ARTICLES

The Forever Chemical: Man's Greatest Achievement or Greatest Horror?

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"Forever Chemicals" or PFAs are found in common household items that we use every day. Studies have also found PFAs in the water, soil, the air, and our bodies. PFAs are called forever chemicals because they are extremely resistant to breaking down in a natural environment. The government has known for years that PFAs are dangerous to public health and the environment but has done little to stop production of PFAs or initiate clean-up of known contamination sites. This article will explore the EPA's attempt to regulate PFAs through the Toxic Substances Control Act ("TCSA") and the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). It will also examine the effect of the Major Questions Doctrine on the implementation of these regulations.

This article will discuss two ongoing cases and two previous cases regarding PFAs. The first case involves a class action suit filed by firefighters exposed to PFAs while using foam created with PFAs to fight fires. The second case is a class action suit involving the discharge of perfluorinated compounds into the local water supply in Fayetteville, North Carolina. The monumental case that brought the dangers of PFAs to the public's attention is a case initiated by a farmer in West Virginia. Wilbur Tenant filed a lawsuit against Dupont because of the odd manner in which his cows were dying. His farm was located in proximity to a facility owned by Dupont. The parties settled this case in 2004, and it was the first time a chemical creator was held accountable for damages related to PFA contamination. In South Carolina, chemical companies settled a lawsuit for claims arising from contaminated water with local water utilities. As litigations continued, the chemical companies will continue to use the Major Questions Doctrine as a shield to liability for claims arising from damages caused by PFAs.

INTRODUCTION

This analysis will explore the viability of the Environmental Protection Agency's ("EPA") regulatory attempts of "forever chemicals," while also discussing the Major Questions Doctrine and the role it might play when regulations are challenged. While it is not unreasonable to think an agency could regulate a dangerous chemical— that is not always the case, and sometimes the process takes a more careful approach. Sometimes, the more careful approach is straightforward by agencies publishing rules; other times, it is riddled with litigation and strife. This analysis will examine the EPA using this through the lens of the Major Questions Doctrine. The EPA, under the stewardship of the current director, Micheal Regan, laid out its approach to

regulating the "forever chemicals" in a document called "The PFA Strategic Roadmap". The plan details how the EPA is going to regulate these chemicals under various statutes, such as the "Safe Drinking Water Act," and others.[1]

This paper will center around two statutes named by the EPA: the Toxic Substances Control Act ("TCSA") and the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). The TCSA bases regulations on testing and reporting data of dangerous chemicals.[2] Under the TCSA, the EPA is planning to develop a more in-depth testing process for PFAs, with the ultimate goal being prevention of dangerous chemicals through commerce.[3] The second approach the EPA is taking is designating forever chemicals under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA").[4] CERCLA "permits the EPA to go and find potentially responsible parties (PRP) for environmental contamination and compel them to perform adequate cleanup or pay damages for the cleanup of contaminated sites."[5]

The Major Questions Doctrine became a heavily contested precedent through the recent Supreme Court decision in *West Virginia v. EPA*. In this decision, the Court struck down a regulation promulgated by the EPA.[6] Scholars continue to debate its origin; whether the Court created the Doctrine within in the case or if it existed before the decision was rendered. The Doctrine considers whether an agency action is of major political significance, or of major economic impact, and is made with congressional delegated authority. The Doctrine's analysis will scrutinize how, and if, the EPA can regulate "forever chemicals" currently or if there is no means of regulation on how best to proceed.

This analysis will begin with a brief discourse on the chemicals themselves and the effect the world is seeing from their use and introduction into the environment. As a final foreword, the ultimate purpose is a call to the Government to take action as the danger of these chemicals is growing and will only continue.

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1 *PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024 (2021)*, Env't. Prot. Agency, https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024 (last visited Feburary 25, 2025).

2 15 U.S.C. § 2603 (2023).

3 *Id.*

4 42 U.S.C. §§ 9601-9628 (2023).

5 *Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)*, Legal Information Institute, https://www.law.cornell.edu/wex/comprehensive_environmental_response_compensation_and_liability_act_(cercla) (last visited Feburary 25, 2025).

6 West Virginia v. EPA, 142 S. Ct. 2587 (2022).

Brief Overview & History of PFAS

The "Forever Chemicals" are a line of chemicals that were lab-created, and since their creation they have proven to be very resilient in many environments.[7] These chemicals are chains of carbon atoms linked to fluorine atoms, which in turn, create a variety of potent polymers and non-polymers.[8] This linkage of atoms creates a substance that is "extremely stable, they resist high temperature and degradation and most notably, they repel both grease and water."[9] The bond created by this linkage of atoms is one of the strongest the world has ever observed, making the chemicals "extremely resistant to degradation in the natural environment (in the water, the soil, the air, our bodies)."[10] Some of these chemicals have been given a half-life of over 1,000 years in the soil.[11] For perspective, the half-life is "the time it takes for the concentration of a chemical in a medium (water, soil, human body) under certain conditions to have decreased by 50%."[12] Meaning that the chemical is not gone in 1,000 years but is reaching a measurable decrease in its life.[13]

There are two categories most of the chemicals are divided into: long chain and short chain. Each chain defines how many atoms are bonded together for that chemical variant.[14] Most of the short-chain chemicals are made up of 2 to 6 atoms linked together, allowing them to be more mobile and reactive.[15] The long-chain chemical variants are composed of 7 to 13 atoms, which create a variety of effects, such as longer lives and more durability.[16]

The "forever chemicals" emerged before World War II—in the 1930s. After the war, the chemicals began to be produced in exponential numbers.[17] In 1947, a company, 3M, began to mass produce "PFOA," a precursor and variant of the forever chemicals.[18] Not long after, DuPont began to use the same type of chemical to manufacture one of the most common household

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7 Dr Julie Schneider, *PFAS the 'Forever Chemicals Invisible threats from persistent chemicals*, CHEM Trust (2019) https://chemtrust.org/wp-content/uploads/PFAS_Brief_CHEMTrust_2019.pdf.

8 *Id.*

9 *Id.*

10 *Id.*

11 *Id.*

12 *Id.*

13 *Id.*

14 *The Science* (2023), Fidra, https://www.pfasfree.org.uk/about-pfas/pfas-science-the-basics (last visited February 25, 2025).

15 *Id.*

16 *Id.*

17 Interstate Technology Regulatory Council, *History and Use of Per- and Polyfluoroalkyl Substances (PFAS) found in the Environment* (2022), https://pfas-1.itrcweb.org/wp-content/uploads/2022/09/HistoryandUse PFAS_Fact-Sheet_090722_508.pdf; Amy Lin, *Toxic timeline: A brief history of PFAS*, Searchlight New Mexico (Feb. 19, 2019), https://searchlightnm.org/toxic-timeline-a-brief-history-of-pfas/ (last visited Feb. 25, 2025).

18 Amy Lin, *Toxic timeline: A brief history of PFAS*, Searchlight New Mexico (Feb. 19, 2019), https://searchlightnm.org/toxic-timeline-a-brief-history-of-pfas/ (last visited Feb. 25, 2025).

items in the world, Teflon.[19] As the production and use of chemicals became more abundant, companies began to discover other uses for them. For example, in 1953, when a worker at the 3M plant spilled some of the chemicals on his tennis shoes, the coating left behind repelled both oil and water, and a new purpose was found for the "forever chemical".[20] New-found uses for the chemicals would not stop there—companies continued to create new variants and use for the group of chemicals.

During the 1960s, 3M and the Navy developed a foam used to fight fires, which was called "aqueous film-forming foam" ("AFFF"). This foam smothered out fires on board ships and was produced from "forever chemicals".[21] This foam will arise again in a later section of this paper as it has sparked litigation as of recently. By the 1970s, AFFF was used in multiple sectors, such as civilian airports and firefighter training, all while 3M discovered the dangerous nature of the chemicals.[22] In the 1980s, the Navy and 3M discovered the chemical compounds were dangerous to the "aquatic life," and was found in the blood of some of the workers exposed to the chemicals.[23] DuPont, during this same time period, made a startling discovery: two of the pregnant workers exposed to these chemicals had a substantial amount of the chemicals in their blood and gave birth to children with similar defects.[24] In 1999, the world first learned of the threat of "forever chemicals" within Wilbur Tennant's lawsuit for the death of his cows.[25] Mr. Tennant's farm had been close to a waste site owned by DuPont. The company disposed of chemicals that leached into the local water supply.[26]

In 2016, the EPA released test results that showed levels of PFAs over the recommended exposure in the water supply of 5.2 million Americans across 19 states.[27] In 2018, the Environmental Working Group acquired data from the EPA ,which was funded by taxpayers but not released, "showing that up to 110 million Americans may have PFAS-contaminated tap water."[28]

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19 *Id.*

20 *Id.*

21 *Id.*

22 *Id.*

23 *Id.*

24 Bill Walker, *EWG and Toxic Fluorinated Chemicals: 20 Years in the Fight Against PFAS*, EWG (July 24, 2019), https://www.ewg.org/news-insights/news/ewg-and-toxic-fluorinated-chemicals-20-years-fight-against-pfas (last visited Feb. 25, 2025).

25 Amy Lin, *Toxic timeline: A brief history of PFAS*, Searchlight New Mexico (Feb. 19, 2019), https://searchlightnm.org/toxic-timeline-a-brief-history-of-pfas/ (last visited Feb. 25, 2025).

26 *Id.*

27 Bill Walker, *EWG and Toxic Fluorinated Chemicals: 20 Years in the Fight Against PFAS*, EWG (July 24, 2019), https://www.ewg.org/news-insights/news/ewg-and-toxic-fluorinated-chemicals-20-years-fight-against-pfas (last visited Feb. 25, 2025).

28 *Id.*

The question must be asked; how did these chemicals become so extensive in their reach and scope? The answer is a simple one: PFAs can be released into the environment at every stage of a product's life.[29] From the beginning of production and until the end of the product's life, PFAs can contaminate the environment and any living creature they come into contact with.

Among the thousands of materials that use PFAs are manufactured textiles, electronics, food packaging and wrappers, the oil for a bike chain, waxes used on skis and snowboards, waterproof clothing, and non-stick cookware, also called Teflon.[30] With this in mind, and the fact that PFAs can enter the environment through washing or plain use, it becomes clear how the chemicals spread so efficiently.[31] To further compound the problem, the chemical's structure allows them to flow into the water supply where their reach continues to grow.[32] The chemicals also spread in landfills because many of them are eventually burned, and thus, released into the atmosphere.[33] What is remarkably horrifying is the chemicals' versatility and their ability to become part of the natural water cycle of the planet.[34] With the chemicals so prevalent, it is not surprising that "[m]ore than 98% of Americans have unsafe levels of dangerous chemicals in their blood [which] slowly poison[s] them for decades."[35]

Most distirbingly, "PFAS can transfer via the placenta during development in the womb, and via breast milk."[36] This transfer means that a sacred act between a mother and her child is not even safe from man-made poison and the child is being poisoned inside the mother's womb. What horror has mankind unleashed?

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29 *What are PFAS?* (2023), Fidra, https://www.pfasfree.org.uk/about-pfas (last visited Feb. 25, 2025).

30 *Id.*; Katya Cronin, *Would You Like PFAS with That?' The Poison That Experts are Allowing into Your Food Every Day*, The Messenger (Aug. 18, 2023), https://www.msn.com/en-us/health/nutrition/would-you-like-pfas-with-that-the-poison-that-experts-are-allowing-into-your-food-every-day/ar-AA1frSkt (last vistited Feb. 25, 2025).

31 *What are PFAS?* (2023), Fidra, https://www.pfasfree.org.uk/about-pfas (last visited Feb. 25, 2025).

32 Nicole Marie Brennan, Abigail Teresa Evans, Meredith Kate Fritz, Stephanie Allison Peak, & Haley Elizabeth von Holst, *Trends in the Regulation of Per- and Polyfluoroalkyl Substances (PFAS): A Scoping Review*, Int'l J. of Env't Pub. Health (Oct. 17, 2021), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8536021/; *What are PFAS?* (2023), Fidra, https://www.pfasfree.org.uk/about-pfas (last visited Feb. 25, 2025).

33 Nicole Marie Brennan, Abigail Teresa Evans, Meredith Kate Fritz, Stephanie Allison Peak, & Haley Elizabeth von Holst, *Trends in the Regulation of Per- and Polyfluoroalkyl Substances (PFAS): A Scoping Review*, Int'l J. of Env't Pub. Health (Oct. 17, 2021), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8536021/; *What are PFAS?* (2023), Fidra, https://www.pfasfree.org.uk/about-pfas (last visited Feb. 25, 2025).

34 *What are PFAS?* (2023), Fidra, https://www.pfasfree.org.uk/about-pfas (last visited Feb. 25, 2025).

35 Katya S. Cronin, *FDA-Approved: How PFAS-laden Food Contact Materials are FDA Approved: How PFAS-laden Food Contact Materials are Poisoning Consumers and What to do About it Poisoning Consumers and What to do About it* (2022) BUS. ENTREPRENEURSHIP & TAX L. REV. 117 (quoting Ryan C. Lewis et al. *Serum Biomarkers of Exposure to Perfluoroalkyl Substances in Relation to Serum Testosterone and Measures of Thyroid Function Among Adults and Adolescents from NHANES 2011–2012*, 12 INT'L J. ENV'T RSCH. PUB. HEALTH 6098, 6103–06 (2015)). Available at: https://scholarship.law.missouri.edu/betr/vol6/iss1/9; *See generally* CENTERS FOR DISEASE CONTROL AND PREVENTION, FOURTH NATIONAL REPORT ON HUMAN EXPOSURE TO ENVIRONMENTAL CHEMICALS (Feb. 2015); Antonia.M. Calafat, et al, Polyfluoroalkyl Chemicals in the U.S. Population: Data from the National Health and Nutrition Examination Survey (NHANES) 2003–2004 and Comparisons with NHANES 1999–2000, 115 ENV'T HEALTH PERSP. 1596, 1596 (2007).

36 Dr. Julie Schneider, *PFAS the 'Forever Chemicals Invisible threats from persistent chemicals*, CHEM Trust (Sept. 2019), https://chemtrust.org/wp-content/uploads/PFAS_Brief_CHEMTrust_2019.pdf.

Current Litigation over PFAs

This paper will briefly discuss two ongoing cases and two previous actions involving PFAs. The first of which is the AFFF or firefighter foam class action suit. This suit is premised by manufacturers "knowingly s[elling]toxic firefighting foam and [they] should be responsible for the harm firefighters suffered as a result."[37] The action states the diseases caused by exposure can include: kidney cancer, testicular cancer, liver cancer, pancreatic cancer, prostate cancer, ulcerative colitis, or thyroid disease.[38] A similar class action in Europe alleged "[i]n some instances, property owners have seen the value of their land decrease by more than 50%."[39] It is shocking that these chemicals could take value away from citizens who never contemplated their use.

This analysis will also consider current cases coming from Fayetteville, North Carolina. These cases have been consolidated into a single class action suit, *Nix et. al. v. Chemours Co. FC*. This cases alleges injuries traceable to PFA exposure.[40] The plaintiffs assert DuPont, and later Chemours, "discharge[d] [] wastewater allegedly containing perfluorinated compounds ("PFCs"), notably GenX" into the local water supply.[41] The chemicals the plaintiffs allege, can last for "2,000 years," hence the name "forever chemicals".[42] The plaintiffs claim that hundreds of privately owned wells were contaminated with GenX, which causes several types of cancers.[43] While these allegations are troubling, the case is still ongoing with no resolution in sight.

The monumental case that created movement against PFAs was commenced by a cattle farmer from West Virginia, Wilbur Tennant.[44] Mr. Tennant filed the lawsuit because of the odd manner in which his cows were dying and Mr. Tennant believed it was related to the waste facility owned by Dupont near his land.[45] He hired attorney Rob Bilot to pursue the action, which, while ultimately settled in 2004, was the first time a chemical creator was held accountable.[46] This action and the danger Rob Bilot and Wilbur Tennant

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37 *Firefighting Foam Lawsuits: PFAS in AFFF Linked to Cancer, Other Health Problems*, ClassAction.org, https://www.classaction.org/firefighter-pfas-foam-afff-lawsuits (last visited Feb. 25, 2025).

38 *Id.*

39 Christopher Knaus, *New class action launched over toxic firefighting chemicals used by defence*, The Guardian (Apr. 15, 2020), https://www.theguardian.com/australia-news/2020/apr/16/new-class-action-launched-over-toxic-firefighting-chemicals-used-by-defence.

40 Nix et. al. v. Chemours Co. FC, 2023 U.S. Dist. LEXIS 179375 (E.D.N.C., Oct. 4, 2023).

41 *Id.* at 9-10.

42 *Id.*

43 Abby Church, *Cumberland to hire 3 law firms to investigate potential claims related to GenX contamination*, The Fayetteville Observer (June 22, 2021), https://www.fayobserver.com/story/news/2021/06/22/cumberland-county-board-commissioners-nc-hires-three-firms-look-into-potential-genx-claims/7770380002/.

44 Ben Stern, *Farmer uncovers company's dark secret after cows kept dying: 'An imminent and substantial threat to health'*, The Cool Down (Dec. 30, 2023), https://www.msn.com/en-us/health/medical/farmer-uncovers-company-s-dark-secret-after-cows-kept-dying-an-imminent-and-substantial-threat-to-health/ar-AA11m2z2.

45 *Id.*

46 *Id.*

uncovered led to a surge of litigation within the local area, numbering in the thousands.[47] Many cases that are still being fought over PFAs find their roots in the original Tennant action.

A more recent case that provides a layout of how to approach cases over PFAs comes from the state of South Carolina. These cases are where local water utilities and DuPont, Chemours, and Corteva all came to a settlement agreement totaling $1.2 billion dollars, holding the companies accountable for their deeds.[48] The Plaintiffs alleged that "DuPont, Chemours, and Corteva sold PFAS-containing products and knew that those products would contaminate the environment and lead to human health issues, such as cancer."[49] The settlement included that the funds will be used for the additional testing of water thought to contain PFAs.[50] This case was one of several cases involving PFAs going on in South Carolina, and settlements have been reached in other cases involving PFAs. In a case against 3M, the public water utilities and 3M came to a settlement that stated 3M will also pay $12.5 billion dollars for testing and cleanup of contaminated areas.[51] These settlements mean that the companies who were responsible for the issue paid for their actions, and the same companies are in future cases as well.

All of the cases discussed above show these chemicals are destructive and action is necessary. The chemicals have allegedly brought down land value and damaged the lives of thousands. If there is to be any hope of eliminating these chemicals from the environment, swift change needs to happen. This note shall now transition to the chemical companies' best weapon against any agency action: the Major Questions Doctrine.

Overview of the Major Questions Doctrine

Before discussing the Government's approach to regulating these chemicals, it is important to discuss the chemical companies' greatest weapon. The Major Questions Doctrine states that an agency can only regulate matters or areas over which Congress has expressly given them authority.[52] As the EPA attempts to regulate PFAs it is very likely that the companies will employ the Doctrine as a shield against regulations that are not expressly done by the will of Congress. The Doctrine consists of 3 relevant evaluations as to

47 *Id.*

48 Jon Styf, *$1B DuPont, Chemours, Corteva PFAS drinking water settlement receives first approval*, Top Class Actions (Aug. 30, 2023), https://topclassactions.com/lawsuit-settlements/class-action-news/dupont-chemours-corteva-agree-to-1-2b-settlement-over-forever-chemicals/.

49 *Id.*

50 *Id.*

51 Jon Styf, *Judge grants preliminary approval to $12.5B 3M PFAS settlement*, Top Class Actions (Sept. 6, 2023), https://topclassactions.com/lawsuit-settlements/class-action-news/12-5m-3m-settlement-resolves-forever-chemical-drinking-water-contamination-claims/.

52 West Virginia v. EPA, 142 S. Ct. 2587 (2022).

whether the agency action (1) is one of vast economic impact or; (2) an attempt to regulate an issue of vast political significance; and (3) is done without congressional delegated authority.[53] The Major Questions Doctrine became a hot topic in the relatively recent opinion of *West Virginia v. EPA*.[54] There is some debate among scholars about where the doctrine actually came from; though Justice Gorsuch lays out precedent for the doctrine in his concurrence.[55] This analysis will explore Justice Gorsuch's concurrence because of how well the foundation was laid for this Doctrine.[56]

Gorsuch's concurrence states the purpose of the Doctrine is to ensure "agencies seek[ing] to resolve major questions, [must] at least act with clear congressional authorization and do not 'exploit some gap, ambiguity, or doubtful expression in Congress's statutes to assume responsibilities far beyond' those the people's representatives actually conferred on them."[57] He further explained that the Doctrine is just a tool used to ensure the legislature, which has the vested power to regulate, regulates the important matters.[58] Gorsuch, in many ways, compared the Doctrine to the work of the framers, stating this Doctrine is a way to assure their intention is carried out.[59] The most interesting point Justice Gorsuch makes is what happens when agencies are entrusted with too much power to regulate.[60] Justice Gorsuch explains:

> Stability would be lost, with vast numbers of laws changing with every new presidential administration. Rather than embody a wide social consensus and input from minority voices, laws would more often bear the support only of the party currently in power. Powerful special interests, which are sometimes "uniquely" able to influence the agendas of administrative agencies, would flourish while others would be left to ever-shifting winds.[61]

(Justice Gorsuch raises the issue of how the Doctrine interplays with PFAs regulation.)

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53 *Id.* at 2620.

54 *Id.* at 2587.

55 Christopher J. Walker, *Responding to the New Major Questions Doctrine*, Cato Inst. (Summer 2023), https://www.cato.org/regulation/summer-2023/responding-new-major-questions-doctrine#.

56 West Virginia v. EPA, 142 S. Ct. 2587, 2617 (2022).

57 *Id.*

58 *Id.* at 2617.

59 *Id.*

60 *Id.* at 2618.

61 *Id.*

As the concurrence goes on, Justice Gorsuch lays out where the Doctrine was first used in an 1897 railroad case.[62] The case *ICC v. Cincinnati, N. O. & T. P. R. Co.* was prefaced around the first modern agency and how it may regulate. The Court held that if Congress meant to transfer its authority, it would have done so using clear and direct language.[63] After this case, the Doctrine was not useful for many years until the large-scale expansion of the agency state.[64] As the agency state grew, the Major Questions Doctrine became a tool heavily used by the Court in a number of cases.[65] With the history laid out, the opinion finally turns to the parameters of the Doctrine and further explains how the Court has construed them in the past.

Gorsuch opens by stating the Doctrine examines whether the agency "claims the power to resolve a matter of great 'political significance' or end an 'earnest and profound debate across the country.'" [66] The opinion then explains how the principle was applied in *Gonzales v. Oregon*. In *Gonzales v. Oregon*, the Court "applied [the Doctrine] when the Attorney General issued a regulation that would have effectively banned most forms of physician-assisted suicide even as certain States were considering whether to permit the practice."[67] Thus, the Doctrine, first, can apply when an agency is attempting to tackle a political issue that States or Congress are currently debating and trying to find a solution to.

Secondly, in other circumstances, the Doctrine can be invoked when an agency is "seek[ing] to regulate "'a significant portion of the American economy[.]"[68] The opinion then proceeds to list several instances in which this consideration has been triggered. The list included the following: "regulating tobacco products, eliminating rate regulation in the telecommunications industry, subjecting private homes to Clean Air Act restrictions, and suspending local housing laws and regulations."[69] The next instance that can trigger the Doctrine is one that is not relevant here, and will likely not be used by the companies should they invoke the Major Questions Doctrine argument, Gorsuch contends. The last instance holds that the "[D]octrine may apply when an agency seeks to 'intrud[e] into an area that is the particular domain of state law.'"[70] To support this consideration,

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62 *Id.* at 2619.

63 ICC v. Cincinnati, N. O. & T. P. R. Co., 167 U. S. 479, 505 (1897).

64 West Virginia v. EPA, 142 S. Ct. 2587, 2619 (2022) (Gorsuch, J., concurring).

65 *Id.*

66 *Id.*

67 Gonzales v. Oregon, 546 U.S., 243, 267 (2006).

68 West Virginia v. EPA, 142 S. Ct. 2587, 2620 (2022) (Gorsuch, J., concurring).

69 *Id.*; *Citing* Brown & Williamson Tobacco Corp. v. FDA, 529 U. S. at 160; MCI Telecommunications Corp. v. American Telephone & Telegraph Co., 512 U. S. 218, 231 (1994); Utility Air Regulatory Group v. EPA, 573 U. S. at 324; Alabama Assn. of Realtors, 141 S. Ct. 2485 (slip op., at 6).

70 West Virginia v. EPA, 142 S. Ct. 2587, 2620 (2022) (Gorsuch, J., concurring).

Justice Gorsuch cites *Gregory v. Ashcroft*, which states that "[t]o preserve the 'proper balance between the States and the Federal Government' and enforce limits on Congress's Commerce Clause power, courts must 'be certain of Congress's intent' before finding it 'legislate[d] in areas traditionally regulated by the States.'"[71]

When one of the listed parameters has been met, the court must determine whether Congress "clearly delegated" the authority to the agency.[72] While scholars debate about how accurate some of Justice Gorsuch's contentions are, others believe the Justice is not all wrong. [73] One scholar contends that the authority is based largely on the precedent of the *Williamson Tobacco* case from 2000.[74] The Doctrine, whether founded in 2000 or in 1897, as Gorsuch contends, is here now, and thus is pertinent to this analysis because of the large role PFAs play in our lives. To regulate them, the agencies will likely have to face the scrutiny of this test as PFAs play a large economic role, and Congress has continually tried to pass legislation about them.[75]

Overview of how the Government is attempting to regulate

With the election of President Biden, the White House promised to tackle many environmental concerns, including PFAs. Micheal Regan, Director of the EPA, tasked the agency to draft and release the *"PFAs Strategic Roadmap,"* which is a guide to how the EPA plans to regulate these chemicals. Within the roadmap, the EPA stated which statutes it plans to regulate under and how the statutes are the best means of regulating the chemicals.[76] The first step was publishing a national water standard, which regulated the levels of PFOA and PFOS, another variant of forever chemicals, under the Safe Drinking Water Act ("SDWA").[77] The pitfall of this regulation is that it only contains six out of the thousands of PFAs that plague our world.[78] Perhaps those other chemicals were not within the purview of the SDWA, but still, some action should have been taken.[79]

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71 Gregory v. Ashcroft, 501 U. S. 452, 459-460 (1991).

72 West Virginia v. EPA, 142 S. Ct. 2587, 2620 (2022) (Gorsuch, J., concurring).

73 Rachel Reed, *What critics get wrong — and right — about the Supreme Court's new 'major questions doctrine*, Harvard Law Today (Apr. 19, 2023), https://hls.harvard.edu/today/what-critics-get-wrong-and-right-about-the-supreme-courts-new-major-questions-doctrine/.

74 *Id.*

75 PFAS Action Act of 2021, H.R. 2467, 117th Cong. (bill that failed in 2021); PFAS-Free Procurement Act of 2023, S. 2283, 118th Cong. (bill introduced in the Senate but still in committee).

76 *PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024*, Env't Prot. Agency (Oct. 2021), https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf.

77 40 C.F.R. § 141 (2021).

78 *Id.*

79 *Id.*

It is important to preface that the actions discussed below are not final agency actions as there are non-published rules or rules in a proposed phase. The first action by the EPA this analysis will focus on is the agency's approach under the Toxic Substances Control Act ("TSCA"). The TSCA allows the agency to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures.[80] Congress itself, in the original iteration of the Act, stated the purpose of the act is: "To regulate commerce and protect human health and the environment by requiring testing and necessary use restrictions on certain chemical substances, and for other purposes."[81]

The EPA, in its "Strategic Roadmap," stated the agency had limited, or no data about how dangerous most PFAs were.[82] Congress directed the EPA to use the TSCA in the 2020 National Defense Authorization Act ("NDAA"), which the EPA plans to use to remedy the lack of data.[83] The NDAA was an act passed by Congress that sat out the fiscal budget for the year along with directions regarding various regulations and statutes.[84] The NDAA is pertinent here because within the Act, Congress expressed some concerns about the levels of exposure to PFAs necessary for them to be a threat, and commanded the EPA to prioritize testing of the chemicals.[85] Within the Roadmap, the EPA acknowledged this command and stated it would begin to "develop a process for prioritizing which PFAS or classes of PFAS should be subject to additional research efforts based on potential for human exposure to, toxicity of, and other available information."[86]

Considering the above, and under the TSCA, the EPA is planning to pinpoint which of these chemicals are, in fact, dangerous through various testing and reporting regulations. The EPA further claimed that it will exercise its "Toxic Substances Control Act Section 4 order authority to require PFAS manufacturers to conduct and fund the studies."[87] This means that the EPA will not be using taxpayer money to fund all the necessary tests, but will require the responsible parties to pay for them. The main premise under the TSCA regarding PFAS is gives the EPA the authority to find and collect data on these dangers in a statutory and efficient way, which should allow for thorough inspections of these chemicals. The EPA

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80 15 U.S.C. §§ 2601-2629 (2023).

81 Toxic Substances Control Act., 94 P.L. 469, 90 Stat. 2003.

82 *PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024*, Env't Prot. Agency (Oct. 2021), https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf.

83 *Id.*

84 National Defense Authorization Act, 116 P.L. 92, 2019 Enacted S 1790, 116 Enacted S 1790, 133 Stat. 1198.

85 *Id.*

86 *Id.*

87 *Id.*

stated that through these actions, the TSCA will allow the EPA to become a gatekeeper against new PFAs from entering commerce while continuing to examine existing ones.[88] Because the EPA is able to compile more data on these chemicals, it will be able to better regulate those products which have dangerous levels present. The EPA further states under Section 5(e), that it will "order[] for existing PFAS for which significant new use notices (e.g., a new manufacturing process for an existing PFAS, or a new use or user) have recently been filed with EPA."[89] In other words, the agency can take an existing PFA and question whether a new use for that chemical has been developed, allowing the EPA to monitor and, if necessary, regulate how these chemicals enter commerce. The agency further states that the "orders would impose rigorous safety requirements as a condition of allowing the significant new use to commence."[90]

The TSCA does have a concerning fault, as it allows, and has allowed, the EPA to do an expedited review process on certain PFAs that will enter commerce on a low-volume exemption.[91] The PFAs were not tested as thoroughly to determine their effects or potential dangers because the companies were only going to put a small amount within the stream of commerce. There is a silver lining here, though. In April of 2021, the EPA announced it expected to deny most low-volume exemptions going forward.[92] The EPA makes an interesting proposition that it can "revisit past PFAS regulatory decisions and address those that are insufficiently protective."[93] Further elaborating, "the agency could impose additional notice requirements to ensure it can review PFAS before they are used in new ways that might present concerns."[94] Any chemical that was approved through the expedited process would be reevaluated as needed, and further conditions would be imposed to create the proper protections.

The EPA's final point under the TSCA is Section 8(a)(7), which "provides authority for the agency to collect existing information on PFAS."[95] The agency followed up in June 2021, stating that "[it had] published a proposed data-gathering rule that would collect certain information on any PFAS manufactured since 2011, including information on uses, production

88 National Defense Authorization Act, 116 P.L. 92, 2019 Enacted S 1790, 116 Enacted S 1790, 133 Stat. 1198.

89 *Id.*

90 *PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024*, Env't Prot. Agency (Oct. 2021), https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf.

91 *Id.*

92 *Id.*

93 *Id.*

94 *Id.*

95 *PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024*, Env't Prot. Agency (Oct. 2021), https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf.

volumes, disposal, exposures, and hazards."[96] The EPA can find and compile data the companies already have available about these chemicals, provided it is accurate and appropriate, as a means of creating new rules and regulations regarding those chemicals. However, the EPA acknowledged that up to this point, "[m]any existing chemicals (i.e., those that are already in commerce and listed on the TSCA Inventory of chemicals), including PFAS, are currently not subject to any type of restriction under the Toxic Substances Control Act."[97] The Supreme Court has stated that when "'[an agency] claims to discover in a long-extant statute an unheralded power' representing a 'transformative expansion in [its] regulatory authority,'" the Court is skeptical.[98]

The next piece of legislation in the EPA's roadmap is the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"). This Act was created by Congress to essentially make chemical and oil companies provide for cleanup and remediation as necessary.[99] The EPA stated CERCLA "designations would require facilities across the country to report on PFOA and PFOS (variants of forever chemicals) releases that meet or exceed the reportable quantity assigned to these substances."[100] The companies will be required to report when they dump the chemicals and poison the local area at high rates. The EPA further elaborated that these "designations would also enhance the ability of federal, Tribal, state, and local authorities to obtain information regarding the location and extent of releases."[101] All levels of the government will be better equipped to understand the extent and severity of the harm companies do, and which will allow more informed responses to the threat.

The most crucial portion of the CERLCA is that it permits the EPA to address and help facilitate the cleaning up and destruction of PFAs in the environment.[102] In December of 2022, the agency listed several ways to destroy the substances.[103] The agency elaborated on those discoveries:

> It identifies three technologies that are commercially available to either destroy or dispose of PFAS and PFAS-containing materials and outlines the significant uncertainties and

96 *Id.*

97 *Id.*

98 West Virginia v. EPA, 142 S. Ct. 2587, 2610 (2022).

99 *Superfund: CERCLA Overview*, Env't Prot. Agency, https://www.epa.gov/superfund/superfund-cercla-overview (last visited Feb. 25, 2025).

100 *Id.*

101 *Id.*

102 *Id.*

103 *Id.*

> information gaps that exist concerning the technologies' ability to destroy or dispose of PFAS while minimizing the migration of PFAS to the environment.[104]

While this development is one that the Government should explore and fully support, there is still a problem. The problem this regulation faces is much like that of the TSCA, it was not made for PFA regulation. The agency even admits "the interim guidance identifies existing EPA tools, methods, and approaches to characterize and assess the risks to disproportionately impacted people of color and low-income communities living near likely PFAS destruction or disposal sites."[105]

Both of the noted approaches have merit, as they deal with prevention and intervention, such as stopping chemicals from entering the environment and cleaning existing chemicals. But there are two issues that must be addressed. First, neither of these approaches have been implemented yet and, as per the EPA's website, no final rule has been adopted in either case.[106] The regulations will not take effect until they are completed and published. Secondly, the companies will respond to new regulations in court if necessary, and the Major Questions Doctrine may play a part in a court's analysis. The Major Questions Doctrine is a tool that could be used if rules try to regulate PFAs that companies believe are not within the purview of agencies' power.

Analysis of Whether the Government Can Regulate under the Major Questions Doctrine and the Viability of Each

The fundamental issue at hand is whether or not the EPA has the authority to regulate PFAs under the existing statutes; the same issue facing policymakers as dangers caused by PFAs continue to grow. The first step in this analysis will be to determine if the proposed regulatory actions could constitute as one of great political significance, or one that will have a large economic impact.[107] The second step will determine if there is clear congressional approval for the EPA to create a rule under the statutes in question.[108]

Opponents of the regulation will argue that the regulation is one of vast political significance. The companies will point to the fact that Congress has already tried to pass several bills that would regulate PFAs.[109] They will

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104 *PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024*, Env't Prot. Agency (Oct. 2021), https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf.

105 *Id.*

106 *Id.*

107 West Virginia v. EPA, 142 S. Ct. 2587, 2620 (2022) (Gorsuch, J., concurring).

108 *Id.*

109 PFAS Action Act of 2021, H.R. 2467, 117th Cong. (bill that failed in 2021); PFAS-Free Procurement Act of 2023, S. 2283, 118th Cong. (bill introduced in the Senate but still in committee).

likely point to recent attempts to show that the issue is currently at the center of political debate, which includes the PFAS Act of 2019. Although the Act itself did not pass, it was salvaged slightly by the NDAA.[110] The companies would also likely highlight the Bills about PFAs from 2021, which were introduced in the House committees and failed, as well as the current attempt, which has not yet made it to the committee stage.[111] Since Congress has not come to a complete decision on how to regulate these dangerous chemicals, why should the EPA jump in the middle and try to silence that debate?

If this does not convince the courts that the action is one of vast political significance, the companies would likely point at the split of action among the States. With some states choosing to adopt regulations—which, in some instances, are more stringent than the national standard—others chose not to adopt regulations at all.[112] The inaction shows that State legislatures are trying to determine how best to handle these chemicals, which proves these chemicals are at the center of the political arena. Both of these instances are very similar to the cases the Supreme Court cited in support of the Doctrine. In *Gonzales,* the States were trying to debate what to do, and in *West Virginia*, Congress had debated what to do about greenhouse gas emissions.[113]

Secondly, the regulation addresses a major question because it would regulate one of the biggest commodities in the economy.[114] These chemicals are in so many products that regulation would likely touch every facet of our economy. When listed out, manufactured textiles, electronics, food packaging and wrappers, the oil for a bike chain, waxes used on skis and snowboards, Teflon (which is found in nearly every home and store in America), and waterproof clothing all contain and even rely on these chemicals.[115] One article contends that the chemical companies believe PFAs bring in roughly $2 billion a year.[116] Regulations on these chemicals would affect many economic sectors—not just a single entity or market. Thus, the second prong of the Major Questions Doctrine is likely met if raised by chemical companies in a court proceeding.

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110 National Defense Authorization Act, 116 P.L. 92, 2019 Enacted S 1790, 116 Enacted S 1790, 133 Stat. 1198.

111 PFAS Action Act of 2021, H.R. 2467, 117th Cong. (bill that failed in 2021); PFAS-Free Procurement Act of 2023, S. 2283, 118th Cong. (bill introduced in the Senate but still in committee).

112 *PFAS DRINKING WATER STANDARDS: STATE-BY-STATE REGULATIONS*, BCLP (Aug. 29, 2023), https://www.bclplaw.com/en-US/events-insights-news/pfas-drinking-water-standards-state-by-state-regulations.html.

113 Gonzales v. Oregon, 546 U. S., 243, 267 (2006); West Virginia v. EPA, 142 S. Ct. 2587, 2608 (2022).

114 West Virginia v. EPA, 142 S. Ct. 2587, 2620 (2022) (Gorsuch, J., concurring).

115 *What are PFAS?* (2023), Fidra, https://www.pfasfree.org.uk/about-pfas (last visited Feb. 25, 2025).; Katya Cronin, *Would You Like PFAS with That?' The Poison That Experts are Allowing into Your Food Every Day*, The Messenger (Aug. 18, 2023), https://www.msn.com/en-us/health/nutrition/would-you-like-pfas-with-that-the-poison-that-experts-are-allowing-into-your-food-every-day/ar-AA1frSkt.

116 Alissa Cordner, Gretta Goldenman, Linda S. Birnbaum, Phil Brown, Mark F. Miller, Rosie Mueller, Sharyle Patton, Derrick H. Salvatore & Leonardo Trasande, The *True Cost of PFAS and the Benefits of Acting Now*, J. Env't Sci. Tech. (July 7, 2021), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8296683/.

Now to the final step in the analysis: determining if there is clear Congressional approval for the agency to regulate. Courts will have to examine the statutes in question because many courts' statutory analysis will begin with statutory interpretation.[117] This analysis will first examine the TSCA, which does seem to convey a broad amount of power to the agency.[118] The pertinent section here, is 15 U.S.C. §2603 (b)(2)(A) (2023):

> The health and environmental effects for which protocols and methodologies for the development of information may be prescribed include carcinogenesis, mutagenesis, teratogenesis, behavioral disorders, cumulative or synergistic effects, and any other effect which may present an unreasonable risk of injury to health or the environment.[119]

Many experts and professionals, including those at the EPA, have agreed that PFAs are likely carcinogenic.[120] Yet, these chemicals number well over 9,000 variants.[121] The EPA has already acknowledged there is far too little data to know which of these chemicals are dangerous.[122] Any regulations under this Act will be slowly forthcoming, as determinations through testing must be made first to determine which of the variants are in fact carcinogenic. There is also the matter of while some of the variants may not be carcinogenic, the chemicals could still present an unreasonable risk of injury to health or the environment. The companies and the Government have both acknowledged that these chemicals can harm the environment, but to regulate the chemicals, each one must be tested.[123]

This type of statute could beat the Major Questions Doctrine if it were brought into court as a chemical the EPA had tested, labeled as a carcinogenic, or proved that it was dangerous to the public or environment. While it may be an issue of vast political significance or one of major economic impacts, Congress clearly delegated the EPA the authority to regulate chemicals that are carcinogenic or unreasonably dangerous to public health and the environment.[124] However, the inverse of this also means that

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117 15 U.S.C. §§ 2601-2629 (2023).

118 *Id.*

119 15 U.S.C. § 2603(b)(2)(A) (2023).

120 *PFAS Exposure and Risk of Cancer*, Nat'l Cancer Inst., https://dceg.cancer.gov/research/what-we-study/pfas (last visited Feb. 25, 2025); Press Release, Env't Working Grp., EPA finds PFAS are more toxic than previously thought (Nov. 16, 2021), https://www.ewg.org/news-insights/news-release/2021/11/epa-finds-pfas-are-more-toxic-previously-thought.

121 Alissa Cordner, Gretta Goldenman, Linda S. Birnbaum, Phil Brown, Mark F. Miller, Rosie Mueller, Sharyle Patton, Derrick H. Salvatore & Leonardo Trasande, The *True Cost of PFAS and the Benefits of Acting Now*, J. Env't Sci. Tech. (July 7, 2021), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8296683/.

122 *PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024 (2021)*, Env't. Prot. Agency, https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024 (last visited Feb. 25, 2025).

123 Amy Lin, *Toxic timeline: A brief history of PFAS*, Searchlight New Mexico (Feb. 19, 2019), https://searchlightnm.org/toxic-timeline-a-brief-history-of-pfas/ (last visited Feb. 25, 2025).

124 15 U.S.C. § 2603(b)(2)(A) (2023).

if the EPA places a regulation on a chemical, or line of chemicals with no determination on or testing of such, the Major Questions Doctrine will likely be raised. The Doctrine could also block any regulation that could be placed if there is no proof that the chemical in question is in fact carcinogenic or a danger to public health or the environment.

The scope of focus shall now transition to CERCLA. CERCLA's first portion is pertinent as it states: "[t]he Administrator may determine that one single quantity shall be the reportable quantity for any hazardous substance, regardless of the medium into which the hazardous substance is released."[125] Further refining the provision, any substances that are CERCLA designated can be regulated to the finest amount and could prove beneficial since these chemicals, in some cases, disperse rapidly. However, getting these substances designated is where the problem arises, especially regarding PFAs. The EPA's plan is to designate PFAs as hazardous substances, which could work if they were already labeled as such.[126] The statute states that "[h]azardous substance means, . . . any imminently hazardous chemical substance or mixture with respect to which the Administrator has taken action pursuant to section 7 of the Toxic Substances Control Act."[127] If the EPA is going to label the chemicals as "Hazardous Substances," it must do so under the TSCA, or proceed to the next section of the act, which states:

> such elements, compounds, mixtures, solutions, and substances which, when released into the environment may present substantial danger to the public health or welfare or the environment, and shall promulgate regulations establishing that quantity of any hazardous substance the release of which shall be reported[128]

With this consideration, the analysis would then shift to the operative words: "present, substantial danger to the public health or welfare or the environment." There is a clear danger to both public health and welfare as these chemicals are carcinogenic and cause several other afflictions.[129] The companies and the EPA have already recognized the dangers these chemicals present to the environment.[130] This Act could also pass under the Major

125 42 U.S.C. § 9602(a) (2023).

126 42 U.S.C. § 9601(14) (2023).

127 *Id.*

128 42 U.S.C. § 9602(a) (2023).

129 *PFAS Exposure and Risk of Cancer*, Nat'l Cancer Inst., https://dceg.cancer.gov/research/what-we-study/pfas (last visited Feb. 25, 2025); Press Release, Env't Working Grp., EPA finds PFAS are more toxic than previously thought (Nov. 16, 2021), https://www.ewg.org/news-insights/news-release/2021/11/epa-finds-pfas-are-more-toxic-previously-thought.

130 Amy Lin, *Toxic timeline: A brief history of PFAS*, Searchlight New Mexico (Feb. 19, 2019), https://searchlightnm.org/toxic-timeline-a-brief-history-of-pfas/ (last visited Feb. 25, 2025).

Questions Doctrine, but it is contingent on another Act passing, or on the variants being dangerous to the health and welfare of citizens—which does not work fast enough to face the crisis PFAs have created.

Both of the Acts sound promising, but they are not foolproof. The Major Questions Doctrine can serve as a shield against overzealous regulation, but it can also be used as a crutch to protect poorly-worded and faulty practices. All the Acts discussed above must have some sort of meticulousness due to the large amount of PFA variations. If the agency fails to follow every step of the statutes, there is, arguably, no clear congressional delegation of authority. PFAs undoubtedly meet the first two prongs of the Major Questions Doctrine, so PFAs, now, must have congressional delegation of authority. The EPA must meet the last prong, meaning every chemical the EPA regulates will have to be tested, and the EPA must make the necessary determinations, such as whether the chemical is carcinogenic or dangerous to the health of citizens or the environment. If the EPA follows the proper procedures and determines that the criteria are met under either or both statutes, then it should meet all prongs of the Major Questions Doctrine.

Finding the Proper Solution

To briefly conclude this note, the Government must act and do so soon. This problem has grown tremendously, and is clearly dangerous, as many cases and sources above demonstrated. It is such a large problem that solving it is almost impossible. These harmful chemicals have managed to become part of the environment in every sense of the word. It is bewildering to experience these chemicals adapt, become part of the water cycle, and spread for miles through the natural process of the earth. Additionally, to allow them to seep into our bodies in such a large sum that they could be introduced to a newborn through its mother's womb is disheartening. How have we not acted sooner? But, there is still time to try and minimize the damage that has been done and to stop it from continuing as best we can.

There is still time to act; though, it will not be an easy process because the chemicals themselves are hard to deal with. Additionally, as a multibillion-dollar industry, it is only natural that companies who benefit from these chemicals will fight any regulation not created properly. To further demonstrate the multi-billion dollar industry and chemical companies' willingness to reject legislation, "[t]he US chemical industry likely spent over $110m during the last two election cycles deploying lobbyists to kill dozens of pieces of PFAS legislation and slow administrative regulation around "forever

chemicals," a new analysis of federal lobbying documents has found."[131] These companies are already fighting against any regulations that may come down the pipeline.

Congress must put the needs of the average American first, stop these chemicals from poisoning our citizens, and protect the future of the Americans to come before these chemicals become permanently engrained in the natural world. While both previously discussed statutes likely pass muster, the issue is that these chemicals are so abundant in our world that swift action is needed to attack the crisis. Congress must pass legislation that is directed at all of these chemicals and any future dangerous variants. The necessary act would likely resemble the ban of Dichlorodiphenyltrichloroethane, also known as "DDT". Similar to DDT, these chemicals do have some use, yet their potential harm and danger outweigh those uses in many cases.[132]

While domestic use of DDT is illegal or extremely regulated, our government and others around the world recognize that the chemical has some benefits and allows it to be used in certain situations.[133] Undoubtedly, there is a similar issue here as the chemicals are not all known to be bad yet, and Teflon is used daily by millions of Americans. So, the implications of a total ban are staggering to consider due to their reach. The U.S. has managed to survive outright bans before; however, as CFCs were banned some years back.[134] The true crux of this issue is the extent to which these chemicals are present in our world and the sheer volume of variants that must each be evaluated, making regulation of any kind a tall order. The best way, and perhaps only way, to adequately meet the urgency of the situation, and ensure all variants are addressed, is to pass legislation. Passing legislation will directly target these types of chemicals so that any Major Question is answered by "We The People."

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131 Tom Perkins, *US chemical industry likely spent $110m trying to thwart PFAS legislation, study finds*, The Guardian (Nov. 7, 2023), https://www.theguardian.com/us-news/2023/nov/07/us-chemical-industry-110-million-thwart-pfas-legislation.

132 *DDT - A Brief History and Status*, Env't Prot. Agency, https://www.epa.gov/ingredients-used-pesticide-products/ddt-brief-history-and-status (last visited Feb. 25, 2025).

133 *Id.*

134 *Ban for Nonessential Products Containing Ozone-depleting Substances*, Env't Prot. Agency, https://www.epa.gov/ozone-layer-protection/ban-nonessential-products-containing-ozone-depleting-substances (last vistited Feb. 25, 2025).