2018).

<sup>74</sup> *Bill Tracker, Toxic/Issue: PFAS*, SAFER STATES, <https://www.saferstates.com/bill-tracker/> [<https://perma.cc/H3RJ-VHX6>] (last visited Nov. 2, 2020); Silverman, *supra* note 65.

<sup>75</sup> *Bill Tracker, Toxic/Issue: PFAS*, *supra* note 74.

<sup>76</sup> *Id.* (showing Cal., Conn., Colo., Minn., N.C., N.H., N.J., and Vt.).

<sup>77</sup> *Id.* (showing Ill., Mass., Mich., and N.Y.).

<sup>78</sup> *Id.*

<sup>79</sup> *Drinking Water Resources*, CAL. WATER BDS., [https://www.waterboards.ca.gov/pfas/drinking\\_water.html](https://www.waterboards.ca.gov/pfas/drinking_water.html) [<https://perma.cc/T45K-VVVF>] (last visited Nov. 2, 2020) (California (10ng/l for PFOA, 40 ng/l for PFOS), Minnesota (15ng/l), New Jersey (14ng/l), and Vermont (20ng/l)); Corder et al., *supra* note 40, at 159–60; *Perfluoroalkyl Substances (PFAS): PFAS Activities in Minnesota*, *supra* note 72.

<sup>80</sup> See Corder et al., *supra* note 40.

<sup>81</sup> Paula Gardner, *Michigan Sues 17 Chemical Companies for PFAS Contamination*, MLIVE (Jan. 14, 2020), <https://www.mlive.com/news/2020/01/michigan-sues-17-chemical-companies-for-pfas-contamination.html> [<https://perma.cc/S3M3-LEYP>]; *Vermont Files Suit Against Manufacturers of PFAS Chemicals to Protect Drinking Water and Natural Resources*, OFF. VT. ATT'Y GEN. (June 27, 2019), <https://ago.vermont.gov/blog/2019/06/27/vermont-files-suit-against-manufacturers-of-pfas-chemicals-to-protect-drinking-water-and-natural-resources/> [<https://perma.cc/FPL8-LQ2B>]; *State-by-State Regulation of Per- and Polyfluoroalkyl Substances (PFAS) in Drinking Water*, JD SUPRA (July 16, 2020), <https://>

The majority of PFAS litigation to date has been through common-law causes of action and class action suits. There are currently class actions pending in Vermont, Michigan, North Carolina, and New York while several hundred PFAS cases have been consolidated into a single multidistrict lawsuit in the United States District Court for the District of South Carolina.<sup>82</sup> In the fourth quarter of 2019 alone, 3M paid over \$214,000,000 in legal fees defending PFAS suits.<sup>83</sup> Unsealed litigation between DuPont and Chemours revealed that Chemours liability alone is likely to exceed \$2,500,000,000.<sup>84</sup>

#### IV. REGULATION OF PFAS AT THE FEDERAL LEVEL

As of the time of this Note, there has been little action taken at the federal level: the EPA has set a health advisory limit for two PFAS chemicals, PFOA and PFOS at 70 parts per trillion,<sup>85</sup> and Congress has passed the NDAA with riders that regulate PFAS, but federal action lags significantly behind states' actions.<sup>86</sup> In Congress, multiple PFAS bills have been introduced (primarily in the House through the PFAS Task-force), however few have reached a vote.<sup>87</sup> Representative Gallagher, a

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[www.jdsupra.com/legalnews/state-by-state-regulation-of-per-and-82542/](http://www.jdsupra.com/legalnews/state-by-state-regulation-of-per-and-82542/) [<https://perma.cc/PN6N-9UM3>].

<sup>82</sup> *Aqueous Film-Forming Foams (AFFF) Products Liability Litigation*, MDL No. 2873, U.S. DIST. CT.: DIST. S.C., <https://www.scd.uscourts.gov/mdl-2873/> [<https://perma.cc/QA3M-2Q2T>] (last visited Nov. 2, 2020); Ellen M. Gilmer, *Forever Litigated 'Forever Chemicals': A Guide to PFAS in Courts*, BLOOMBERG L. (Jan. 13, 2020), <https://news.bloomberglaw.com/environment-and-energy/forever-litigated-forever-chemicals-a-guide-to-pfas-in-courts> [<https://perma.cc/L9GY-45G3>].

<sup>83</sup> Sylvia Carignan, *3M Hit With \$214 Million in PFAS Litigation Costs in Three Months*, BLOOMBERG L. (Jan. 28, 2020), <https://news.bloomberglaw.com/environment-and-energy/3m-hit-with-214-million-in-pfas-litigation-costs-in-three-months> [<https://perma.cc/5LHE-YCXQ>].

<sup>84</sup> Mike Leonard, *Chemours Board Accused of Hiding PFAS Liability, Insider Trading*, BLOOMBERG L. (July 28, 2020), <https://news.bloomberglaw.com/mergers-and-antitrust/chemours-board-accused-of-hiding-pfas-liability-insider-trading?context=search&index=1> [<https://perma.cc/7LD8-HPXS>].

<sup>85</sup> *PFAS Laws and Regulations*, *supra* note 73.

<sup>86</sup> Silverman, *supra* note 65.

<sup>87</sup> *E.g.*, PFAS Release Disclosure Act, S. 1507, 116th Cong. (2019); Protect Drinking Water from PFAS Act of 2019, H.R. 2377, 116th Cong. (2019); PFAS Waste Incineration Ban Act of 2019, H.R. 2591, 116th Cong. (2019); PFAS User Fee Act of 2019, H.R. 2570, 116th Cong. (2019); PFAS Accountability Act of 2019, H.R. 2626, 116th Cong. (2019); PFAS Monitoring Act of 2019, H.R. 2800, 116th Cong. (2019); To direct the Administrator of the EPA to issue guidance on minimizing the use of firefighting foam containing PFAS, and for other purposes: H.R. 2638, 116th Cong. (2019).

member on the Taskforce, said the following on the House floor about the harmful effects of PFAS:

No one should be afraid to drink or use the water from their tap. The fact that this is the case for many across the country—including in Northeast Wisconsin—means one thing: we must act with a sense of urgency to defend our communities and protect the clean water that underpins our way of life. . . . When it comes to the PFAS crisis, inaction is not an option.<sup>88</sup>

The PFAS Action Act of 2019, introduced by Representative Dingell from Michigan, would designate all PFAS as CERCLA hazardous substances.<sup>89</sup> The bill was reported out of the House Energy and Commerce Committee in November, and likely will reach the floor in 2020.<sup>90</sup> However, its Senate counterpart, S.638, introduced by Senator Carper from Delaware is unlikely to make it to a vote or pass the Senate.<sup>91</sup> Because of deadlock in the Senate and the increasing difficulty of passing individual bills, much of Congress's primary focus to regulate PFAS has been through riders and funding stipulations.<sup>92</sup> At the end of 2019 this focus was through the NDAA, one of the few bills that must be passed every year by Congress.<sup>93</sup> On July 24, 2020, the House passed a bipartisan amendment added to a 2021 fiscal authorization bill that would prohibit the EPA from removing a designated rule to list PFOA and PFOS under CERCLA and provide \$2,000,000 in funding to study links between PFAS and COVID-19.<sup>94</sup>

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<sup>88</sup> *Rep. Gallagher Talks PFAS on the House Floor*, CONGRESSMAN MIKE GALLAGHER (Jan. 17, 2020), <https://gallagher.house.gov/media/press-releases/rep-gallagher-talks-pfas-house-floor> [<https://perma.cc/87HU-2P2V>].

<sup>89</sup> PFSA Action Act of 2019, H.R. 535, 116th Cong. (2019); *see infra* Section V.E (PFAS & the Comprehensive Environmental Response, Compensation, and Liability Act).

<sup>90</sup> Press Release, H. Comm. on Energy & Com., Pallone Applauds Comm. Passage of Comprehensive Legis. to Address PFAS Contamination & Exposure (Nov. 20, 2019).

<sup>91</sup> PFAS Action Act, S. 638 116th Cong. (2019); Steven G. Barringer & Katie P. Reed, *Congress Takes Initial Steps to Address PFAS in the National Defense Authorization Act Conference Report*, NAT'L L. REV. (Dec. 20, 2019), <https://www.natlawreview.com/article/congress-takes-initial-steps-to-address-pfas-national-defense-authorization-act> [<https://perma.cc/7LHW-GUD4>].

<sup>92</sup> *See Ariana Figueroa, Lawmakers Brawl over PFAS Riders*, E&ENews (July 11, 2019), <https://www.eenews.net/stories/1060723339> [<https://perma.cc/2KXV-QN32>].

<sup>93</sup> National Defense Authorization Act for Fiscal Year 2020, H.R. 2500, 116th Cong. (2019).

<sup>94</sup> Kellie Lunney, *House Adopts PFAS, Water Loan Amendments to EPA Spending Bill*,

Both the Senate and House versions of the NDAA contained provisions addressing PFAS, but in dramatically different ways. Under pressure from the White House threatening a veto over, *inter alia*, the PFAS provisions—the Senate side of the reconciliation committee—pushed to drop all the PFAS sections to the bill.<sup>95</sup> During these negotiations Nancy Pelosi said that as Speaker of the House, she would not allow a vote on the final bill “if it does not contain cleanup provisions for [PFAS].”<sup>96</sup> In the end, the conference compromised striking key provisions that would have provided for liability and funding for clean-up efforts in affected communities, however still passing a solid starting ground requiring federal action from the DOD and the EPA.<sup>97</sup>

#### A. Addressing PFAS Through Military Appropriations

Why does the NDAA matter for what appears to be a toxic torts and EPA issue? The NDAA is one of the most important and largest annual procurement and appropriation bills passed by Congress reauthorizing the United States military.<sup>98</sup> PFAS are also an issue that disproportionately affects the military.<sup>99</sup> For decades ‘live’ fire drills on military bases and naval ships have been required to be performed with fire-fighting foams that contain PFAS.<sup>100</sup> These foams are then washed away and end up contaminating the groundwater at and around bases affecting the residents living there.<sup>101</sup> In Virginia alone, PFAS compounds have been found

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BLOOMBERG L.: ENV'T & ENERGY REP. (July 23, 2020), <https://news.bloomberglaw.com/environment-and-energy/house-adopts-pfas-water-loan-amendments-to-epa-spending-bill> [<https://perma.cc/DP9Y-76Y3>].

<sup>95</sup> Justine McDaniel, *PFAS Regulation Plan Gets Weakened by Congress in Latest Spending Bill*, PHILA. INQUIRER (Dec. 10, 2019), <https://www.inquirer.com/news/pfas-congress-defense-spending-bill-ndaa-cleanup-military-20191210.html> [<https://perma.cc/VQU3-N7FV>].

<sup>96</sup> Geof Koss, *Pelosi Ramps up Fight over PFAS in Defense Bill*, E&E NEWS (Nov. 20, 2019), <https://www.eenews.net/eenewspm/2019/11/20/stories/1061602361> [<https://perma.cc/2HAJ-CE5K>].

<sup>97</sup> *PFAS Federal Legislation*, *supra* note 22.

<sup>98</sup> National Defense Authorization Act for Fiscal Year 2020, H.R. 2500, 116th Cong. (2019) (“[This bill] authorize[s] appropriations for fiscal year 2020 [and sets for policies for] Department of Defense [programs and activities, including] military personnel strengths.”).

<sup>99</sup> See Sharon Lerner, *The U.S. Military Is Spending Millions to Replace Toxic Firefighting Foam with Toxic Firefighting Foam*, INTERCEPT (Feb. 10, 2018), <https://theintercept.com/2018/02/10/firefighting-foam-aff-pfos-pfoa-epa/> [<https://perma.cc/6UNN-674D>].

<sup>100</sup> *See id.*

<sup>101</sup> Retired Command Master Chief Bob Farnsworth, when responding to the Navy finding PFOS levels in the groundwater on Whidbey Island where he lives at 3,800 parts per trillion, said that “[w]e feel like we’re hostage here.” *Id.* Steven Swanson, a physician living near Farnsworth, said that “[w]hat the Navy is doing makes no sense . . . [they’re]

in the groundwater at every military operation; as high as 2,200,000 parts per trillion for PFOA and PFOS combined at Joint Base Langley-Eustis.<sup>102</sup> This concentration is 31,428 times higher than the EPA's safe lifetime exposure dose, and 146,666 times higher than the State of New Jersey's safe lifetime exposure dose.<sup>103</sup> The NDAA would have required the DOD and the EPA to institute regulations and clean-up programs to address this contamination—the extent of these were greatly limited in application.<sup>104</sup>

Despite limiting the NDAA's effects primarily to information gathering in the conference committee, the NDAA marks the first effort by Congress to force the federal government to act regarding PFAS in several key ways through three agencies: the EPA, the United States Geological Survey ("USGS"), and the DOD.<sup>105</sup>

### 1. EPA Requirements

EPA requirements in the Act are primarily focused on information gathering and monitoring. The NDAA requires the EPA to add PFAS as substances subject to the informational gathering provisions of the SWDA, the Toxics Release Inventory ("TRI") list, and the TSCA.<sup>106</sup>

The Act will add 172 PFAS chemicals to the TRI.<sup>107</sup> This is supposed to provide greater information to the public by requiring industrial sectors to report how much of every chemical on the list is (1) released<sup>108</sup> into the environment, or (2) recycled.<sup>109</sup> However, in promulgating this requirement,

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just hoping this will die down, and people will get used to living with contaminated water." *Id.*

<sup>102</sup> ENV'T WORKING GROUP, *supra* note 52; *Public SSEHRI PFAS Contamination Site Tracker*, *supra* note 55.

<sup>103</sup> *See Public SSEHRI PFAS Contamination Site Tracker*, *supra* note 55; *PFAS Laws and Regulations*, *supra* note 73; N.J. DEP'T OF ENV'T PROT., *supra* note 71.

<sup>104</sup> *See* S. REP. NO. 116-48 (2019) (Conf. Rep.).

<sup>105</sup> Nessa Horewitch Coppinger et al., *Congress Tackles PFAS on Multiple Fronts*, BEVERIDGE & DIAMOND (Jan. 30, 2020), <https://www.bdlaw.com/publications/congress-tackles-pfas-on-multiple-fronts/> [<https://perma.cc/5M3A-68KF>].

<sup>106</sup> *Id.*

<sup>107</sup> EPA, CHEMICALS ADDED TO THE TOXICS RELEASE INVENTORY PURSUANT TO SECTION 7321 OF THE NATIONAL DEFENSE AUTHORIZATION ACT (effective Jan. 1, 2020), [https://www.epa.gov/sites/production/files/2020-02/documents/tri\\_non-cbi\\_pfas\\_list\\_2\\_19\\_2020\\_final\\_clean.pdf](https://www.epa.gov/sites/production/files/2020-02/documents/tri_non-cbi_pfas_list_2_19_2020_final_clean.pdf) [<https://perma.cc/7TVB-GSN5>].

<sup>108</sup> *What is the Toxics Release Inventory?*, EPA, <https://www.epa.gov/toxics-release-inventory-tri-program/what-toxics-release-inventory> [<https://perma.cc/WH8Y-L578>] (last visited Nov. 2, 2020) ("A 'release' of a chemical means that it is emitted to the air or water, or placed in some type of land disposal.").

<sup>109</sup> *Id.*

the EPA created a major loophole for chemical companies—the EPA “chose not to classify PFAS as ‘chemicals of special concern’” or to apply the default TRI rules to the compounds, allowing companies to not report releases of PFAS less than 100 pounds as long as any single PFAS isn’t more than 1% of the mixture.<sup>110</sup> In other words, industrial facilities can dump a pound of a toxic chemical whose lifetime exposure threshold is measured in nanoliters without reporting.

The NDAA will add PFAS to the SDWA’s fifth Unregulated Contaminant Monitoring Rule.<sup>111</sup> The rule requires monitoring for listed chemicals in any public water system serving more than 3,300 people, and a “representative sample” of water systems serving less than 3,300 people.<sup>112</sup> If the water system serves less than 10,000 people, the cost of monitoring will be covered by the EPA.<sup>113</sup>

## 2. USGS Requirements

The NDAA has the USGS playing a supporting role for the EPA and DOD in addressing PFAS. The USGS will develop performance standards for the detection of PFAS<sup>114</sup> and undertake nationwide sampling.<sup>115</sup> The NDAA adds PFAS to the USGS’s programs monitoring soils, wells, surface water, and groundwater.<sup>116</sup>

## 3. DOD Requirements

The NDAA’s most direct effects are limitations on the extent to which the DOD can use PFAS and requirements on the DOD to address the effects of PFAS on military members and bases.<sup>117</sup>

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<sup>110</sup> Sylvia Carignan, *PFAS Rule Has Unwanted Loophole, Senate Dems and Groups Say (1)*, BLOOMBERGL: ENV’T & ENERGY REP. (June 25, 2020), <https://news.bloomberglaw.com/environment-and-energy/pfas-rule-has-unwanted-loophole-senate-democrats-and-groups-say> [<https://perma.cc/Z5AP-F8H4>]; see *Implementing Statutory Addition of Certain Per- and Polyfluoroalkyl Substances*, EPA (June 22, 2020), <https://www.epa.gov/toxics-release-inventory-tri-program/implementing-statutory-addition-certain-and-polyfluoroalkyl> [<https://perma.cc/8HV6-PP7B>].

<sup>111</sup> Coppinger et al., *supra* note 105.

<sup>112</sup> National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92, § 7311(b)(1)(C), 113 Stat. 1198, 2276 (2019).

<sup>113</sup> § 7311.

<sup>114</sup> § 7332.

<sup>115</sup> § 7333.

<sup>116</sup> *Id.*

<sup>117</sup> See, e.g., §§ 323, 707.

The NDAA implements use restrictions and requires the development of product alternatives to current PFAS compounds the military relies on. Specifically, it (1) requires the phase out of PFAS fire-fighting foams (“AFFFs”) by 2024 with some exceptions, including for naval vessels and emergencies.<sup>118</sup> It (2) bans training exercises from using AFFFs<sup>119</sup> and bans uncontrolled releases of AFFFs, again with exceptions.<sup>120</sup> It (3) provides greater guidance for the storage, destruction, and disposal of PFAS,<sup>121</sup> and (4) bans PFAS from Meals Ready to Eat food packaging.<sup>122</sup>

The NDAA also requires the DOD to enter into cooperative agreements with states and localities for testing, monitoring, and clean-up of PFAS where DOD activities have caused the release of PFAS into the environment.<sup>123</sup> These cooperative agreements will require the DOD to meet the most stringent standards for PFAS that have been set in that state (or federally) “in any environmental media.”<sup>124</sup> The DOD will have to share monitoring data with municipalities,<sup>125</sup> provide blood testing for military firefighters during their annual physicals,<sup>126</sup> and purchase contaminated property and pay for replacement water.<sup>127</sup> It also requires clean-up of “pollutants and contaminants,” and authorizes use of the Defense Environmental Restoration Program (“DERP”) to carry out projects to respond to PFOA and PFOS pollution.<sup>128</sup>

#### 4. Struck Provisions

There were two major sections that the Reconciliation Committee struck from the House version of the bill. One would have required the EPA to promulgate drinking water standards under the Federal Water Pollution Control Act<sup>129</sup> for PFAS. The other would have created liability

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<sup>118</sup> § 332.

<sup>119</sup> § 324.

<sup>120</sup> § 323.

<sup>121</sup> § 7361.

<sup>122</sup> § 329(a).

<sup>123</sup> § 332.

<sup>124</sup> § 332(a)(2).

<sup>125</sup> § 331.

<sup>126</sup> § 707.

<sup>127</sup> § 344.

<sup>128</sup> § 316(a).

<sup>129</sup> Colloquially known as the Clean Water Act (“CWA”). Clean Water Act, 33 U.S.C. §§ 1251–1387 (1972). *Summary of the Clean Water Act*, EPA, <https://www.epa.gov/laws-regulations/summary-clean-water-act> [<https://perma.cc/DC7N-EFP2>] (last visited Nov. 2, 2020).

under CERCLA, also known as the Superfund.<sup>130</sup> The first of these would have required the EPA to list PFAS as a toxic pollutant for purposes of the CWA.<sup>131</sup> The second would have designated “all per- and polyfluoroalkyl substances as hazardous substances” under CERCLA.<sup>132</sup> While this was struck from the NDAA, the House has passed a similar rider in a more recent appropriations bill that forbids the EPA from using any money to rescind a proposed rule to list PFOA and PFOS under CERCLA.<sup>133</sup> While not as comprehensive as the proposed section in the NDAA, it prevents the EPA from backtracking on regulation.<sup>134</sup>

##### 5. Discrepancies of Protection Created by Addressing PFAS Through the DOD and Not the EPA

By putting most actionable provisions in the NDAA on the DOD, the bill creates two tiers of protection from PFAS based on civilian status. If you are a member of the military, or live on a military base, you are given greater protection while civilians are given significantly less protections that decrease as you move farther from a military base—while this makes sense from a practical and political point of view it raises several issues of equity.<sup>135</sup>

Hypothetically, how would protections in the NDAA attach if a PFAS manufacturer in Virginia (a state currently without PFAS regulations) creates a PFAS based fire-fighting foam and sells half of it to a Virginia military base, while selling the rest to local firefighters or airports? Both groups use the foams to put out fires and the residual PFAS seeps into local groundwater and people are exposed.<sup>136</sup> These foams are still

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<sup>130</sup> Hazardous substances can be designated directly under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9602(a), although this has never been done before.

<sup>131</sup> H.R. REP. NO. 116-333, at 1744 (2019) (Conf. Rep.) (“PFAS designation, effluent limitations, and pretreatment standards”).

<sup>132</sup> *Id.* (“Designation as hazardous substances”).

<sup>133</sup> State, Foreign Operations, Agriculture, Rural Development, Interior, Environment, Military Construction, and Veterans Affairs Appropriations Act, 2021, H.R. 7608, 116th Cong. (2d Sess. 2020).

<sup>134</sup> *Id.* § 501.

<sup>135</sup> See Rebecca Patterson & Scott Faber, *Insight: DoD Must Do More to Address PFAS Pollution*, BLOOMBERG L.: ENV'T & ENERGY REP. (June 19, 2020), <https://news.bloomberglaw.com/environment-and-energy/insight-dod-must-do-more-to-address-pfas-pollution> [<https://perma.cc/6XXH-A3T8>].

<sup>136</sup> See *Are Commercial Airports in U.S. Responsible for PFAS Contamination?*, INT'L AIRPORT REV. (Oct. 11, 2019), <https://www.internationalairportreview.com/article/104858/pfas-firefighting-foams-health-risk-airports/> [<https://perma.cc/9894-RVJN>].

allowed to be sold to the military until 2024—but there is no limit currently for private parties.<sup>137</sup> If there is groundwater contamination at the base, the military will be required to monitor for contamination.<sup>138</sup> For a local community, if their local water supply system serves greater than 10,000 people, they will have to pay for their own contamination monitoring.<sup>139</sup> If it is less than 10,000 people the EPA will, subject to appropriations, cover the cost of monitoring.<sup>140</sup> If the firefighters who are exposed are working on a military installation the DOD will cover the cost of blood tests to check for exposure;<sup>141</sup> any monitoring or testing for local or volunteer firefighters would have to be borne by localities.<sup>142</sup> For local farmers and landowners whose land has become contaminated, if the groundwater of their properties exceeds the EPA health advisory limit (70 parts per trillion),<sup>143</sup> the DOD may purchase contaminated properties and will pay for relocations.<sup>144</sup> The DOD may also provide for uncontaminated water for agricultural purposes near military installations.<sup>145</sup> There is no federal support for local buyouts or relocation due to drinking water contaminated with PFAS, or support for local agricultural land and waters that are contaminated.<sup>146</sup> Storage and disposal of PFAS on military facilities must meet RCRA standards<sup>147</sup> as if PFAS were a hazardous substances under RCRA, and can only be transported for disposal to a hazardous waste disposal facility that meets the requirements of RCRA's Subtitle C.<sup>148</sup> If the disposal is through incineration, it must meet standards set under the CAA.<sup>149</sup> There are no limitations or guidelines for localities or companies purchasing, transporting, storing, or disposing of PFAS.<sup>150</sup> If

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<sup>137</sup> FY2020 NDAA Summary, U.S. S. COMM. ON ARMED SERVS. 5, [https://www.armed-services.senate.gov/imo/media/doc/FY20%20NDAA%20Conference%20Summary%20\\_%20FINAL.pdf](https://www.armed-services.senate.gov/imo/media/doc/FY20%20NDAA%20Conference%20Summary%20_%20FINAL.pdf) [<https://perma.cc/C2KJ-QRME>].

<sup>138</sup> Clean Air Act, 42 U.S.C. § 7412(a)(5) (2013).

<sup>139</sup> OFF. WATER, EPA, DRINKING WATER INFRASTRUCTURE NEEDS SURVEY AND ASSESSMENT 71 (Mar. 2018).

<sup>140</sup> *Id.*

<sup>141</sup> National Defense Authorization Act § 707.

<sup>142</sup> *See, e.g.,* Bev Banks, *Pentagon Will Test Firefighters' Blood for PFAS. But then What?*, E&E NEWS (Sept. 1, 2020), <https://www.eenews.net/stories/1063712631> [<https://perma.cc/S4R8-LX35>].

<sup>143</sup> *See Drinking Water Health Advisories for PFOA and PFOS, supra* note 47.

<sup>144</sup> National Defense Authorization Act § 344.

<sup>145</sup> *Id.* § 343.

<sup>146</sup> *See id.* § 344.

<sup>147</sup> *See infra* PFAS & the Resource Conservation and Recovery Act, Section V.D.

<sup>148</sup> National Defense Authorization Act § 330.

<sup>149</sup> *Id.*

<sup>150</sup> *Id.*

the contamination from a DOD facility affected the local water supply, the DOD must enter into a testing, clean-up and monitoring agreement with potential access to funding if requested by the state governor.<sup>151</sup> If the contamination is on, or adjacent to, a military installation, the DOD will already have started a clean-up plan for the area required to be completed around mid-2020.<sup>152</sup> Facially, the NDAA also authorizes the relevant “affected secretariat” to pursue liability and clean-up costs under DERP and CERCLA for PFOA or PFOS contamination.<sup>153</sup>

Although hypothetical, this law dictates that two communities exposed to identical chemical pollution will be treated differently and inequitably—while the government is responsible for governing military bases, only applying environmental laws to military installations creates a situation where a person’s proximity to a military installation changes how the government treats their health and well-being.<sup>154</sup>

#### V. PFAS AND THE CURRENT ENVIRONMENTAL REGIME—HAS REGULATION OF PFAS MOVED INTO THE REALM OF NONDISCRETIONARY ACTION?

This Note will briefly touch on forms of potential statutory based regulation before arguing that the level of action reached by Congress may have pushed the EPA out of discretionary regulation of PFAS into nondiscretionary regulation and opened channels for liability previously closed.

While the NDAA marks a push by Congress to force the DOD and EPA to start acting on PFAS, the EPA does not need Congress to act.<sup>155</sup> There are a wide variety of ways that the EPA, within its existing authority, could choose to regulate PFAS without an act of Congress.<sup>156</sup> PFAS burned or released in gaseous form could be regulated as a hazardous air pollution substance (“HAPs”) under the CAA, spills or dumping of liquid PFAS (the most prevalent form of PFAS contamination) could be regulated under the CWA.<sup>157</sup> Transportation and disposal from “cradle

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<sup>151</sup> *Id.* § 332(a)(1).

<sup>152</sup> *Id.* § 345.

<sup>153</sup> *Id.* § 316(a).

<sup>154</sup> *See, e.g.*, Banks, *supra* note 142.

<sup>155</sup> *See Regulatory Information by Topic*, EPA, <https://www.epa.gov/regulatory-information-topic> [<https://perma.cc/WK4M-BP8S>] (last visited Nov. 2, 2020).

<sup>156</sup> *See id.*

<sup>157</sup> Andrew Hulett & John D. Echeverria, *Groundwater Pollution: A Circuit Split Inviting Supreme Court Review*, VT. J. ENV'TL., <http://vjel.vermontlaw.edu/topten/groundwater-po>

to grave” could be regulated under the RCRA.<sup>158</sup> The sale, import, and production of PFAS could be regulated under the TSCA.<sup>159</sup> And existing contamination sites could be cleaned up, and polluting parties held liable under CERCLA.<sup>160</sup> The most direct and applicable way that the EPA could regulate, address, and clean-up PFAS under their existing authority would be through the toxic substances’ laws—TSCA, RCRA, and CERCLA. Precedent for the EPA to regulate PFAS under these three laws was greatly expanded through the NDAA—each of these potential routes of regulations shall be addressed in turn.

#### A. *PFAS & the Clean Air Act*

Under the CAA, the EPA is authorized to regulate HAPs, and to set uniform emission limits that provide an “ample margin of safety to protect public health.”<sup>161</sup> This health based standard precludes considerations of cost or technological feasibility, however Congress abandoned this standard in 1990 for technology based nationwide standards.<sup>162</sup> The EPA can add to this list of regulated pollutants and individuals may petition the EPA to modify the list by adding or removing substances.<sup>163</sup> Listed substances are “those pollutants which present, or may present . . . a threat of adverse human health effects . . . or adverse environmental effects.”<sup>164</sup> HAPs are subject to a two-step regulatory process: (1) a stringent technological standard, the maximum achievable control technology (“MACT”) on new and existing sources.<sup>165</sup> After MACT is applied, a residual risk regulation is implemented to address the risks that remain after

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llution-circuit-split-inviting-supreme-court-review/ [https://perma.cc/3TUL-RDV4] (last visited Nov. 2, 2020).

<sup>158</sup> See *Summary of the Resource Conservation and Recovery Act*, EPA, <https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act> [https://perma.cc/L4B5-NWMQ] (last visited Nov. 2, 2020).

<sup>159</sup> See *Summary of the Toxic Substances Control Act*, EPA, <https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act> [https://perma.cc/PZ4S-YBRW] (last visited Nov. 2, 2020).

<sup>160</sup> See *Superfund: CERCLA Overview*, EPA, <https://www.epa.gov/superfund/superfund-cercla-overview> [https://perma.cc/TTA2-46WA] (last visited Nov. 2, 2020).

<sup>161</sup> Clean Air Act § 112(e), 42 U.S.C. § 7412(f)(2).

<sup>162</sup> See William A. Wichers et al., *Regulation of Hazardous Air Pollutants Under the New Clean Air Act: Technology-Based Standards at Last*, 22 ENV'T L. REP. 10717, 10717 (1992).

<sup>163</sup> 42 U.S.C. § 7412 (b)(3).

<sup>164</sup> *Id.* § 7412(a)(7).

<sup>165</sup> *Maximum Achievable Control Technology (MACT) Standards*, OHIO EPA, <https://www.epa.ohio.gov/dapc/mact/mactmain> [https://perma.cc/B6PV-27PJ] (last visited Nov. 2, 2020).

applying MACT.<sup>166</sup> This second step would be especially important for PFAS due to its acute toxicity.<sup>167</sup> Such designations could also affect what counts as major sources for purposes of the CAA.<sup>168</sup>

The NDAA introduces the first cross over of the CAA and PFAS. The pertinent part states that “all incineration is conducted in accordance with the requirements of the Clean Air Act, including controlling hydrogen fluoride[.]”<sup>169</sup> Hydrogen fluoride<sup>170</sup> and hydrofluoric acid (its liquid form) are listed HAPs under the CAA.<sup>171</sup> It is slightly ambiguous what requirement this creates for PFAS disposal; incineration is mentioned in three sections of the CAA.<sup>172</sup> The most relevant of these directs the EPA Administrator to promulgate “performance standards and other requirements” for solid waste incineration units for new sources.<sup>173</sup>

Congress listed this requirement in conjunction with a HAP for hydrogen fluoride which would require a disposal facility to apply MACT if hydrogen fluoride is created, and that any disposal must be done by facilities authorized under RCRA to dispose of hazardous substances, but they did not require the EPA to list PFAS as a HAP.<sup>174</sup>

This could also imply a need for the EPA to promulgate New Source Performance Standards (“NSPS”) for PFAS. “NSPSs are necessary (1) to cover pollutants that do not meet the size thresholds” for Prevention of Significant Deterioration requirements or CAA “nonattainment areas,

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<sup>166</sup> *Controlling Hazardous Air Pollutants*, EPA, <https://www.epa.gov/haps/controlling-hazardous-air-pollutants> [<https://perma.cc/DMT3-A2WM>] (last visited Nov. 2, 2020).

<sup>167</sup> R. Wesley Flynn et al., *Acute and Chronic Effects of Perfluoroalkyl Substance Mixtures on Larval American Bullfrogs (*Rana catesbeiana*)*, 236 CHEMOSPHERE (2019).

<sup>168</sup> Under the Clean Air Act § 112(a)(1), 42 U.S.C. § 7412 (1977), major sources are “any stationary source or group of stationary sources that emits or has the potential to emit 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants.”

<sup>169</sup> National Defense Authorization Act § 330(a)(2) (citing 42 U.S.C. § 7401 et seq.)

<sup>170</sup> An August 7th, 2019 petition for rulemaking is pending to ban HF as a “highly toxic substance” under the CAA. EPA, PETITION FOR RULEMAKING, IN RE: BAN ON HYDROFLUORIC ACID IN REFINERIES (Aug. 7, 2019), [https://www.epa.gov/sites/production/files/2019-08/documents/hydrofluoric\\_acid\\_rulemaking\\_petition.pdf](https://www.epa.gov/sites/production/files/2019-08/documents/hydrofluoric_acid_rulemaking_petition.pdf) [<https://perma.cc/TAV7-3SFS>].

<sup>171</sup> *Initial List of Hazardous Air Pollutants with Modifications*, EPA, <https://www.epa.gov/haps/initial-list-hazardous-air-pollutants-modifications> [<https://perma.cc/W588-KVCG>] (last visited Nov. 2, 2020).

<sup>172</sup> 42 U.S.C. §§ 7429, 7479, 7491 (1977) (establishing performance standards for solid waste combustion, in the definition of “major emitting facility,” and in the definition of “major stationary source,” respectively).

<sup>173</sup> 42 U.S.C. § 7429.

<sup>174</sup> See *Initial List of Hazardous Air Pollutants with Modifications*, *supra* note 171.

and (2) to cover pollutants other than criteria pollutants.”<sup>175</sup> NSPS listings are nondiscretionary; “[t]he EPA must promulgate lists of categories of sources that cause or contribute greatly to air pollution, *which may reasonably be* anticipated to endanger public health or welfare.”<sup>176</sup>

The canons of *Ejusdem Generis* and *Noscitur A Sociis* have been “applied [by the Supreme Court] to ascertain the meaning of words otherwise obscure or doubtful.”<sup>177</sup> The canons state that lists of words will be interpreted to refer to “things of a like class,” and a word shall be “known by the company it keeps,” respectively.<sup>178</sup> Here, the CAA, and the storage of chemicals to be disposed of explicitly refer to hazardous substances and pollutants under either the CAA or RCRA and it would seem in line with these canons and legislative intent that by stating incineration “is conducted in accordance with the requirements of the Clean Air Act” they meant the HAP section of the Act.<sup>179</sup> Although, Congress could have meant it to be covered by both—Congress identified PFAS as a “toxic chemical,” adding it “immediately” to the TRI and has shown concern about public health and welfare through their requirement of blood testing for exposed firefighters and water clean-up actions at DOD facilities.<sup>180</sup> If the substance is reasonably anticipated to endanger public health or welfare, the promulgation of a NSPS listing is nondiscretionary.<sup>181</sup> It is also reasonable that the byproducts of incineration could create already listed HAPs (something Congress is evidently concerned of by their inclusion of hydrogen fluoride, and supported by EPA reports<sup>182</sup> that incineration of PFAS will create HAPs), which will then trigger the HAP portions of the CAA and the MACT standard for the HAPs.<sup>183</sup>

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<sup>175</sup> Clean Air Act § 111, 42 U.S.C. § 7411 (1977); LINDA A. MALONE, EMANUEL LAW OUTLINES FOR ENVIRONMENTAL LAW 77 (4th ed. 2014).

<sup>176</sup> Clean Air Act § 111(b)(1)(A), 42 U.S.C. § 7411(b)(1)(A); MALONE, *supra* note 175, at 77.

<sup>177</sup> Romualdo P. Eclavea, Annotation, *Supreme Court Application of the Rules of Ejusdem Generis and Noscitur A Sociis*, 46 L. ED. 2D 879 (2nd 2012) (cited in *Lagos v. United States*, 138 S. Ct. 1684 (2018)).

<sup>178</sup> *Id.*

<sup>179</sup> National Defense Authorization Act § 330(a)(2); *see* Clean Air Act § 112, 42 U.S.C. § 7412 (1977).

<sup>180</sup> *See Implementing Statutory Addition of Certain Per- and Polyfluoroalkyl Substances*, *supra* note 110.

<sup>181</sup> Clean Air Act § 111(b)(1)(A), 42 U.S.C. § 7411(b)(1)(A).

<sup>182</sup> *Per- and Polyfluoroalkyl Substances (PFAS): Incineration to Manage PFAS Waste Streams*, EPA (Feb. 2020), [https://www.epa.gov/sites/production/files/2019-09/documents/technical\\_brief\\_pfas\\_incineration\\_ioaa\\_approved\\_final\\_july\\_2019.pdf](https://www.epa.gov/sites/production/files/2019-09/documents/technical_brief_pfas_incineration_ioaa_approved_final_july_2019.pdf) [<https://perma.cc/FG8P-6U7Y>].

<sup>183</sup> Clean Air Act § 112(e). *See Maximum Achievable Control Technology (MACT) Standards*, *supra* note 165.

### B. *PFAS & the Clean Water Act*

Water is the primary vector for PFAS contamination—it spreads downstream from factories often located on rivers and it seeps into the groundwater after firefighting operations, causing it to end up in drinking water far from the pollution source.<sup>184</sup> The combination of contamination from point source and non-point source pollution makes regulation through the CWA challenging at best.<sup>185</sup> One of the committee-struck provisions of the NDAA would have required the listing of PFAS as a toxic pollutant under the CWA—this would have required the EPA to develop effluent limitations, and pretreatment standards for PFAS and require industry to receive permits before being able to release PFAS into a Water of the United States.<sup>186</sup> In 2016, the EPA established (non-binding) health advisories for PFOA and PFOS of 70 ng/l in drinking water.<sup>187</sup> However, the Agency for Toxic Substances and Disease Registry within the Department of Health and Human Services announced that health impacts from exposure could be significant at levels seven to ten times lower than the current EPA health advisory standard, and multiple assessments from other states and independent scientists have converged on the same conclusion.<sup>188</sup> Importantly, in the field of water pollution, the EPA and the CWA are not exclusive methods of regulation.<sup>189</sup> State agencies have significant authority, especially over groundwater and other

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<sup>184</sup> See, e.g., Paula Gardner, *PFAS Found in Grand River next to Blighted Jackson Factory*, MLIVE (updated Feb. 13, 2019), <https://www.mlive.com/news/2019/02/pfas-found-in-grand-river-next-to-blighted-jackson-factory.html> [<https://perma.cc/3MG8-C7TW>].

<sup>185</sup> See *Introduction to the Clean Water Act: Section 319: Nonpoint Source Program*, EPA, [https://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent\\_object\\_id=2788](https://cfpub.epa.gov/watertrain/moduleFrame.cfm?parent_object_id=2788) [<https://perma.cc/C7VA-YRHE>] (last visited Nov. 2, 2020).

<sup>186</sup> H.R. REP. NO. 116-333, at 1744 (2020) (“Legislative Provisions Not Adopted: *PFAS designation, effluent limitations, and pretreatment standards*”). Section 402 of the CWA requires a polluter to obtain “a permit for the discharge of any pollutant.” Clean Water Act § 402, 33 U.S.C. § 1342(a)(1). The act defines a discharge of a pollutant as “any addition of any pollutant to navigable waters from any point source.” § 1362(12). The act defines “navigable waters” to mean “the waters of the United States.” § 1342 (7).

<sup>187</sup> *Drinking Water Health Advisories for PFOA and PFOS*, *supra* note 47.

<sup>188</sup> See Cordner et al., *supra* note 40, at 157, 159–60; Matthew Thurlow, *Fear and Loathing of PFAS*, AM. BAR ASS’N (Dec. 27, 2018), [https://www.americanbar.org/groups/environment\\_energy\\_resources/publications/trends/2018-2019/january-february-2019/fear-and-loathing/](https://www.americanbar.org/groups/environment_energy_resources/publications/trends/2018-2019/january-february-2019/fear-and-loathing/) [<https://perma.cc/L5Z5-RZY5>].

<sup>189</sup> See STATE CONSTRAINTS: STATE-IMPOSED LIMITATIONS ON THE AUTHORITY OF AGENCIES TO REGULATE WATERS BEYOND THE SCOPE OF THE FEDERAL CLEAN WATER ACT, ENV’T L. INST. (May 2013).

waters that do not rise to meet the controversial “Waters of the United States” definition. For example, State Waters are defined in Virginia as “all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, including wetlands.”<sup>190</sup> States with broad definitions like Virginia can implement stricter water pollution requirements than the federal government.<sup>191</sup> State efforts in applying such regulations to PFAS will be greatly bolstered by the countrywide federal survey authorized under the NDAA, and adding PFAS to the SDWA.<sup>192</sup> The EPA is currently “evaluating available data and research to support development of Clean Water Act Section 304(a) Ambient water quality criteria for PFAS” expected to be published in 2022.<sup>193</sup>

### C. *PFAS & the Toxic Substances Control Act*

TSCA is first and foremost an informational tool—a gap-filling statute to track chemicals introduced into commerce.<sup>194</sup> Chemicals with historic use are generally exempt, but if the EPA promulgates a Significant New Use Rule (“SNUR”), a manufacturer or processor wishing to manufacture or import a chemical for that new use must submit a Significant New Use Notice to the EPA at least 90 days before engaging in the new use.<sup>195</sup>

Before the NDAA, two actions under the purview of TSCA have been taken by the EPA regarding PFAS.<sup>196</sup> The EPA worked with eight companies to implement a voluntary phase out of PFOA and PFOS from emissions and products in the United States by 2015,<sup>197</sup> one year before establishing its health advisory levels.

The NDAA adds two requirements under TSCA: it sets forth a data call requirement explicitly for PFAS compounds, requiring PFAS

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<sup>190</sup> VA. CODE ANN. § 62.1-44.3 (2015).

<sup>191</sup> See ENV'T L. INST., *supra* note 189, at 11.

<sup>192</sup> National Defense Authorization Act § 7333.

<sup>193</sup> EPA, EPA'S PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) ACTION PLAN 50 (2019) [hereinafter PFAS ACTION PLAN], [https://www.epa.gov/sites/production/files/2019-02/documents/pfas\\_action\\_plan\\_021319\\_508compliant\\_1.pdf](https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf) [<https://perma.cc/55MR-DCS7>].

<sup>194</sup> *Toxic Substances Control Act (TSCA) and Federal Facilities*, EPA, <https://www.epa.gov/enforcement/toxic-substances-control-act-tsca-and-federal-facilities> [<https://perma.cc/UWC5-WJNR>] (last visited Nov. 2, 2020).

<sup>195</sup> *Reviewing New Chemicals under the Toxic Substances Control Act (TSCA)*, EPA, <https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/actions-under-tsca-section-5> [<https://perma.cc/N6TH-TNAL>] (last visited Nov. 2, 2020).

<sup>196</sup> PFAS ACTION PLAN, *supra* note 193, at 56.

<sup>197</sup> PFOA Stewardship Program, *supra* note 59.

manufacturers to submit information including amounts manufactured, byproducts, disposals, “all existing . . . environmental and health effects,”<sup>198</sup> lists of individuals exposed due to employment, and any changes in disposal methods of compounds they manage.<sup>199</sup> It also required the EPA to complete a SNUR, on long-chain PFAS by June 22, 2020.<sup>200</sup> This SNUR was published on July 27, 2020 and added a new use designation for twenty-six PFAS compounds in addition to PFOA and its salts.<sup>201</sup>

*D. PFAS & the Resource Conservation and Recovery Act*

RCRA “gives EPA the authority to control hazardous waste from ‘cradle-to-grave.’ This includes the generation, transportation, treatment, storage, and disposal of hazardous waste.”<sup>202</sup> By preventing contamination, RCRA directly results in minimizing future contamination sites and limits future clean-up costs and liability.<sup>203</sup> RCRA regulates three primary groups: (1) Generators, (2) Transporters, and (3) Treatment, Storage, and Disposal Facilities (“TSDFs”).<sup>204</sup>

Subtitle C of RCRA governs the storage of hazardous substances.<sup>205</sup> The subtitle is “a comprehensive program [written] to ensure that hazardous waste is managed safely from the moment it is generated until its final disposal.”<sup>206</sup> Its regulations set criteria for all three regulated groups including permitting requirements, enforcement, and corrective actions or clean-ups.<sup>207</sup> Actions can be brought to seek injunctive relief to compel clean-up of solid or hazardous wastes that pose an “imminent and

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<sup>198</sup> Toxic Substances Control Act § 8(a), 15 U.S.C. § 2607(a)(2)(E) (2016).

<sup>199</sup> *Id.* § 2607(a)(2)(A)–(G); National Defense Authorization Act § 7351.

<sup>200</sup> National Defense Authorization Act § 7352.

<sup>201</sup> Significant New Use Rule: Long-Chain Perfluoroalkyl Carboxylate and Perfluoroalkyl Sulfonate Chemical Substances, 85 Fed. Reg. 45109, 45126 (July 27, 2020) (to be codified at 40 C.F.R. § 721). The SNUR also identified that the import exception at 40 CFR 721.45(f) was inapplicable to these compounds. *Id.*

<sup>202</sup> *Resource Conservation and Recovery Act (RCRA) Overview*, EPA, <https://www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-overview> [<https://perma.cc/SNP9-JXTD>] (last visited Nov. 2, 2020).

<sup>203</sup> *See RCRA’s Critical Mission & the Path Forward*, EPA 2–4 (June 2014), [https://www.epa.gov/sites/production/files/2015-09/documents/rcras\\_critical\\_mission\\_and\\_the\\_path\\_forward.pdf](https://www.epa.gov/sites/production/files/2015-09/documents/rcras_critical_mission_and_the_path_forward.pdf) [<https://perma.cc/6SKN-Y2JE>].

<sup>204</sup> Protection of Environment, 40 C.F.R. §§ 262, 263, 264 (2020).

<sup>205</sup> *Resource Conservation and Recovery Act (RCRA) Overview*, *supra* note 202.

<sup>206</sup> *Id.*

<sup>207</sup> *Id.*

substantial endangerment.”<sup>208</sup> These suits can be brought by the federal government under section 7003, or states and private citizens under section 7002(a)(1)(B).<sup>209</sup> A RCRA claim starts with a two-step analysis: (1) is the substance a “solid waste?” And (2) if so, is it a “hazardous waste?”<sup>210</sup>

1. PFAS Are Likely to Be Classified as Solid Waste for the Purposes of RCRA Under Both the Narrow and Broad Definitions

Whether a substance is “solid waste” is one of the more contentious issues under RCRA, and the simplicity of the question can be misleading. “Solid waste” is a term of art subject to multiple definitions.<sup>211</sup> The narrow regulatory definition states that solid waste is “any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility, *and other discarded material . . .* resulting from industrial, commercial, mining and agricultural operations, and from community activities.”<sup>212</sup>

Courts going through this application have noted “that ‘the regulations are in fact dense, turgid, and circuitous.’”<sup>213</sup> The broader statutory definition defines solid waste as “any discarded material.”<sup>214</sup> The statute does not define “discarded”, but the word is further defined in the Code of Federal Regulations as any material that is abandoned.<sup>215</sup> The Code of Federal Regulations also states that materials are solid wastes if they are “abandoned” by being “disposed.”<sup>216</sup> Disposal is also defined broadly by statute.<sup>217</sup>

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<sup>208</sup> 42 U.S.C. § 6972(a).

<sup>209</sup> Resource Conservation and Recovery Act of 1976, Pub. L. No. 94-580, §§ 7002–03 (codified as amended at 42 U.S.C. §§ 6972–73).

<sup>210</sup> *Criteria for the Definition of Solid Waste and Solid and Hazardous Waste Exclusions*, EPA, <https://www.epa.gov/hw/criteria-definition-solid-waste-and-solid-and-hazardous-waste-exclusions> [https://perma.cc/9XBN-4KJZ] (last visited Nov. 2, 2020).

<sup>211</sup> *Id.*

<sup>212</sup> Resource Conservation and Recovery Act § 1004(27) (emphasis added).

<sup>213</sup> *Zands v. Nelson*, 779 F. Supp. 1254, 1262 (S.D. Cal. 1991) (citing *United States v. White*, 766 F. Supp. 873, 880 (E.D. Wash. 1991)).

<sup>214</sup> 40 C.F.R. § 261.2 (2015).

<sup>215</sup> *Id.* § 261.2(a)(2).

<sup>216</sup> *Id.* § 261.2(b).

<sup>217</sup> 42 U.S.C. § 6903(3) (2014). RCRA defines “disposal” as the “discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.” *Id.*

While courts have applied both definitions depending on the scenario and type of waste,<sup>218</sup> here PFAS are analyzed applying the narrower definition since the narrow definition is encompassed within the broad definition.<sup>219</sup> PFAS are a material created by industrial and commercial activities, so the next question is ‘are PFAS discarded materials?’ Under Subtitle C, a discarded material is any material that is abandoned, recycled,<sup>220</sup> inherently waste like,<sup>221</sup> or a military munition.<sup>222</sup> A material is abandoned if it is “disposed of, burned or incinerated, or accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated.”<sup>223</sup> Multiple common scenarios with PFAS under RCRA would meet the definition of abandoned. If the substances are disposed of by a consumer or an industrial facility (for example, discharges from DuPont and Chemours that ended up in the Cape Fear River in North Carolina<sup>224</sup>) would clearly meet the “disposed of” requirement to qualify as an abandoned solid waste.<sup>225</sup> PFAS wastes could also meet this definition by being incinerated (as required of the DOD by the NDAA), stored before being disposed by being incinerated, or treated.<sup>226</sup>

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<sup>218</sup> See *Connecticut Coastal Fishermen’s Ass’n v. Remington Arms*, 989 F.2d 1305, 1314–16 (2d Cir. 1993) (holding that the statutory definition applies to citizen-brought imminent hazard lawsuits under RCRA § 7003 and that lead and clay are discarded materials for purposes of triggering RCRA without deciding how long materials must accumulate before becoming “discarded”).

<sup>219</sup> *Id.* at 1314.

<sup>220</sup> 40 C.F.R. § 261.2(c) (2015).

<sup>221</sup> This is also a term of art and not a catch-all term—it refers only to a very small group of materials EPA specifies in the code as being “inherently waste like.” *Id.*

<sup>222</sup> 40 C.F.R. § 261.2(a)(2) (2015).

<sup>223</sup> *Id.* § 261.2(b).

<sup>224</sup> Adam Wagner, *NC State-Led Study Shows Cape Fear River had ‘Incredibly High’ Levels of Chemicals*, NEWS & OBSERVER (Oct. 10, 2019), <https://www.newsobserver.com/news/business/article235963052.html> [<https://perma.cc/W29L-HS4A>].

<sup>225</sup> In this scenario RCRA would apply only as long as the CWA does not. If CWA attaches it preempts RCRA at the point of discharge into a Water of the United States or “WOTUS”. *Resource Conservation and Recovery Act (RCRA)*, LEGALINFO.INST., [https://www.law.cornell.edu/wex/resource\\_conservation\\_and\\_recovery\\_act\\_\(rcra\)](https://www.law.cornell.edu/wex/resource_conservation_and_recovery_act_(rcra)) [<https://perma.cc/5AR7-GQPS>] (last visited Nov. 2, 2020).

<sup>226</sup> Such as at a publicly owned drinking water treatment plant like those required to test for PFAS under the NDAA additions to the Safe Drinking Water Act. Deidre White, *House NDAA PFAS Action Act Includes New Drinking Water and TSCA Requirements*, ASS’N STATE DRINKING WATER ADM’RS (July 15, 2020), <https://www.asdwa.org/2020/07/15/house-ndaa-pfas-action-act-includes-new-drinking-water-and-tsca-requirements/> [<https://perma.cc/JTM8-2QU5>].

## 2. PFAS Will Likely Not Rise to the Classification of “Hazardous Waste” Under RCRA Without Being Listed by the EPA

A solid waste is hazardous waste under RCRA if it is (1) listed under EPA regulation,<sup>227</sup> or (2) exhibits a “hazardous characteristic.”<sup>228</sup> While the EPA has said that they are in the process of listing PFAS as a hazardous substance, this has not occurred at the time of this Note.<sup>229</sup> To determine if the hazardous waste provisions of RCRA apply to PFAS, the analysis shifts to if PFAS exhibit a hazardous characteristic.<sup>230</sup> Wastes classified via characteristics are called “characteristic wastes,” and can be designated based on four different statutory characteristics.<sup>231</sup> Characteristic wastes<sup>232</sup> are (1) ignitable, based on potential flammability (EPA has promulgated specific test measures for different materials); (2) corrosive (based on pH<sup>233</sup> and the substance’s ability to corrode steel); (3) reactive substances (referring to the explosive potential of the waste);<sup>234</sup> or (4) toxic.<sup>235</sup> Toxicity here, however, is narrower than the word suggests. Again, a term of art, wastes only exhibit the toxic characteristic if a sample of the waste contains one of forty specific constituents at a concentration greater than a promulgated regulatory threshold.<sup>236</sup> While PFAS meet one of the bases for EPA listing under RCRA (dangerous to humans in low doses) and the EPA has stated that they are in the process of listing certain PFAS compounds, no PFAS have been listed at the

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<sup>227</sup> There are three bases for a RCRA listing: (1) the substance exhibits a hazardous characteristic (see characteristic wastes), (2) data shows that it is dangerous to humans in low doses, (3) the waste contains a chemical listed in App VIII and EPA decides to list after evaluating a series of factors including toxicity, bioaccumulation potential, and “plausible types of improper mgmt.” 40 C.F.R. § 261.11 (2019).

<sup>228</sup> Resource Conservation and Recovery Act of 1976 § 3001, 42 U.S.C. § 6921 (2006); 40 C.F.R. § 267.13 (2005).

<sup>229</sup> See PFAS ACTION PLAN, *supra* note 193, at 28.

<sup>230</sup> Resource Conservation and Recovery Act § 3001 (codified as amended at 42 U.S.C. § 6921).

<sup>231</sup> 40 C.F.R. § 261.20 (2019).

<sup>232</sup> *Id.* §§ 261.21–24.

<sup>233</sup> To qualify the substance must be “aqueous and [have] a pH less than or equal to 2 or greater than or equal to 12.5.” *Id.* § 261.22.

<sup>234</sup> Much of the criteria promulgated for reactive substances are rather ambiguous. *Id.* § 261.23. However, this ambiguity is not applicable here as PFAS are prized for their chemical inactivity. *A Guide to the PFAS Found in Our Environment*, CHEMICAL & ENGINEERING NEWS, <https://cen.acs.org/sections/pfas.html> [<https://perma.cc/BB3Q-KCV5>] (last visited Nov. 2, 2020).

<sup>235</sup> *Id.* § 261.24.

<sup>236</sup> See *id.* § 261.24(b) (Table 1).

time of this Note.<sup>237</sup> PFAS also do not meet any of the criteria as a characteristic waste—the first three designating criteria (ignitable, corrosive, and reactive) are explicitly inapplicable.<sup>238</sup> PFAS were designed to be incredibly stable and not naturally react.<sup>239</sup> While colloquially toxic, PFAS compounds do not contain any of the forty listed substances to qualify under the “toxic” characteristic.<sup>240</sup>

3. The NDAA Skips the Step of Requiring a Listing Under RCRA and Instead Directly Requires the DOD to Treat PFAS as if They Are Listed as Hazardous Waste

Despite not currently being hazardous waste under RCRA, the NDAA treats PFAS as if they were listed hazardous wastes.<sup>241</sup> It requires that “any material[s] containing PFAS that are designated for disposal are stored in accordance with the [Code of Federal Regulations] requirement[s]”<sup>242</sup> and that “all incineration is conducted at a facility that has been permitted to receive waste regulated under Subtitle C of the Solid Waste Disposal Act.”<sup>243</sup>

This section limits DOD disposal through incineration to licensed Subtitle C facilities—Subtitle C explicitly deals with hazardous materials and TSDFs. Being a TSDF carries with it a broad set of technological standards, financial assurances, and proactive hazardous waste release monitoring requirements and action plans.<sup>244</sup> This section essentially bypasses waiting for the EPA to finish their listing of PFAS under RCRA

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<sup>237</sup> See PFAS ACTION PLAN, *supra* note 193, at 28.

<sup>238</sup> Rachel Ross, *History of PFAS*, LIVE SCI. (Apr. 30, 2019), <https://www.livescience.com/65364-pfas.html> [<https://perma.cc/LN4P-P6HN>]; Tammy L. Helminsky & Jeffrey S. Longworth, *Fast Facts: What is PFAS?*, BARNES & THORNBURG, LLP (Jan. 2, 2019), <https://btlaw.com/insights/blogs/fast-facts-what-is-pfas> [<https://perma.cc/6CSN-LASC>]; *4.3 Physical and Chemical Properties*, INTERSTATE TECH. REG. COUNCIL (updated Apr. 14, 2020), [https://pfas-1.itrcweb.org/4-physical-and-chemical-properties/#4\\_3](https://pfas-1.itrcweb.org/4-physical-and-chemical-properties/#4_3) [<https://perma.cc/J7M3-N2QH>].

<sup>239</sup> CONN. DEP’T PUB. HEALTH, PFAS 101 11 (Aug. 7, 2019), [https://portal.ct.gov/-/media/DEEP/site\\_clean\\_up/contaminants\\_of\\_emerging\\_concern/PFAS1018719pdf](https://portal.ct.gov/-/media/DEEP/site_clean_up/contaminants_of_emerging_concern/PFAS1018719pdf) [<https://perma.cc/UXJ8-8V2Z>].

<sup>240</sup> See 40 C.F.R. § 261.24 (2006).

<sup>241</sup> See National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92, § 330, 133 Stat. 1198, 1312–13 (2019) This requires that materials containing PFAS that are designated for disposal are stored in accordance 40 C.F.R. § 264, the “Standards for Owners and Operators of Hazardous Waste TSDFs”.

<sup>242</sup> *Id.* § 330(a)(3).

<sup>243</sup> *Id.* § 330(a)(4) (The Solid Waste Disposal Act 42 U.S.C. § 6921 *et seq.*, is part of RCRA).

<sup>244</sup> 42 U.S.C. § 6924(a) (1996).

and requires DOD branches to treat PFAS as if it is already a listed hazardous waste for purposes of disposal and storage.<sup>245</sup> Until it is listed, PFAS still meets the statutory definition triggering non-hazardous waste storage and disposal requirements under RCRA.<sup>246</sup>

*E. PFAS & the Comprehensive Environmental Response, Compensation, and Liability Act*

CERCLA is the remedial tool within federal toxic substances law; it is designed to ensure the clean-up of contaminated sites throughout the country.<sup>247</sup> It is designed to work through two primary pathways: (1) by providing funding through the (now defunct) “Superfund,”<sup>248</sup> and (2) by giving the EPA considerable power to find potentially responsible parties and recover costs.<sup>249</sup> CERCLA also gives private parties causes of action to recover against other potentially responsible parties.<sup>250</sup> Liability under CERCLA is harsh; once triggered, it imposes retroactive, strict, joint and several liability on any potentially responsible party.<sup>251</sup> Although facially strict, the EPA has discretion to (and often does) take equity into account.<sup>252</sup> CERCLA also lets private parties and states bring “citizens suits” to enforce its provisions.<sup>253</sup>

<sup>245</sup> *Id.*; National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92, § 330(a)(4), 133 Stat. 1198, 1312 (2019).

<sup>246</sup> 42 U.S.C. § 6903(27) (2014).

<sup>247</sup> *Summary of the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)*, EPA, <https://www.epa.gov/laws-regulations/summary-comprehensive-environmental-response-compensation-and-liability-act> [<https://perma.cc/4QN3-BLWG>] (last visited Nov. 2, 2020).

<sup>248</sup> APPLGATE ET AL., *supra* note 63, at 537 (“[B]ecause of Congress’ refusal to authorize the tax, the fund ran dry in 2003.”). See also Bryan Anderson, *Taxpayer Dollars Fund Most Oversight and Cleanup Costs at Superfund Sites*, WASH. POST (Sept. 20, 2017), [https://www.washingtonpost.com/national/taxpayer-dollars-fund-most-oversight-and-cleanup-costs-at-superfund-sites/2017/09/20/aedcd426-8209-11e7-902a-2a9f2d808496\\_story.html](https://www.washingtonpost.com/national/taxpayer-dollars-fund-most-oversight-and-cleanup-costs-at-superfund-sites/2017/09/20/aedcd426-8209-11e7-902a-2a9f2d808496_story.html) [<https://perma.cc/RE2K-LNWR>] (“Since the Superfund taxes expired in 1995, the burden of paying the costs shifted dramatically. Today, most of the program’s funding comes through taxpayer dollars.”).

<sup>249</sup> 42 U.S.C. § 9601 *et seq.* (1980); *Summary of the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)*, *supra* note 247.

<sup>250</sup> 42 U.S.C. § 9607(a) (2018).

<sup>251</sup> *Superfund Liability*, EPA, <https://www.epa.gov/enforcement/superfund-liability> [<https://soundsgood.perma.cc/C2A6-FG79>] (last visited Nov. 2, 2020).

<sup>252</sup> Courts have enforced equitable principles upon CERCLA; for example, in *Arizona v. City of Tucson*, 761 F.3d 1005 (9th Cir. 2014), the district court held that to approve a CERCLA decree the court must conclude that (1) the agreement is procedurally and substantially (2) fair, (3) reasonable (4) and consistent with CERCLA’s objectives.

<sup>253</sup> *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*

There are four requisite elements to trigger CERCLA liability: (1) a release or threatened release, (2) of a hazardous substance, (3) from a facility, that (4) causes the incurrence of a response cost.<sup>254</sup>

The only factor at issue in the question of if PFAS triggers CERCLA liability is if PFAS qualify as hazardous substances.<sup>255</sup> While CERCLA grants authority for the EPA to explicitly name hazardous substances under Section 102(a), the section has not yet been utilized.<sup>256</sup> Instead CERCLA designated that hazardous substances are borrowed from other statutes.<sup>257</sup> According to the EPA “[t]here are multiple statutory mechanisms available to designate PFAS as CERCLA hazardous substances, including CERCLA, RCRA, TSCA, CWA, and [the] CAA.”<sup>258</sup> According to the EPA PFAS Action Plan, “[t]he EPA has initiated the regulatory development process for listing PFOA and PFOS as CERCLA hazardous substances,” but this has not yet happened to date.<sup>259</sup> The House has added a stipulation through an appropriation bill that forbids the EPA from withdrawing or backtracking the promulgation to list these two substances under CERCLA.<sup>260</sup>

If PFAS are designated as hazardous substances under CERCLA, a wide variety of implications will follow. Such a listing will potentially add hundreds of sites to the National Priorities List. If PFAS, or specific substances<sup>261</sup> become listed under CERCLA then huge amounts of money will be unlocked for clean-up projects through the ability to designate Superfund sites throughout the country.<sup>262</sup> Since some of these contaminated

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*and Federal Facilities*, EPA, <https://www.epa.gov/enforcement/comprehensive-environmental-response-compensation-and-liability-act-cercla-and-federal> [<https://perma.cc/HHL8-EJ9H>] (last visited Nov. 2, 2020).

<sup>254</sup> APPLGATE ET AL., *supra* note 63, at 527.

<sup>255</sup> PFAS ACTION PLAN, *supra* note 193, at 10.

<sup>256</sup> 42 U.S.C. § 9602(a) (1986) (PFAS would have marked the first time that the EPA has listed a hazardous substance under CERCLA rather than through one of the other statutes, but the section of the NDAA ordering the EPA to do so was struck by the conference committee); H.R. REP. NO. 116-333, at 1744 (2020) (“Designation as hazardous substances”).

<sup>257</sup> 42 U.S.C. § 9602 (1986).

<sup>258</sup> See PFAS ACTION PLAN, *supra* note 193.

<sup>259</sup> See *id.* at 42 (“Where PFAS contamination in the environment has already occurred, the Agency will facilitate remediation efforts by providing groundwater cleanup recommendations and initiating the regulatory development process for listing certain PFAS as hazardous substances.”).

<sup>260</sup> H.R. 7608, 116th Cong. § 501 (2020).

<sup>261</sup> Likely substances include PFOA, PFOS, PFNA, and Gen-X.

<sup>262</sup> Rebecca Beitsch, *Defense Department Says “Forever Chemical” Cleanup Costs will Dwarf Earlier Estimates*, HILL (Sept. 12, 2019), <https://thehill.com/policy/energy-environ>

sites are decades old, this could be one of the most significant actions to address PFAS contamination. The designation of PFAS sites on the National Priorities List could create billions of dollars in liability for property owners, and chemical manufacturers.<sup>263</sup> In litigation, Chemours' PFAS liability alone was estimated to be over \$2.5 billion dollars.<sup>264</sup> The strict, joint and several, retroactive liability of CERCLA is uncompromising in its application of liability and about as far from the implementation of liability under the common law of toxic torts, currently used to address PFAS, as it is legally possible.

1. Although the Listing of All PFAS Under CERCLA Was Struck in Committee, the NDAA Still Ambiguously Authorizes CERCLA for Addressing PFOA and PFOS

The NDAA introduces an ambiguity in one section that authorizes the use of CERCLA. Section 316 edits Title 10, Section 2707 of the United States Code<sup>265</sup> by adding a clause stating, “the Secretary concerned may use funds described in subsection (c) to carry out an environmental restoration project at a facility in response to perfluorooctanoic acid (PFOA) or perfluorooctane sulfonate (PFOS) contamination under this chapter or CERCLA.”<sup>266</sup>

Title 10 of the United States Code deals generally with the DOD and the Armed Forces.<sup>267</sup> Section 2707 covers “environmental restoration projects for environmental responses” and creates a fund for environmental restoration and clean-up projects—the DERP.<sup>268</sup> The section also authorizes the “Secretary of Defense or the Secretary of a military department” to use the DERP or CERCLA to pursue such projects.<sup>269</sup> The relevant Secretaries have historically used these two sources of authorization in tandem to undertake clean-up projects of hazardous materials.<sup>270</sup>

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ment/461171-dod-says-forever-chemical-cleanup-costs-will-dwarf-earlier [https://perma.cc/FZC5-QUEP] (The Department of Defense estimates that it will cost billions of dollars for PFAS clean-up projects mandated through the NDAA alone).

<sup>263</sup> Carignan, *supra* note 83.

<sup>264</sup> *Id.*

<sup>265</sup> National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92, § 316, 133 Stat. 1198, 1304 (2019).

<sup>266</sup> *Id.* § 316(a) (emphasis added).

<sup>267</sup> 10 U.S.C. § 111 *et seq.* (1986).

<sup>268</sup> *Id.* §§ 2701–2707 (2019).

<sup>269</sup> *Id.*

<sup>270</sup> See Loughlin v. United States, 286 F. Supp. 2d 1, 5 (D.D.C. 2003), *aff'd.*, 393 F.3d 155

Several issues arise from the wording of this section when applied to how the Secretaries have used the section in the past. Congress here explicitly authorizes the Secretary of Defense, and the various Secretaries of the Armed Forces to use CERCLA to clean up contamination from PFOA and PFOS.<sup>271</sup> In order to make a claim under CERCLA there must be a “hazardous substance”.<sup>272</sup> To date, while the EPA has said they are working on listing PFAS, such a listing has not been promulgated at this time.<sup>273</sup>

This could be read to mean that Congress is requiring the EPA to list PFOA and PFOS under CERCLA itself.<sup>274</sup> Although a broader clause requiring the EPA to “designate all per- and polyfluoroalkyl substances as hazardous substances under section 102(a) of [CERCLA]” was struck in the reconciliation committee, this section only refers to two compounds in the PFAS class.<sup>275</sup> This reading is also supported by the bipartisan amendment to House Resolution 7608 forbidding the EPA from backtracking such a listing. If this is the case, it is an implied rather than an explicit mandate and the EPA could designate PFOA and PFOS in several ways to make the clause operative. When interpreting a statute generally there is “no need to refer to the legislative history where the statutory language is clear.”<sup>276</sup> Here, the wording in Section 316 is ambiguous.

The structure of CERCLA is fundamentally different than any other environmental statute. It is a remedial law that assigns liability

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(D.C. Cir. 2004) (“This project was conducted under the authority of the Defense Environmental Restoration Program (DERP), 10 U.S.C. §§ 2701–2707, and Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601 *et seq.*”); *W.C. & A.N. Miller Companies v. United States*, 963 F. Supp. 1231, 1234 (D.D.C. 1997) (“The Army promptly assumed responsibility for the situation and conducted a response action pursuant to the Defense Environmental Restoration Act, 10 U.S.C. §§ 2701–07, and the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 *et seq.*”).

<sup>271</sup> 10 U.S.C. § 2707 (2019).

<sup>272</sup> 42 U.S.C. § 9607 (2018).

<sup>273</sup> *EPA Announces Proposed Decision to Regulate PFOA and PFOS in Drinking Water*, EPA (Feb. 20, 2020), <https://www.epa.gov/newsreleases/epa-announces-proposed-decision-regulate-pfoa-and-pfos-drinking-water> [<https://perma.cc/9K3B-9RPH>].

<sup>274</sup> Facially this would seem to cut against the legislative history, however the struck listing provision was not for PFOA/S but for the entire class of four to six thousand PFAS. H.R. REP. NO. 116-333, at 1744 (“House amendment contained a provision (sec. 330(O)) that would have required the Administrator of the Environmental Protection Agency to designate all per- and polyfluoroalkyl substances as hazardous substances under section 102(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9602(a).”); H.R. 7608, 116th Cong. § 501 (2020).

<sup>275</sup> H.R. REP. NO. 116-333, at 1744.

<sup>276</sup> *Ex parte Collett*, 337 U.S. 55, 61 (1949).

and allows for recovery of clean-up costs. Unlike other parts of the NDAA where Congress could reference other statutes like the CAA and order the DOD to simply act as if PFAS had been listed when dealing with the substances, but without requiring the EPA to list them, here that is not sufficient. In order to trigger CERCLA, there must be a release or a threatened release of a hazardous substance.<sup>277</sup>

However, it is possible that Congress did not intend the EPA to act through CERCLA for such a designation—the last clause in Section 316 states that “[n]othing in this section, or the amendments made by this section, shall affect any requirement or authority under [CERCLA].”<sup>278</sup> Alternatively, Congress may not have viewed the addition of PFOA and PFOS as “a requirement or authority” in light of the EPA explicitly naming the two substances at issue as in the process of being listed as hazardous substances under CERCLA.<sup>279</sup> The legislative history does not clarify the issue as there is no reference to the CERCLA clause from the House,<sup>280</sup> or Senate reports on the section.<sup>281</sup> There are a couple possibilities for how Congress may have meant these ambiguous clauses to work and how they could be used.

First—the status quo situation—the “or CERCLA” clause is unenforceable, or without meaning until the EPA lists PFOA and PFOS as hazardous substances. At that time, the clause will kick in and create a cause of action for the Secretaries of the Armed Forces under CERCLA. This interpretation fails the canon against surplusage, which states that Congress does not include words without purpose.<sup>282</sup> It also cuts against the plain meaning rule that a statute must be interpreted at its plain meaning; the Ninth Circuit has held this is the most authoritative of all the canons.<sup>283</sup>

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<sup>277</sup> APPLGATE ET AL., *supra* note 63, at 584.

<sup>278</sup> National Defense Authorization Act of Fiscal Year 2020, Pub. L. No. 116-92, § 316(d), 133 Stat. 1198, 1304 (2019).

<sup>279</sup> *PFAS Laws and Regulations*, *supra* note 73.

<sup>280</sup> H.R. REP. NO. 116-120, at 118 (2019).

<sup>281</sup> H.R. REP. NO. 116-48, at 118 (2019).

<sup>282</sup> *In re Shek*, 947 F.3d 770, 777 (11th Cir. 2020) (“[W]e must attempt to give effect to every word or provision[.]” (citing *Hibbs v. Winn*, 542 U.S. 88, 101 (2004) (“[A] statute should be construed so that effect is given to all its provisions, so that no part will be inoperative or superfluous, void or insignificant.”))).

<sup>283</sup> *McDonald v. Sun Oil Co.*, 548 F.3d 774, 780 (9th Cir. 2008) (“The preeminent canon of statutory interpretation requires us to ‘presume that [the] legislature says in a statute what it means and means in a statute what it says there.’ Thus, our inquiry begins with the statutory text, and ends there as well if the text is unambiguous”) (quoting *BedRoc Ltd., LLC v. United States*, 541 U.S. 176, 183 (2004)).

If Congress is amending a statute saying that the DOD may use CERCLA to clean up contamination from PFOA and PFOS, then under the plain meaning rule we should assume that Congress meant what it said.

Second, it could be read to create limited CERCLA applicability: the clause gives the DOD a cause of action but limits CERCLA recovery to only DOD plaintiffs. This facially seems very unlikely as it cuts against how CERCLA functions. All costs are recoverable under CERCLA if they are “not inconsistent with the national contingency plan,” under which the EPA lists sites to the National Priority List, and implements removal and remedial actions, the cost of such actions fulfill the response cost requirement to trigger liability against potentially responsible parties.<sup>284</sup> There are several issues raised here: (1) How could the DOD use CERCLA to clean up PFOA or PFOS if sites contaminated by the two substances are not incorporated into the national contingency plan? (2) How can the DOD use CERCLA at all if the PFOA and PFOS are not hazardous substances?<sup>285</sup> (3) Is the statute allowing DOD plaintiffs to recover, but not private parties or the EPA? If so, how does that work without undermining the entire statute?

A third reading could be that this clause expands CERCLA to include PFOA and PFOS and, albeit in a roundabout way, acts as a listing by Congress or an assumption by Congress that the substances are hazardous. For the DOD to be able to use CERCLA to clean up PFOA and PFOS, the standard CERCLA requirements would need to apply, including that the substances in question are hazardous substances for the purposes of CERCLA. Without that implied link the authorization is meaningless.

The EPA has released statements saying it is planning to list PFOA and PFOS and Congress elsewhere in the NDAA treats PFOA and PFOS as if they are listed “hazardous materials” when referring to RCRA, SDWA, the CAA, and TSCA. Section 101(14) of CERCLA incorporates substances regulated under other statutes as hazardous under CERCLA.<sup>286</sup>

The statute facially seems to treat PFOA and PFOS as listed. It could be that Congress, through treating these substances as de facto

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<sup>284</sup> 42 U.S.C. § 9607(a)(4)(A) (2018).

<sup>285</sup> *Comprehensive Environmental Responses, Compensation, and Liability Act (CERCLA) and Federal Facilities*, EPA, <https://www.epa.gov/enforcement/comprehensive-environmental-response-compensation-and-liability-act-cercla-and-federal> [<https://perma.cc/56SV-46MP>] (last visited Nov. 2, 2020) (A finding of a Hazardous Substance is necessary condition to trigger CERCLA liability).

<sup>286</sup> 42 U.S.C. § 9601(14) (2018).

hazardous substances and relying on the EPA's explicit statements of intent to list them, felt it unnecessary to require their listing here, in a section whose purpose is to expand recoverability to include the most affected plaintiffs—the DOD—which must be done affirmatively.

If treated as a listing of PFOA and PFOS, this would not rise to a change in a “requirement” or “authority” under CERCLA triggering the savings clause. The Administrator of the EPA has a nondiscretionary duty to list hazardous substances.<sup>287</sup> Congress, relying on the Administrator to fulfill such duties, does not impose new statutory requirements or change existing authorities.

If Congress is amending a statute saying that the DOD may use CERCLA to clean up contamination from PFOA and PFOS, then under the plain meaning rule Congress is saying what it means.<sup>288</sup> If these substances are not hazardous substances for purposes of CERCLA, the “or CERCLA” clause becomes “superfluous, void or insignificant,” a reading of a statute the Supreme Court has said should be avoided.<sup>289</sup>

This seems the most equitable reading. It is unlikely that Congress intended to create two tiers of protection based on civilian/non-civilian status or proximity to a military base, or that Congress amended a statute to include language that authorizes the DOD to use one of the strongest legislative tools to clean up hazardous substances superfluously.<sup>290</sup>

If any of these, or some other interpretation, is what was meant by Congress, then it is an open question of law since there is no legislative history debating this clause. Since the edited statute is administered by the DOD, interpretations triggering deference would be those made by the DOD itself. It is unclear what will happen if the DOD reads the statute to mean they can recover against potentially responsible parties under CERCLA if the EPA considers the substances Congress has authorized recovery for to not be covered by CERCLA.<sup>291</sup>

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<sup>287</sup> 42 U.S.C. § 9602(a) (1986) (“The Administrator shall promulgate and revise as may be appropriate, regulations designating as hazardous substances . . . substances which, when released into the environment may present substantial danger to the public health or welfare or the environment[.]”).

<sup>288</sup> See *In re Shek*, 947 F.3d 770, 777 (11th Cir. 2020).

<sup>289</sup> See *Hibbs v. Winn*, 542 U.S. 88, 101 (2004).

<sup>290</sup> Without opining on the equal protection doctrine issues potentially raised by such a reading.

<sup>291</sup> In such a scenario, EPA will be interpreting another agency's statute authorizing use of a statute administered by EPA. While it is likely the DOD would be entitled to Chevron deference for the interpretation of the NDAA it is unclear what deference the courts would give the EPA.

These questions could be easily resolved by Congress<sup>292</sup> or the EPA.<sup>293</sup> However, there is a strong possibility that it will be left to the judicial branch to define its meaning.

*F. Any One of These Statutes May Pose a Nondiscretionary Duty for EPA to Act Under Their Current Authority*

Regardless of ambiguities raised in how Section 316 of the NDAA interacts with DERP and CERCLA, the EPA currently has the authority to act under any one of the above mentioned environmental laws.<sup>294</sup> Congress has declared it “the policy of the United States that there should be no discharge of . . . hazardous substances into or upon the [states’] navigable waters.”<sup>295</sup>

For example, under the CWA, “the Administrator shall develop, promulgate, and revise as may be appropriate, regulations designating as hazardous substances . . . such elements and compounds . . . which . . . present an imminent and substantial danger to the public health or welfare.”<sup>296</sup> Under RCRA, “the Administrator shall list a solid waste as a hazardous waste,”<sup>297</sup> if it meets one of a number of criteria including significantly contributing to increase in significant illnesses.<sup>298</sup> And, under CERCLA, “the Administrator shall promulgate and revise as may be appropriate, regulations designating as hazardous substances . . . elements, compounds, mixtures, solutions, and substances which, when released

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<sup>292</sup> This will become superfluous if any of the PFAS bills in the Congress are passed, although this is unlikely due to Senate opposition.

<sup>293</sup> EPA could list PFAS as a hazardous substance under any of several ways discussed *supra* Section V.E.1.

<sup>294</sup> See PFAS ACTION PLAN, *supra* note 193.

<sup>295</sup> 33 U.S.C. § 1321(b)(1) (2018).

<sup>296</sup> *Id.* § 1321(b)(2)(A).

<sup>297</sup> 40 C.F.R. § 261.11(a) (1992).

<sup>298</sup> *Id.* (“[The compound] has been shown in studies to have an oral LD 50 toxicity (rat) of less than 50 milligrams per kilogram, an inhalation LC 50 toxicity (rat) of less than 2 milligrams per liter, or a dermal LD 50 toxicity (rabbit) of less than 200 milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness. (Waste listed in accordance with these criteria will be designated Acute Hazardous Waste.)”). While current studies of PFAS do not meet the bright line 50mg/kg threshold they have been shown to cause “an increase in serious irreversible, or incapacitating reversible illness” including Cancers, Hepatic effects, cardiovascular, endocrine immune, reproductive and birth effects. See U.S. DEP’T OF HEALTH & HUM. SERV., AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, TOXICOLOGICAL PROFILE FOR PERFLUOROALKYLS 25–26 (June 2018), <https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf> [<https://perma.cc/3425-WPZR>].

into the environment may present substantial danger to the public health or welfare or the environment.”<sup>299</sup> All of these statutes state that the Administrator of the EPA *shall* list hazardous or toxic substances—creating a nondiscretionary duty for the EPA to act.<sup>300</sup> PFAS have met the statutory threshold to trigger any of these specific nondiscretionary duties: PFAS are contributing to an increase in significant illnesses, PFAS are “otherwise capable of causing or significantly contributing to an increase in serious illness,” and PFAS “may present substantial danger to public health or welfare.” There is a vast array of scientific literature showing that PFAS pose the very threats these statutes were passed to protect the public against.<sup>301</sup>

## CONCLUSION

PFAS are a “seminal public health challenge[.]”<sup>302</sup> The EPA wrote twenty years ago that “continued manufacture and use of PFOS represents an unacceptable technology that should be eliminated to protect human health and the environment from potentially severe long-term consequences.”<sup>303</sup> Instead, their use was accelerated and it is now known that it is not just PFOS that bears these consequences. Despite knowing about the harms for over two decades in May 2020, the EPA has continually failed to address the harms posed by PFAS.

There is consensus in the scientific community regarding the harm caused by the acute toxicity, pervasiveness, and longevity of PFAS.<sup>304</sup> Hundreds of scientists, after extensive reviews of the scientific literature, released the 2014 Helsingør<sup>305</sup> and 2015 Madrid Statements,<sup>306</sup> calling on

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<sup>299</sup> 42 U.S.C. § 9602(a) (1986).

<sup>300</sup> *See id.*; *see also* McDonald v. Sun Oil Co., 548 F.3d 774, 780 (9th Cir. 2008); *In re Shek*, 947 F.3d 770, 777 (11th Cir. 2020).

<sup>301</sup> *See Basic Info on PFAS*, *supra* note 18.

<sup>302</sup> *See* Christopher Knaus, *Toxic Firefighting Chemicals ‘The Most Seminal Public Health Challenge’*, *GUARDIAN* (Oct. 18, 2017), <https://www.theguardian.com/australia-news/2017/oct/18/toxic-firefighting-chemicals-the-most-seminal-public-health-challenge> [<https://perma.cc/97JJ-PZ7U>]; Lerner, *supra* note 99.

<sup>303</sup> Knaus, *supra* note 25.

<sup>304</sup> *See The Madrid Statement*, GREEN SCI. POL'Y INST. (2015), <https://greensciencepolicy.org/madrid-statement/> [<https://perma.cc/Q6MG-XCW6>] (last visited Nov. 2, 2020).

<sup>305</sup> Co-authored by PFAS researchers from the United States, the U.K., the Netherlands, Sweden, Denmark, and Switzerland and published in the journal *Chemosphere*. Martin Scheringer et al., *Helsingør Statement on Poly- and Perfluorinated Alkyl Substances (PFASs)*, 114 *CHEMOSPHERE* 337, 337 (2014).

<sup>306</sup> *The Madrid Statement*, *supra* note 304.

governments to act.<sup>307</sup> Addressing PFAS contamination is compounded by the longevity of the substances, and it is often slow to realize chronic and multifaceted health problems caused by them. PFAS that leached into the environment decades ago can cause a wide variety of health problems including cancers, thyroid disease, ulcerative colitis, and immune diseases.<sup>308</sup> While state-based measures are being taken to begin to address these issues, federal facilities are some of the most effected, and conservative clean-up cost estimates are in billions of dollars.<sup>309</sup>

The standard issues of toxic torts and toxic substance law are magnified in PFAS by the sheer size of the class, its ubiquity, longevity, and the chronic health effects it causes over time. “If we wait until we have a mountain of evidence for each PFAS before we regulate, it will be thousands of years before we address the problem since there are more than 4,700 of them.”<sup>310</sup> The size of the class creates a unique problem with the compound by compound regulation structure of most environmental

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<sup>307</sup> See Arlene Blum et al., *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, 123 ENV'T HEALTH PERSP. A107 (2015) (“[w]e therefore urge . . . governments . . . to take the following actions: . . . 1. Enact legislation to require only essential uses of PFASs and enforce labeling to indicate uses. 2. Require manufacturers of PFASs to a. conduct more extensive toxicological testing, b. make chemical structures public, c. provide validated analytical methods for detection of PFASs, and d. assume extended producer responsibility and implement safe disposal of products and stockpiles containing PFASs. 3. Work with industry to develop public registries of products containing PFASs. 4. Make public annual statistical data on production, imports, and exports of PFASs. 5. Whenever possible, avoid products containing, or manufactured using, PFASs in government procurement. [and] 6. In collaboration with industry, ensure that an infrastructure is in place to safely transport, dispose of, and destroy PFASs and PFAS-containing products, and enforce these measures.”); Scheringer, *supra* note 305; see also Jennifer Sass, *Senate Should Retain PFAS Provisions in Defense Bill*, NAT'L RES. DEF. COUNCIL (Sept. 24, 2019), <https://www.nrdc.org/experts/jennifer-sass/senate-should-retain-pfas-provisions-defense-bill> [<https://perma.cc/PR34-XKA2>].

<sup>308</sup> See *Technical Fact Sheet—Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic (PFOA)*, EPA (2017), [https://www.epa.gov/sites/production/files/2017-12/documents/ffrro\\_factsheet\\_contaminants\\_pfos\\_pfoa\\_11-20-17\\_508\\_0.pdf](https://www.epa.gov/sites/production/files/2017-12/documents/ffrro_factsheet_contaminants_pfos_pfoa_11-20-17_508_0.pdf) [<https://perma.cc/QJ8T-FZAG>]; see also Kyle Steenland et al., *Ulcerative Colitis and Perfluorooctanoic Acid (PFOA) in a Highly Exposed Population of Community Residents and Workers in the Mid-Ohio Valley*, 121 NAT'L CTR. FOR BIOTECHNOLOGY INFO. 900, 900 (2013).

<sup>309</sup> See, e.g., Ellen Knickmeyer, *\$2 Billion Cost to Clean up Water Contamination at Military Bases, Defense Official Says*, MIL. TIMES (Mar. 6, 2019), <https://www.militarytimes.com/news/pentagon-congress/2019/03/07/2-billion-cost-to-clean-up-water-contamination-at-military-bases-defense-official-says/> [<https://perma.cc/9AZE-W566>]; Joce Sterman & Alex Brauer, *Cleaning up Toxic PFAS on Military Bases Could Take Decades, Cost Billions*, WJLA (Feb. 10, 2020), <https://wjla.com/news/spotlight-on-america/cleaning-up-toxic-pfas-on-military-bases-could-take-decades-cost-billions> [<https://perma.cc/Q3YQ-QCVM>].

<sup>310</sup> Sass, *supra* note 307.

statutes. However, addressing the thousands of functional homologues of PFAS individually will create a “whack-a-mole” problem defeating regulation before it even begins.

There are a wide variety of ways that PFAS can be addressed without a change in federal law. States can set health-based exposure limits through state departments of environment and health at, or safer, than the limits set by EPA.<sup>311</sup> States like Virginia,<sup>312</sup> with broad definitions of “waters,”<sup>313</sup> can set concentration limits for industrial facilities to limit PFAS contamination of surface, ground, and drinking water more consistently than EPA. Vermont has gone beyond these steps and initiated an administrative notice and comment process to regulate all PFAS compounds as a class.<sup>314</sup> The state is requiring the Vermont Secretary of Natural Resources to undertake a statewide investigation of contamination sources and submit both a classwide regulation proposal by 2021 and water quality standards by 2020.<sup>315</sup>

The provisions of the 2020 NDAA requiring the USGS to monitor surface and groundwater, soils and wells;<sup>316</sup> the provision requiring states to monitor PFAS under the Safe Drinking Water Act’s Unregulated Contaminant Monitoring Rule;<sup>317</sup> and provisions requiring the DOD to share monitoring data with municipalities, will provide support and mandates that will make state actions easier.<sup>318</sup> States should take full advantage of these provisions and use them as a base from which to implement more comprehensive regulations.

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<sup>311</sup> See *Bill Tracker, Toxic/Issue: PFAS*, *supra* note 74.

<sup>312</sup> VA. CODE ANN. § 62.1-10(a) (1989) (“‘Water’ includes all waters, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction and which affect the public welfare.”).

<sup>313</sup> See *Navigable Waters Protection Rule*, EPA, <https://www.epa.gov/nwpr> [<https://perma.cc/L8PD-UT59>] (last visited Nov. 2, 2020).

<sup>314</sup> 2019 Vt. Acts & Resolves 1402. This will make Vermont the first state to regulate PFAS class-wise rather than compound by compound.

<sup>315</sup> *Id.* The adopted water quality MCL is 20 ng/l for five PFAS (PFOA, PFOS, PFHxS, PFHpA, and PFNA) the sum of which cannot exceed 20 ng/l. *PFAS Draft Final Response Plan*, VT. AGENCY NAT. RES., <https://dec.vermont.gov/water/drinking-water/water-quality-monitoring/pfas> [<https://perma.cc/6ZFU-7N4H>] (last visited Nov. 2, 2020).

<sup>316</sup> See Peter Fontaine & Marcia Mulkey, *Congress Passes Federal PFAS Legislation in Defense Authorization Act*, JD SUPRA (Dec. 20, 2019), <https://www.jdsupra.com/legalnews/congress-passes-federal-pfas-10656/> [<https://perma.cc/TG2L-WR35>].

<sup>317</sup> See Mary Tiemann & Elena H. Humphreys, *Regulating Drinking Water Contaminants: EPA PFAS Actions*, CONG. RSCH. SERV. (Feb. 26, 2020), <https://crsreports.congress.gov/product/pdf/IF/IF11219> [<https://perma.cc/8JWF-7NDR>].

<sup>318</sup> See *PFAS Federal Legislation*, *supra* note 22.

The EPA can and should follow through on their own plans to monitor and regulate PFAS. Under their current authority, the EPA can promulgate rules to classify PFAS as a hazardous toxic substance under any of a number of environmental statutes including: the CAA, CWA, TSCA, RCRA, and CERCLA.<sup>319</sup> Such a listing would trigger significant protections for communities and create a way forward for affected communities' clean-up efforts beyond class action lawsuits and common-law toxic tort recoveries.

The EPA in their PFAS Action Plan claims that they have started the process to list at least two PFAS (PFOA and PFOS) to initiate the clean-up of contaminated sites under CERCLA.<sup>320</sup> However, to date no such listing has occurred. The failures of the EPA to address this class of chemicals under any of the five statutes that the agency has admitted authorize the listing may constitute an Administrator failure to undertake nondiscretionary duties. While the DOD has already recognized PFAS as hazardous and is treating PFAS as hazardous under these statutes, the EPA has fallen behind on the implementation of their own statutes and mission.

It is unclear how the clause "or CERCLA" will apply at the end of the section primarily devoted to authorizing PFOA and PFOS clean-up under the DERP and expanding DERP funding to the National Guard. The history of the DOD bringing clean-up actions under DERP and CERCLA in tandem, the canon against surplusage, the plain meaning rule, and equity support that this clause should be read as an authorization by Congress authorizing PFOA and PFOS clean up under CERCLA.

While the NDAA marks the first Congressional entrance into regulating PFAS and can be used a starting point to implement and build a cohesive regulatory response, states unilaterally continue to take the lead in addressing this nationwide issue. This act sets the stage for more states to act while also creating several questions of law under existing environmental regimes.

The thousands of PFAS compounds are united by similar structures and properties that allow them to persist and move quickly through the environment.<sup>321</sup> There is an increasing body of literature classifying

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<sup>319</sup> See *PFAS Laws and Regulations*, *supra* note 73.

<sup>320</sup> PFAS ACTION PLAN, *supra* note 193, at 3, 28.

<sup>321</sup> See XiaoZhi Lim, *Tainted Water: The Scientists Tracing Thousands of Fluorinated Chemicals in our Environment*, NATURE (Feb. 6, 2019), <https://www.nature.com/articles/d41586-019-00441-1#:~:text=26%20March%202019-,Tainted%20water%3A%20the%20scientists%20tracing%20thousands%20of%20fluorinated%20chemicals%20in,clothes%2>

the myriad health hazards, including cancer, of the “forever chemicals” and yet the majority of their class remains unknown, untracked, and unstudied.<sup>322</sup> Lacking federal guidance, in order to ensure the health and safety of millions of Americans, it has fallen on the states and courts to start testing regimes, clean-up, and remediation. While a handful of the most egregiously affected areas have brought successful claims, PFAS are a prevalent nationwide problem that is not abating anytime soon. To address the contaminations from decades of manufacture and use, states and the federal government need to build on the traction started by the NDAA to ensure the health and safety of the millions of people whom already have forever chemicals in their air, in their water, and in their blood.

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C%20foams%20and%20food%20wrappings [https://perma.cc/C36N-TZEG]; see *Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)*, NAT'L INST. ENV'T HEALTH SCI., <https://www.niehs.nih.gov/health/topics/agents/pfc/index.cfm> [https://perma.cc/SE27-PJVB] (last updated Sept. 3, 2020).

<sup>322</sup> See Tom Perkins, *The 'Forever Chemicals' Fueling a Public Health Crisis in Drinking Water*, GUARDIAN (Feb. 3, 2020), <https://www.theguardian.com/society/2020/feb/03/pfas-forever-chemicals-what-are-they> [https://perma.cc/VW8Q-H5UT].