IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA
CHARLESTON DIVISION

IN RE: AQUEOUS FILM-FORMING FOAMS PRODUCTS LIABILITY LITIGATION	)	MDL No. 2:18-mn-2873-RMG
	)	**ORDER AND OPINION**
	)	**This Order Relates to: All Cases**

Before the Court is Defendants' motion for summary judgment on the government contractor immunity defense. (Dkt. Nos. 1965, 2346, 2347, 2348).[1] For the reasons set forth below, the motion is denied.

I. Factual and Procedural Background

This multidistrict litigation ("MDL") concerns the presence of PFOA (perfluorooctanoic acid) and PFOS (perfluorooctane sulfonic acid), both types of per- and poly-fluoroalkyl substances ("PFAS"), in aqueous film forming foams ("AFFF"). AFFF products, manufactured by Defendants, were initially designed to deal with potentially catastrophic fires aboard military aircraft carriers and were subsequently widely used on military bases, airports, and in fire fighter training programs.[2] Plaintiffs allege that the AFFF products at issue in this litigation contain

[1] Herein the term "Defendants" refers to 3M Company ("3M"), Tyco Fire Products LP ("Tyco"), Chemguard Inc. ("Chemguard"), National Foam, Inc. ("National Foam"), Buckeye Fire Equipment Company ("Buckeye"), and Kidde-Fenwal, Inc. and related entities ("Kidde" or the "Kidde Defendants"). *See* CMO 16D; (Dkt. No. 2346 at 1); (Dkt. No. 2348 at 5 n.2, 18 n.12). Tyco, Chemguard, National Foam, Buckeye, and Kidde are referred to collectively herein as the "Telomer Manufacturers."

[2] AFFF works by forming a water-based film beneath a blanket of foam; the film rapidly spreads across the surface of liquid fuel, extinguishing fires and preventing the fumes from releasing flammable vapors than can reignite. (Dkt. No. 1965-1 at 14-15).

PFOA and PFOS, are harmful to human health and the environment, and constitute defects of AFFF.[3]

It is important to understand at the outset that PFOA and PFOS represented a new class of man-made[4] chemical compounds, known as C8 chemistry, and until recent years the government and the scientific community working outside of the companies manufacturing these chemicals had a very limited understanding of the properties of C8 chemistry or its potential risks to human health and the environment. As set forth below, the record before the Court, viewed in a light most favorable to the Plaintiffs—the nonmoving parties in this summary judgment motion—demonstrates that the Defendants, as manufacturers of C8-based products at issue in this litigation, had significantly greater knowledge than the government about the properties and risks associated with their products and knowingly withheld highly material information from the government.

In the 1950s and 1960s the Navy, led by the Naval Research Laboratory ("NRL"), sought to develop a new type of firefighting foam in response to devastating shipboard fires. *See, e.g.*,

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[3] PFOA and PFOS are fluorocarbons. A fluorocarbon is a chemical that binds fluorine and carbon atoms. As pertinent here, fluorocarbons can be made of chains of either eight or six carbon atoms. Fluorocarbon chains with eight carbons are referred to as "C8" or "long chain" PFAS. (Dkt. No. 2063 at 8); (Dkt. No. 1965-1 at 7). Fluorocarbon chains with six carbons are referred to as "C6" chemicals. PFOS—a chemical which was always present in 3M's AFFF—and PFOA are both C8-based or derived chemicals. (Dkt. No. 1965-1 at 17 n.3); (Dkt. No. 2409 at 11 n.13). As it concerns PFOA and the use of the term "C8-derived," Plaintiffs allege the Telomer Manufacturers' MilSpec AFFF was defective because it deliberately contained fluorosurfactants containing C8 molecules that degrade to PFOA in the environment. (Dkt. No. 2409 at 11 n.13). Thus, PFOA is a "C8 derived" chemical. C6 fluorocarbons, on the other hand, do not contain or degrade to either PFOS or PFOA. (Dkt. No. 2063 at 6 n.7, 53).

Beyond being fluorocarbons, PFOA and PFOS are also "fluorosurfacants." Fluorosurfactants are chemicals that decrease the surface tension of a concentrate/water solution. In the context of AFFF, these properties increase the efficacy of the product because they make it easier for the product to generate foam from the solution. (Dkt. No. 2063 at 30). As noted above, this foam allows a film to spread across and extinguish fuel-based fires.

[4] To be precise, it was Defendant 3M that invented fluorosurfactants in the 1950s. (Dkt. No. 2063 at 11).

(Dkt. No. 1967-2 at 5); (Dkt. No. 1967-5 at 2-8). In 1969 the Navy, through the Naval Sea Systems Command ("NAVSEA"), promulgated a MilSpec for AFFF titled Mil-F-24385. (Dkt. No. 1966-1) (1969 MilSpec). Since 1969, NAVSEA has administered the MilSpec on behalf of the Department of Defense ("DoD"). (Dkt. No. 1966-15, Resp. 7). NAVSEA has amended or revised the MilSpec a dozen times between 1969 and 2020. (Dkt. No. 1966-1 through Dkt. No. 1966-13) (AFFF MilSpecs). The current version of MIL-F-24835—MIL-PRF-24385F(SH)—specifies the requirements of MilSpec AFFF today. (Dkt. No. 1966-13) (2020 MilSpec). On behalf of NAVSEA, the NRL tests eligible AFFF based on requirements set forth in the MilSpec. (Dkt. No. 1965-1 at 13); (Dkt. No. 2063 at 10). Any product that meets the NRL's MilSpec testing requirements is then listed on the Qualified Product Listing ("QPL"). A product listed on the QPL is eligible for military procurement. From the 1969 MilSpec until the 2019 revision, the MilSpec required contractors to use "fluorocarbon surfactants" in their product.[5] In 2019, the Navy issued a new MilSpec, (Dkt. No. 1966-12), which removed the requirement that MilSpec AFFF contain fluorocarbon surfactants, and which set at 800 parts per billion ("ppb"), the maximum concentrations of PFOA and PFOS in the concentrate. At the time of the adoption of the first AFFF MilSpec in 1969, there were at least hundreds of different types of fluorocarbon surfactants.

On December 7, 2018, the Judicial Panel on Multidistrict Litigation created this MDL to centralize cases "alleg[ing] that AFFF products used at airports, military bases, or certain industrial locations caused the release of PFOA or PFOS into local groundwater and contaminated drinking water supplies." *In re AFFF Prods. Liab. Litig.*, 357 F. Supp. 3d 1991, 1394 (J.P.M.L. 2018).

[5] (Dkt. No. 1966-15, Resp. 33) (United States of America response to Defendants' request for admission); *see, e.g.*, (Dkt. No. 1966-1 through Dkt. No. 1966-13); (Dkt. No. 1966-1 at §§ 1.1, 3.2) (noting the "concentrate shall consist of fluorocarbon surfactants plus other compounds as required to conform to the requirements specified hereinafter").

Among the common issues identified by the JPML was Defendants' "government contractor defenses." *Id.*

On November 5, 2021, pursuant to Case Management Order ("CMO") No. 16C, Defendants moved for partial summary judgment on the first factor in *Boyle v. United Technologies Corporation*, 487 U.S. 500 (1988) and its progeny. (Dkt. No. 1965). Plaintiffs filed an opposition to Defendants' motion, (Dkt. No. 2063), to which Defendants filed a reply. (Dkt. No. 2141). Plaintiffs subsequently filed objections to certain evidence submitted by the Defendants in support of their motion, (Dkt. No. 2065), to which Defendants responded. (Dkt. No. 2089).[6]

On April 7, 2022, the Court issued CMO No. 16D, permitting 3M, Tyco, Kidde, National Foam, and Buckeye to supplement the initial motion for summary judgment regarding the government contractor defense and brief the remaining *Boyle* factors. (Dkt. No. 2280). On May

[6] Pursuant to Fed. R. Civ. P. 56(c)(2), Plaintiffs object that 17 exhibits attached to Defendants' motion "cannot be presented in a form that would be admissible in evidence." The sole basis Plaintiffs give for this objection is that the exhibits—all scientific studies, reports, or articles conducted or funded by the government or otherwise in the government's possession—are "inadmissible absent expert testimony." (Dkt. No. 2065 at 2-4) (citing Fed. R. Evid. 703); (Dkt. No. 2089 at 2). Plaintiffs provide no further explanation for their objection. Nor do they cite any case law for the Court's consideration. As Defendants note, the objection contemplated by Rule 56(c)(2) is not that the material "has not" been submitted in admissible form, but that it "cannot" be. *Palmetto Pharms. LLC v. AstraZeneca Pharms. LP*, No. CIV.A. 2:11-807-SB, 2014 WL 1334215, at *11 & n.8 (D.S.C. Apr. 2, 2014). In response to a proper Rule 56(c)(2) objection, the proponent must "show that the material is admissible as presented" or alternatively must "explain the admissible form that is anticipated." *Humphreys & Partners Architects, L.P. v. Lessard Design, Inc.*, 790 F.3d 532, 538 (4th Cir. 2015). As Defendants observe, the challenged exhibits are relevant to illustrate the government's alleged knowledge of PFAS and AFFF. *See* (Dkt. No. 2089 at 3-4). Further, as Defendants also note, assuming Plaintiffs' objection is that the challenged exhibits are inadmissible absent expert testimony, Fed. R. Evid. 703 provides no support to that argument—Rule 703 is silent as to Plaintiffs' seeming proposition that expert testimony is required to support the admission of documentary evidence *not* offered in connection with any expert testimony. (*Id.*). Accordingly, Plaintiffs' objections are overruled.

13, 2022, Defendants filed supplemental briefing pursuant to CMO 16D, (Dkt. Nos. 2346, 2347, 2348), to which Plaintiffs filed an omnibus response in opposition on June 17, 2022, (Dkt. No. 2409). On July 1, 2022, Defendants filed replies to Plaintiffs' response in opposition. (Dkt. Nos. 2437, 2438).

On August 19, 2022, the Court held oral argument on Defendants' motion for summary judgment on the government contractor immunity defense. The parties subsequently filed supplemental briefing on certain limited topics for the Court's consideration. *See* (Dkt. Nos. 2560, 2564, 2566, 2576, 2577, 2583).

Defendants' motion is now ripe for disposition.

II. Legal Standard

Summary judgment is appropriate if a party "shows that there is no genuine dispute as to any material fact" and the movant is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(a). A dispute is "genuine" if the evidence offered is such that a reasonable jury might return a verdict for the non-movant. *See Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). A fact is "material" if proof of its existence or non-existence would affect disposition of the case under applicable law. *See id.* Therefore, summary judgment should be granted "only when it is clear that there is no dispute concerning either the facts of the controversy or the inferences to be drawn from those facts." *Pulliam Inv. Co. v. Cameo Props.,* 810 F.2d 1282, 1286 (4th Cir. 1987).

"In determining whether a genuine issue has been raised, the court must construe all inferences and ambiguities in favor of the nonmoving party." *HealthSouth Rehab. Hosp. v. Am. Nat'l Red Cross*, 101 F.3d 1005, 1008 (4th Cir. 1996). The movant bears the initial burden of demonstrating that there is no genuine issue of material fact. *See Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986). Once the moving party has made this threshold demonstration, the non-

moving party, to survive the motion for summary judgment must demonstrate that specific, material facts exist that give rise to a genuine issue. *See id.* at 324. Under this standard, "[c]onclusory or speculative allegations do not suffice, nor does a 'mere scintilla of evidence'" in support of the non-moving party's case. *Thompson v. Potomac Elec. Power Co.*, 312 F.3d 645, 649 (4th Cir. 2002) (quoting *Phillips v. CSX Transp., Inc.*, 190 F.3d 285, 287 (4th Cir. 1999)).

III. The Government Contractor Defense

The Supreme Court first articulated the broad outlines of the government contractor defense in *Boyle v. United Technologies Corp.*, 487 U.S. 500 (1988). David Boyle was a United States Marine helicopter pilot who drowned when he was unable to escape from his helicopter following a water crash. The plaintiff sued the manufacturer of the helicopter claiming that the escape hatch was designed defectively because it opened outward, and thus would not open under water pressure. The jury returned a verdict in favor of the plaintiff, but the Court of Appeals for the Fourth Circuit reversed the judgment because it found that the helicopter manufacturer was immune from liability under the federal common law government contractor defense.

The Supreme Court agreed with the court of appeals that federal common law should, in some instances, shield contractors from liability when they build equipment for the government. The Court concluded that the government contractor defense was a proper exercise of the very limited power of federal courts to create common law, because the operation of state law to hold military contractors liable for design defects in military products presents a significant conflict with uniquely federal interests. The Court first reasoned that a suit between an individual and a government contractor can affect uniquely federal interests even though the government is not a party, because the imposition of liability on the government contractor could cause the contractor either to decline to manufacture the design specified by the government or to raise its price. *Boyle*,

487 U.S. at 505-07. The Court next reasoned that state law in some instances presents a significant conflict with uniquely federal interests because "the financial burden of judgments against the contractors ultimately would be passed through, substantially if not totally, to the United States itself, since defense contractors will predictably raise their prices to cover, or to insure against, contingent liability for the Government-ordered designs." *Id.* at 512-13. These higher prices would significantly affect the government's discretion to select the appropriate design for military equipment, which "often involves not merely engineering analysis but judgment as to the balancing of many technical, military, and even social considerations, including specifically the trade-off between greater safety and greater combat effectiveness." *Id.* at 511. The Court concluded that "state law which holds Government contractors liable for design defects in military equipment does in some circumstances present a 'significant conflict' with federal policy and must be displaced." *Id* at 512.

The Court then considered in what circumstances state law must be displaced. The Court created a three-part test to distinguish those cases in which the government contractor defense is appropriate from those in which it is not:

> Liability for design defects in military equipment cannot be imposed, pursuant to state law, when (1) the United States approved reasonably precise specifications; (2) the equipment conformed to those specifications; and (3) the supplier warned the United States about the dangers in the use of the equipment that were known to the supplier but not to the United States. The first two of these conditions assure that the suit is within the area where the policy of the "discretionary function" would be frustrated—i.e., they assure that the design feature in question was considered by a government officer, and not merely by the contractor itself. The third condition is necessary because, in its absence, the displacement of state tort law would create some incentive for the manufacturer to withhold knowledge of risks, since conveying that knowledge might disrupt the contract but withholding it would produce no liability.

Id. at 512-13.

Case law since *Boyle* has expanded the circumstances where a contractor may satisfy the first prong of *Boyle* without the necessity of showing that the government's specifications were "reasonably precise." Where the government did not develop the product but subsequently purchased and used it, and by that use acquired full or substantially complete knowledge of its defects and risks, a contractor may satisfy the first prong of *Boyle* by showing that the government continued to use the product after acquiring full knowledge of its defects and risks.

In *Dowd v. Textron, Inc.*, 792 F.2d 409, 411-12 (4th Cir. 1986), a wrongful death suit against a military contractor involving a fatal helicopter crash, the government investigated 46 instances where a component of the helicopter, known as the "540 rotor system," experienced complications known as "mast bumping." The contractor recommended fixes to the military to address the problem. The military adopted some of the recommendations of the contractor but rejected others, finding that they were "ineffective or too costly or would have interfered with the military mission of the helicopter by impairing performance." *Id.* at 411. The *Dowd* court concluded that "[t]he length and breadth of the Army's experience with the 540 rotor system—and its decision to continue using it—amply establish government approval of the alleged design defects." *Id. at* 412.

Similarly, in *Ramey v. Martin-Baker Aircraft Co., Ltd*., 874 F.2d 946, 951 (4th Cir. 1989), an aircraft mechanic sued regarding a defective ejection seat on a military aircraft which allegedly injured him. Because the evidence showed the Navy officials had "full knowledge of the danger implicit in prevailing maintenance protocols" given the seat's known "harmful propensities," the court found the government had approved "reasonably precise specifications" and granted the contractor summary judgment on the government contractor immunity defense—as all of *Boyle*'s other elements were satisfied.

In another military aircraft case, *Lewis v. Babcock Industries, Inc*., 985 F.2d 83, 89 (2d Cir. 1993), the military was aware of the tendency of a cable used in the aircraft's ejection system to corrode, which could lead to failure. Nonetheless the military reordered the cable. The Court found continuous use with full knowledge because "[t]his reorder occurred after the Government had completed its investigation into the problem and while it knew the [contractor's] cable was susceptible to corrosion." *Id*.

As each of these cases demonstrates, full knowledge of the alleged defect ensures that the government's continued use of a product expresses a "discretionary determination that create[s] the conflict between the federal government's interests and the defendant's state law duties that is necessary to invoke the government contractor defense." *In re Agent Orange Product Liability Litigation*, 517 F. 3d 76, 92 (2d Cir. 2008) (hereinafter "*Agent Orange*").

The second element of the *Boyle* test requires the contractor to prove that the product conformed to the specifications approved by the government. Nonconformance means more than that the ultimate design feature does not achieve its intended goal. The alleged defect must exist independently of the design itself and must result from a deviation from the required military specifications. *Gray v. Lockheed Aeronautical Systems Co.*, 125 F.3d 1371 (11th Cir. 1997), *rev'd on other grounds* 524 U.S. 924 (1998). The purpose of this element is to ensure that the defense does not shield contractors from liability when their products do not conform with the design approved by the government, whether that nonconformity is intentional (as in the case of fraud) or unintentional (as in the case of a manufacturing defect). Extensive government involvement in the design, review, development, and testing of a product, as well as extensive acceptance and use of the product following production, is evidence that the product line generally conformed with

government-approved specifications. *In re Air Disaster at Ramstein Air Base, Germany, on 8/29/90*, 81 F.3d 570, 575 (5th Cir. 1996).

The third element of the *Boyle* test requires contractors to demonstrate that they warned the government of all dangers in the use of the product that were known to the contractor but not to the government. As stated in *Boyle*, the purpose of this element is to maintain the incentive that ordinarily would be imposed by state law to warn the government of a product's known dangers. *Boyle*, 487 U.S. at 512-13.

IV. Discussion[7]

A. The MilSpec on Its Face Is Not Reasonably Precise as a Matter of Law.

Defendants make several arguments regarding how they satisfy the "reasonably precise" requirements of the first prong of *Boyle*—none of which the Court finds persuasive.

First, Defendants argue that the MilSpec, read alone, is a reasonably precise specification as a matter of law. (Dkt. No. 1965-1 at 19-20, 42-44). Defendants argue that the MilSpec imposes "rigorous requirements for materials, chemical and physical properties (including properties relating to potential environmental impact and toxicity), fire performance, and packaging and markings." (*Id.* at 19, 43) (citing (Dkt. No. 1966-1 through Dkt. No. 1966-13) (1969 to 2020 MilSpecs)). Defendants emphasize that, for 50 years, MilSpec AFFF had to contain "fluorocarbon surfactants." (*Id.* at 20). And Defendants conclude that the government's overseeing and testing of potential AFFF products against the MilSpec constitutes approval of reasonably precise specifications, (*id.* at 42-44), as "[c]ourts have repeatedly held that the first *Boyle* element was met

[7] Though reiterated throughout, the Court notes that herein it reads all facts in a light most favorable to Plaintiffs, the nonmoving party. Further, because the Court finds that no Defendant can satisfy either prong one or three of *Boyle*, the Court declines to address the parties' arguments concerning prong two.

in cases in which the government itself issued a written specification containing numerous quantitative and qualitative requirements for the product," (*id.* at 36-37) (*citing Ramey*, 874 F.2d at 950).

Plaintiffs dispute Defendants' contention, (Dkt. No. 2063 at 28-29), arguing that the government viewed the MilSpec as a "performance specification" which manufacturers were encouraged to meet at their discretion. Robert Darwin, the former Director of the Fire Protection Division of NAVSEA and the original custodian of MIL-F-24835, testified that "the way we've always looked at it was it was up to each manufacturer to come up with his own magic witch's brew to meet the performance requirements." (Dkt. No. 2063-3 at 46:23-47:2). Darwin explained that the AFFF MilSpec was a "performance spec" and that if "you were writing a specification for a specific chemical and not for the application of that chemical, you would probably include the exact chemical formulation" and that such a specification would be a "design spec." (*Id.* at 41:10-42:5). In response to a request to admit, the United States admitted that a "performance specification was used from November 21, 1969 until May 7, 2019 to give manufacturers the greatest flexibility as to how they would meet the AFFF MilSpec's requirements and to promote competition both on performance and price." (Dkt. No. 2063-4, Resp. 3).

The Court finds that the MilSpec did not specify the use of a particular formula or the use of C8 chemistry. Instead, the MilSpec required the use of fluorocarbon surfactants, which numbered at least in the hundreds and were not limited to C8 chemistry, PFOA, or PFOS.[8]

[8] *See, e.g.*, Transcript of Oral Argument, (Dkt. No. 2600 at 10:20-11:10) (admitted by 3M that at the time the MilSpec was adopted at least "hundreds" of fluorosurfactants existed).

Furthermore, the MilSpec was far less detailed than the specifications at issue in cases cited by Defendants.[9]

Second, Defendants argue they meet the "reasonably precise specifications" requirement of the first prong of *Boyle* because there was allegedly "genuine government participation in the design" of MilSpec AFFF as NAVSEA wrote and updated the MilSpec since 1969. (Dkt. No. 1965-1 at 42). This government participation, Defendants conclude, demonstrates approval of

[9] *See In re Haw. Fed. Asbestos Cases*, 960 F.2d 806, 813 (9th Cir. 1992) (to qualify for the government contractor defense, approved specifications must do more than merely identify "a certain level of performance"); *Haltiwanger v. Unisys Corp.*, 949 F. Supp. 898, 903 (D.D.C. 1996) (noting the "most stringent interpretation" of the "approval prong of *Boyle*" requires that the government "participate in and create the [overall design]"). *Compare, e.g.*, *Haltiwanger,* 949 F. Supp. at 903 (contractor entitled to immunity where United States Postal Service formulated four sets of specifications including "descriptions of the keyboard configuration, key pressure adjustment control, letter sorting rate, speed control, and operator's console" accompanied by "detailed drawings and diagrams," noting that "not only did the Postal Service approve relatively detailed specifications, but it actually created those provisions, thus providing that government discretion was actually exercised"); *Carley v. Wheeled Coach*, 991 F.2d 1117, 1125 (3d Cir. 1993) (ambulance manufacturer entitled to immunity where the government's solicitation and specifications "describe[d] in exhaustive detail the design of the ambulance, including the vehicle's dimensions and weight, mechanical systems, and equipment to be carried on board"); *Yeroshefsky v. Unisys Corp.*, 962 F. Supp. 710, 720 (D. Md. 1997) (specifications reasonably precise where United States Postal Service "developed a comprehensive set of detail production drawings and specifications [for the machine at issue] including key board and speed control specifications" and Postal Service assistant director "reviewed, approved, and signed every MPLSM drawing") *with Trevino v. General Dynamics Corp.*, 865 F.2d 1474, 1486 (5th Cir. 1989), *cert. denied* 493 U.S. 935 (1989) (government specifications not reasonably precise where they established only general performance standards for a submarine diving chamber but were "silent" on the precise location of the allegedly defective vent valve and safety valve); *Strickland v. Royal Lubricant Co., Inc.*, 911 F. Supp. 1460, 1467-68 (M.D. Ala. 1995) (denying contractor's motion for summary judgment and finding question of material fact as to first prong of *Boyle* where, although Navy issued detailed twenty-five page MilSpec for qualification on QPL of hydraulic fluid, plaintiff had put forth evidence showing it was possible to comply with MilSpec using a less toxic component and stating that "one purpose of the government contractor defense is to alleviate a manufacturer's dilemma when it cannot alter a component of a product but must produce it strictly in compliance with government specifications. This does not seem to be the case here").

reasonably precise specifications. It is clear, however, that the government's preparation of a performance-based specification does not constitute "genuine government participation" in the design of the product.

Genuine government participation entails an extensive "back and forth" between the military and the contractor relating to the design process of the actual product. As the Fourth Circuit found in *Kleeman v. McDonnel Douglas Corp.*, 890 F.2d 698, 702 (4th Cir. 1989), "[w]here the military procurement process involves this kind of *continuous exchange* between the contractor and the government, the process itself becomes persuasive evidence of product conformity to *precise specifications*" and "it is this *salient* fact of governmental participation in the various stages of [a product's] development that establishes the military contractor defense." (Emphasis added). *See also Ramey*, 874 F.2d at 950 (where the Navy issued original design specifications for plane seat, Navy engineers inspected and tested seat's components, and examined a mock-up of the seat displaying the allegedly defective part, court found that the Navy's "participation in design [of the allegedly defective ejection seat] amount[ed] to more than a rubber stamping").

Defendants, by contrast, have not put forth evidence of such extensive collaboration with the government in the design of each manufacturer's MilSpec AFFF. Indeed, as John Farley, lead AFFF qualifier at the NRL testified, all AFFF manufacturers treated their formulations as proprietary information and he did not learn *until 2000* that PFOS was the fluorosurfactant used in 3M's AFFF. (Dkt. No. 2063-36 at 89:15-24).

Third, Defendants argue that they meet the "reasonably precise specifications" of the first prong of *Boyle* because the MilSpec's "stringent requirements" constrained the types of fluorocarbon surfactants contractors could use such that the government dictated—implicitly—that either PFOS or PFOA be present in MilSpec AFFF. (Dkt. No. 1965-1 at 44-46). The MilSpec,

however, plainly does not require PFOA, PFOS or any other C8-based chemistry. Plaintiffs point to a "non-C8 derived AFFF product . . . consist[ing] of over 95% C6-based fluorosurfactants (i.e., 95% C6, 4% C4 and 1% C8), [which] was on the DoD's QPL in 1982 and proves that, at all relevant times, MIL-F-24385 did not require the use of PFOA, PFOS, or any other C8-based precursor[10] product as an ingredient necessary for performance." (Dkt. No. 2063 at 32).[11] Thus, the record demonstrates that *C8* fluorosurfactants—namely chemicals such PFOS or PFOA, or fluorosurfactants that degrade to PFOA—are not necessary as primary ingredients in MilSpec AFFF.

After carefully considering the parties' arguments, the record before the Court, and the relevant case law, the Court finds as a matter of law that the AFFF MilSpec is not a reasonably precise specification under the first prong of *Boyle*.

B. There Are Genuine Issues of Material Fact Concerning whether 3M Meets *Boyle*'s First Prong Under the "Continued Use" Doctrine and the Third Prong Concerning Warning the Government of Dangers Known to the Contractor but Not the Government.

Any contractor seeking immunity using the "continuous use" doctrine of prong one of *Boyle* must both demonstrate that the government's continuous use of the product was with full knowledge of its defects and risks and that the contractor warned the government of defects and risks known to it but not the government, as required under prong three. A contractor which has withheld from the government material knowledge of a product's defects and risks known to it but

[10] A precursor chemical is a chemical capable of transforming into another compound through chemical reactions. (Dkt. No. 2409 at 11 n.13). For example, as Plaintiffs argue in this litigation, "C8s [] are PFOA precursors" because they can degrade to PFOA in the environment. (*Id.*).

[11] S*ee, e.g.*, (Dkt. No. 2063-42 at 2) (identifying Ansul's Ansulite 6% AFFF/AFC-5 as being on the QPL as of 1982); Todd Thomas, Ph.D. Deposition, (Dkt. No. 2063-76 at 106:10-107:22) (testifying that AFC-5 is made of 95-plus percent C6-derived fluorosurfactants); (Dkt. No. 2063-77) (AFC-5 did contain trace levels (1%) of C8 precursors).

not the government faces significant difficulties in meeting the requirements for government contractor immunity. A failure by a contractor to disclose material information concerning a product's defects and risks or acts or omissions which mislead the government about those defects and risks is conduct generally incompatible with government contractor immunity.

The record before the Court, viewed in a light most favorable to Plaintiffs as the nonmoving party, includes numerous instances in which 3M knowingly withheld highly material information about the defects and risks associated with its AFFF product. In 1975, two independent toxicologists, Dr. Warren Guy and Donald Taves, made the troubling finding that an unidentified organic fluorine compound had generally been found in human blood sampled from different blood banks. Dr. Guy contacted 3M to ask if the company knew of the "possible sources" of the chemicals because he was aware that 3M's fluorocarbon carboxylic acids were used in some 3M products, such as Scotchguard. In response, 3M "plead[ed] ignorance and claimed to adopt a position of "scientific curiosity and desire to assist in any way." (Dkt. Nos. 2063-54 at 2-3; 2063-55). 3M obviously had its own suspicions about the source of this unidentified fluorine compound and had the company's Central Research Analytical Laboratory conduct its own sampling of blood from different blood banks to see if its scientists could identify the organic compound. On November 6, 1975, 3M scientist Richard Newmark authored an internal company report stating that the fluorine compound found in blood bank samplings "resembled most closely" PFOS, a chemical manufactured exclusively by 3M and utilized in the company's AFFF product. (Dkt. No. 2063-58). A team headed by 3M scientists Don Hagan and Jon Belisle confirmed in 1976 that "Guy and Taves' spectra reflects the presence of PFOS." (Dkt. No. 2063-21).

Despite having pledged assistance to Drs. Guy and Taves in identifying the fluorine compound now apparently found in the blood of the general population, and 3M's legal duty to

disclose to the government information about potential harm to human health and the environment caused by its products, 3M told no one outside the company of this finding for nearly a quarter century. An internal document produced in discovery provided a potential explanation for this non-disclosure: "3M lawyers urge [Central Analytical Laboratory] not to release the true identity (PFOS) of the compound." (Dkt. No. 2063-21 at 2).

In 1976 Guy and Taves published a peer reviewed article in *Science* that described their findings that an unidentified organic fluorochemical had been found in "humans living in five cities" and concluded that "there is widespread contamination of human tissues with trace amounts of organic fluorocompounds derived from commercial products." (Dkt. No. 2347-48 at 6, 9). 3M did more than simply stay silent despite the company's knowledge that the mystery compound was PFOS. In 1981, 3M scientist Jon Belisle, one of the authors of the 1976 internal company report confirming that the unidentified chemical was in fact PFOS, published an article in the same scientific journal as Guy and Taves stating that the mystery compound was not man made but was a naturally occurring substance. (Dkt. No. 2063-60 at 3). A reasonable inference from 3M's conduct surrounding the Guy and Taves' study is that the company knowingly withheld highly significant information that PFOS was now in the blood of the general population and actively sought to discredit an independent scientific work that could have disclosed this.[12]

The record further discloses that 3M conducted from the 1970s forward over a thousand studies related to the potential properties and effects of PFOS and related products on human health and the environment which should have been disclosed to the Environmental Protection Agency

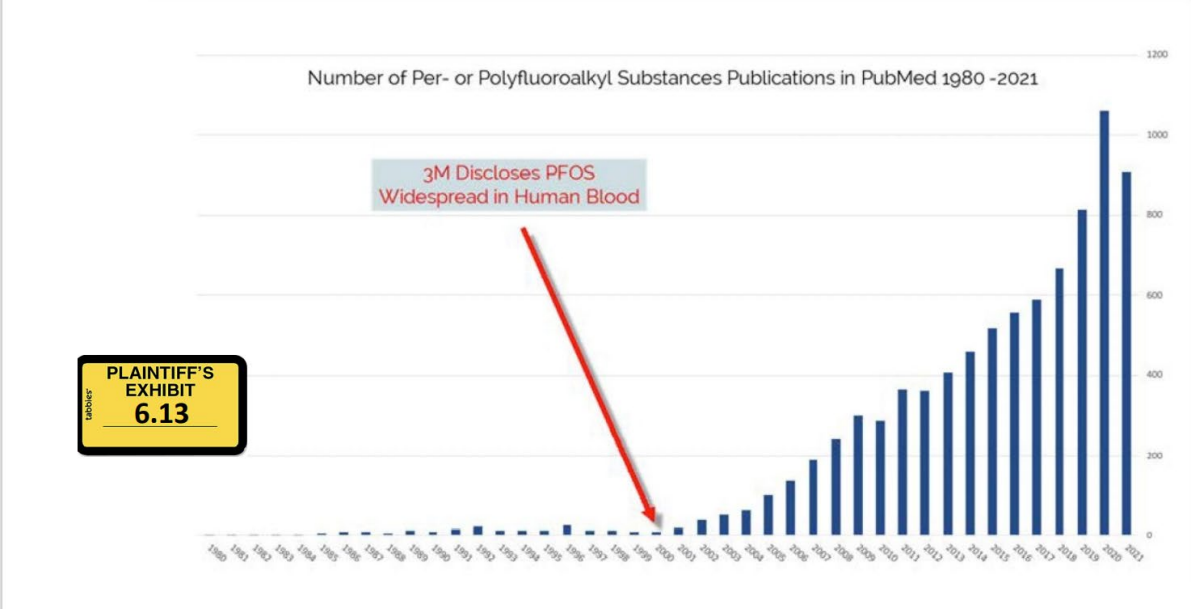
[12] In a similar act of misdirection, in 1980 3M disclosed to the Environmental Protection Agency that it had discovered PFOS in the blood of "some of our plant employees." (Dkt. No. 1968-17). 3M did not disclose at that time, however, that five years earlier in 1975 it had found PFOS in the blood of the general population. That disclosure did not occur until 1998, 23 years after 3M made this potentially troubling finding.

("EPA") under Section 8(e) the Toxic Substances Control Act, 15 U.S.C. § 2607(e). Prior to 1998, 3M released to the EPA 84 of those studies. (Dkt. No. 2566-1). In 1998, 3M began making long overdue disclosures to the EPA of over 1,200 additional studies. (Dkt. No. 2566-2). The EPA subsequently fined 3M $1.5 million dollars for its violations of federal disclosure laws, noting that the undisclosed reports "produced valuable, previously unreported information that will help the scientific community to better understand the presence of toxic substances in the environment." (Dkt. No. 2409-41 at 2). In announcing the 3M fine, the EPA stated that "[w]e are hopeful that today's actions will serve as a reminder of the importance of timely industry reporting of substantial risk information to the EPA." (*Id.*).

Because of the limited knowledge of the properties of C8 chemistry and their risks to human health and the environment within the government and the general scientific community, the withholding of these hundreds of internally conducted 3M studies was particularly significant. Virtually all the early studies of the potential risks of C8 products, such as PFOS and PFOA, had been conducted by 3M and when the company revealed in 1998 that PFOS was in the blood of the general population, it maintained that it did not "believe that any reasonable basis exists to conclude that PFOS 'presents a substantial risk of injury to health or the environment.'" (Dkt. No. 2063-51 at 2). While 3M assured the public and the government that its PFOS was not a threat to human health or the environment, however, Dr. John Butenhoff, 3M's Manager of Corporate Toxicology, reported internally that 3M needed to replace "PFOS-based chemistry as these compounds [are] **VERY** persistent and thus insidiously toxic." (Dkt. No. 2409-14) (emphasis in original). Further, Dr. Butenhoff calculated a "safe" level of PFOS in the blood at 1.05ppb. (Dkt. No. 2409-74). Dr. Butenhoff's findings that PFOS is "insidiously toxic" and that there was a "safe" level of PFOS in blood plasma have never been reported to the EPA and were revealed only

during discovery in this litigation. Moreover, Dr. Butenhoff's safe level calculation of 1.05ppb for PFOS was markedly lower than that found in the blood of the general population by 3M in its roughly contemporaneous studies of PFOS, which was in the range of 30 ppb. (Dkt. No. 2409-75 at 20).

3M's late disclosure of over 1,200 reports and studies between 1998 and 2000 has unleashed significant scientific inquiry and investigations both within the EPA and the general scientific community. As the chart below demonstrates, few studies were published on polyfluoroalkyl substances before 2000 but since then a flood of studies have been released in the general scientific community, some years exceeding 1,000.



(Dkt. No. 2560-12 at 3); (Dkt. No. 2063-7 ¶ 24).

The extraordinary number of studies which have been conducted in the last two decades are a reflection of the profound lack of knowledge of the government and general scientific community about the properties and risks of PFOS, PFOA and related C8 products prior to 3M's belated disclosures in the 1998-2000 period and the remarkable challenges that have been experienced in attempting to determine the long term health and environmental consequences of

these previously unknown chemical compounds. The withholding by 3M of its voluminous internal studies and its privately held conclusion that the product is "insidiously toxic," are obviously inconsistent with the type of conduct required of a contractor seeking government contractor immunity.

The record further reveals that 3M represented that PFOS was biodegradable and had no adverse effects on the environment. For instance, a 3M advertising brochure stated that its AFFF product was "neither toxic nor corrosive" and was "biodegradable." *E.g.* (Dkt. No. 2063-102 at 6). 3M Environmental Specialist Dr. Eric Reiner reported to a military official that water containing PFOS was safe to drink if foam was not seen after shaking water samples. (Dkt. No. 2063-103). However, an internal company document prepared in 1979 painted a very different picture, finding PFOS "water soluble," "resistant to microbial degradation," "highly mobile" in soil and "waterways [were an] environmental sink for the product." (Dkt No. 2409-52 at 4, 9, 11). In an internal company memo in 1988, 3M Environmental Specialist Reiner acknowledged the misleading nature of 3M's public declarations about PFOS:

> I don't think it is in 3M's long-term interest to perpetuate the myth that these fluorochemical surfactants are biodegradable. It is probable that this misconception will eventually be discovered, and when that happens, 3M will likely be embarrassed, and we and our customers may be fined and forced to immediately withdraw products from the market.

(Dkt. No. 2409-73 at 2).

3M argues that even if it withheld material information from the government about defects and risks associated with PFOS, it is still entitled to government contractor immunity because the government had enough knowledge over the years to be aware of potential risks associated with PFOS. It is true that over the years the government came to learn that PFOS was not biodegradable and accumulated in human blood and tissue. What the government did not know and has struggled

to determine is what effect the presence of PFOS in the blood of the general population, and widely dispersed in the soil and waterways, has on human health and the environment. For its part, 3M has publicly maintained that PFOS and related products are benign and have no adverse health or environmental consequences, a position it maintains to this day.[13] Plaintiffs have offered evidence, including recent scientific scholarship, that PFOS and other C8 chemical compounds may cause a whole host of health maladies, including cancer, disorders of the immune system, liver damage and harm to developing fetuses. Plaintiffs have also offered evidence that PFOS has been found in the water supplies of hundreds of communities. *See* (Dkt. No. 2063 at 9).[14] The record certainly contains material factual disputes concerning the health effects of PFOS and related C8 products.

3M's belated disclosure of more than 1,200 studies triggered, for the first time, focused investigation at the EPA into the health and environmental effects of PFOS and PFOA beginning approximately in the year 2000. (Dkt. No. 2409-41 at 3). Starting from essentially ground zero, the EPA—and then other federal agencies in turn—moved deliberately to restrict the use of PFOS as the science on the health and environmental consequences emerged. Namely:

- In 2000, 3M agreed, under pressure from the EPA, to discontinue manufacturing PFOS in the United States and worldwide in 2002. (Dkt. No. 1969-21).

[13] When 3M announced in 2000 that it was phasing out its AFFF products, the company stated that its research showed "the use of these products does not pose a risk to people. (Dkt. No. 2409-13 at 2) (emphasis in original). This announcement was two years after the internal finding that PFOS was "insidiously toxic."

[14] Plaintiffs note that "PFOA and PFOS have been found in virtually every corner of the earth, and in nearly every living thing: from house dust, to human blood, to wildlife everywhere, including in fish and animals as far away as the Arctic circle." (Dkt. No. 2063 at 9); (Dkt. No. 2063-8 at 533:6-546:4) (Butenhoff testimony that PFOS has further been found in drinking water, rivers and streams, and human breast milk).

- In 2000, the EPA proposed a Significant New Use Rule preventing the manufacture or import of PFOS into the United States (with limited exceptions) as it investigated the dangers to human health posed by PFOS. (Dkt. No. 2063 at 44); (Dkt. No. 2063-108 at 3).
- In 2006, the 8 largest manufacturers of PFOA and PFOA precursors agreed to voluntarily phase out their C8 products by December 31, 2015 under the EPA's "2010/2015 PFOA Stewardship Program." (Dkt. No. 2063-68).
- In 2006, officials at the DoD's program for emerging chemicals of environmental concern (the "EC Program") added PFOS to its Watch List, and in 2007 and 2008 EC Program officials commissioned impact assessment reports identifying and assessing the risks of PFAS-containing AFFF. (Dkt. No. 1971-9 at -004).
- In 2009, the EPA issued a Provisional Health Advisory ("PHA") for both PFOS and PFOA. (Dkt. No. 2063 at 48 & n.164).[15]
- In 2011, the EC Program issued a non-binding risk alert regarding PFAS-containing AFFF. (Dkt. No. 1971-9 at 003-004, -024).
- In May 2016, based on additional scientific studies and evidence, the EPA replaced the 2009 PHA with a Lifetime Health Advisory ("LHA") for both PFOS and PFOA in drinking water. (Dkt. No. 1971-23).[16]

[15] On January 8, 2009, the EPA stated that "[e]pidemiological studies of exposure" to both PFOS and PFOA "and adverse health outcomes to humans are inconclusive at present." EPA, Provisional Health Advisories for Perfluorooctanoic Acid (PFOA) and Pefluorooctane Sulfonate (PFOS), dated Jan. 8, 2009, available at https://www.epa.gov/sites/default/files/2015- 09/documents/pfoa-pfos-provisional.pdf. The EPA nevertheless set a PHA at 0.02 µg/L for PFOS and 0.04 µg/L for PFOA.

[16] The EPA set the LHA at .07 µg/L for PFOS, (Dkt. No. 1971-23 at 11), and 0.07 µg/L for PFOA, (Dkt. No. 1971-24 at 11). Further, during the briefing of this very motion, the EPA issued "Interim

- In direct response to the EPA's LHA, the DoD began taking actions to address ground water contaminated by PFAS and began to "remove and replace AFFF containing PFOS from its inventory and supply system." (Dkt. No. 1971-31 at 7).
- On June 17, 2016 the Navy established a policy for control, removal, and disposal of AFFF containing PFOS. (Dkt. No. 1971-31 at 8)[17]
- In August 2016, the Air Force began replacing 3M MilSpec AFFF with AFFF that was PFOS free and contained only trace amounts of PFOA, and discontinued the use of actual AFFF during firefighting training, reserving real AFFF for "emergencies only." (Dkt. No. 2063-120 at 2, 4); (Dkt. No. 2063-97 at 3).[18]
- The Army planned to replace its C8, PFOS and PFOA-containing AFFF with C6 AFFF in 2019. (Dkt. No. 1971-31 at 8).

Updated PFOA and PFOS Health Advisories," setting the interim updated health advisories for PFOA and PFOS at 0.004 parts per trillion and 0.02 parts per trillion respectively. EPA, Lifetime Drinking Water Health Advisories for Four Perfluoroalkyl Substances, 87 Fed. Reg. 118, (June 21, 2022), available at https://www.govinfo.gov/content/pkg/FR-2022-06-21/pdf/2022-13158.pdf.

[17] This policy directed the Navy and Marine Corps to "1) immediately stop the uncontrolled release of AFFF at shore side installations, with the exception of emergency responses; 2) update and implement Navy and Marine Corps firefighting system requirements to ensure fire and emergency service vehicles are not releasing AFFF to the environment; and 3) remove and dispose of uninstalled AFFF containing PFOS in drums and cans from local stored supplies for shore installations and ships to prevent future environmental release by the end of FY 2017." (Dkt. No. 1971-31 at 8).

[18] In his August 22, 2016 memo, the Air Force Fire Chief stated that "All total we are disposing of 619,626 gallons of old legacy AFFF and replacing our operation stockpiles with a new environmentally responsible formula by December 2016" pursuant to a $6.2 million dollar contract to buy 418,000 gallons of "new six carbon chain AFFF." (Dkt. No. 2063-97 at 2-3).

- On August 26, 2022, the EPA published a proposed rule that would designate both PFOS and PFOA "hazardous substances" under § 102(a) of the Comprehensive Environmental Response, Compensations, and Liability Act. (Dkt. No. 2563).

The record before the Court contains material factual disputes concerning whether 3M's delay for decades in disclosing its internal studies on the health and environmental effects of PFOS and related compounds retarded the government's knowledge and understanding of the danger PFOS posed to human health and the environment and resulted in a significant delay in the government's discontinuance of the use of 3M's AFFF. In the event Plaintiffs can establish a cause-and-effect relationship between 3M's actions in withholding critical scientific information from the government and the government's continued use of 3M AFFF over a period of time, 3M could not demonstrate satisfaction of the first prong of *Boyle* that the government's continued use was with full knowledge of the product's defects and risks. Further, there are material factual disputes concerning whether 3M's belated disclosures constituted a failure of its duty to warn required under the third prong of *Boyle*. Under these circumstances, summary judgment is inappropriate and the parties will have the opportunity at trial to litigate, and the jury to decide, these hotly contested issues.[19] 3M's motion for summary judgment on government contractor immunity (Dkt. Nos. 2063, 2347) is denied.

[19] In *Trevino*, 865 F.2d at 1481-82, the Fifth Circuit articulated precisely why, given the facts alleged here, summary judgment under prong three of *Boyle* is inappropriate:

> [T]he primary purpose of the warning element is "to enable the government to make determinations as to the design and use of military equipment based on all readily available information." The Court's inclusion of a warning element must indicate that approval requires some level of evaluation and review; *otherwise a government contractor might argue one day that it should have the benefit of the defense despite its failure to give a warning because the government had rubber-stamped the design, because the information withheld would have been of no use to the government and was not desired by the government, and because the provision of*

C. There are Genuine Issues of Material Fact Concerning Whether the Telomer Manufacturers Meet *Boyle*'s First Prong Under the "Continued Use" Doctrine and the Third Prong Concerning Warning the Government of Dangers Known to the Contractors and not the Government.

At the time 3M made its surprise announcement in 2000 that it would no longer manufacturer its AFFF product, 3M dominated the highly lucrative AFFF marketplace. A group of AFFF manufacturers which used a different manufacturing process, known as telomerization[20], recognized the significant business opportunity created by 3M's withdrawal from the marketplace and began jointly planning a strategy to capitalize on this unexpected development. The Telomer Manufacturers[21] faced some daunting challenges, however, because it was unclear at that time whether their product had some of the same human health and environmental risks that had prompted 3M's actions. Specifically, there was a concern that telomer-based AFFF degraded to PFOA in the environment.

> *the information would not have affected the government's "approval" of the design.* The Supreme Court noted that the warning requirement prevents the defense from creating an incentive to withhold information: "We adopt this provision lest our effort to protect discretionary functions perversely impede them by cutting off information highly relevant to the discretionary decisions." *That purpose would be a farce if the government could approve specifications without evaluating them.*

Trevino, 865 F. 2d at 1481-82 (emphasis added).

[20] The fluorosurfactants utilized by the Telomer Manufacturers were created through a process called fluorotelomerization. This process is essentially a chemical one to manufacture perfluoroalkyl substances. (Dkt. No. 2063 at 19). Fluorotelomerization produces a mixture of fluorosurfactants with fluorinated carbon chains containing an even number of carbon atoms. By contrast, 3M used a patented process called electrochemical fluorination to produce PFOS. (*Id.* at 10-11). The technical differences between these methods of manufacturing fluorosurfactants are irrelevant to this order.

[21] The Telomer Manufacturers include Tyco, Chemguard, Kidde, National Foam and Buckeye—all defendants here.

There was considerable uncertainty and confusion within the EPA about the properties of telomer-based AFFF and whether it degraded to PFOA in the environment. (Dkt. No. 2409-19 at 2). The Telomer Manufacturers, defendants in this case, recognized that their fate was likely tied to the PFOA degradation issue, and they decided to establish a lobbying group, known as the Fire Fighting Foam Coalition ("FFFC"), to advocate for them within government agencies, most notably the EPA and the DoD.

In a meeting with key officials at the EPA on September 28, 2001, the Telomer Manufacturers made it clear that the FFFC would "represent the AFFF industry's interests on issues related to the environmental acceptability of fire fighting foams." (Dkt. No. 2063-70 at 29). The FFFC identified itself as the organization that would provide "a focal point for industry science reviews, development of industry positions, and interactions with the EPA and other relevant organizations. (*Id.*) The FFFC announced that it would serve as "a single source for accurate, balanced information on environment related questions" and would "ensure that accurate information about PFOS alternatives, including telomer-based products, is disseminated in the marketplace." (*Id.* at 30).

In its effort to distinguish telomer-based AFFF from 3M's AFFF, the FFFC stated that "telomer based AFFF does not contain PFOS and cannot be oxidized or metabolized into PFOS." (*Id.* at 27). This was something of a red herring because PFOS was exclusively manufactured by 3M. But 3M AFFF also contained PFOA, another highly persistent C8 chemical, and there was concern with any product that allowed PFOS or PFOA to be released into the environment.

The FFFC recognized the risk posed by any association of telomer AFFF with PFOA and stated to the EPA during the September 28, 2001 meeting that telomer-based AFFF "does not contain any PFOA-based product." (*Id.* at 27). What the FFFC notably omitted to address,

however, was whether telomer-based AFFF degraded in the environment to PFOA. This was a real concern to the Telomer Manufacturers because, as one of their executives observed, chemists "with knowledge of telomer structure and formulation" were aware that "PFOA (and salts thereof) could eventually appear as degradation products within formulations which encompass telomer products." (Dkt. No. 2409-113 at 2). Another Telomer Manufacturer reported in a memo, titled "Foam Nasties," that a respected industry expert told her that "the common understanding of telomer-based fluorosurfactants is that they break down to carboxylates," which included PFOA. (Dkt. No. 2409-21 at 2). Another telomer manufacturing executive acknowledged in an internal memo that his company's AFFF "will degrade in the environment" to produce PFOA and the "question is how toxic" and how "bioaccumulative" these degraded products are. (Dkt. No. 2409-112 at 2-3).

The EPA was struggling to understand the properties and effects of telomer-based AFFF because the agency was experiencing the same knowledge gap that existed with 3M AFFF. The EPA appointed a committee known as the Telomer Technical Workgroup to make recommendations to the agency. Tom Cortina, president of the FFFC, represented the telomer industry on the EPA committee. Despite internal industry communications reflecting knowledge that telomer-based AFFF degraded to PFOA, the FFFC publicly asserted that "telomer based fire fighting foams are not likely to be a source of PFOA in the environment." The FFFC further claimed that telomer fire fighting foam agents "were only made with C6 surfactants," which, unlike C8 surfactants, appeared not to carry the risk of degradation to PFOA in the environment. (Dkt. No. 2409-20).

On October 29, 2003, the Telomer Technical Workgroup publicly reported its conclusions and recommendations in a critical EPA meeting, with FFFC President Cortina serving as

spokesman for the EPA's Workgroup. The EPA accepted the proposal of its Workgroup that "telomer-based fire fighting foams no longer be considered as part of the PFOA ECA process." Cortina reported the results to the FFFC members the following day, declaring this to be "a major victory for FFFC and the telomer-based AFFF industry." He proudly reported that "I stood at the EPA public meeting and stated that telomer AFFF was not likely a source of PFOA in the environment" and "everyone in the room including EPA agreed." (Dkt. No. 2409-108). Cortina observed that "[w]hen we started this organization two years ago, the fate of telomer based AFFF was being tied directly to the fate of PFOA and the EPA had just told the military to start searching for alternatives to AFFF." (*Id.*) As a result of the FFFC's efforts, the EPA, per Cortina, had adopted the position of the Telomer Manufacturers.

In a 2008 email exchange, two employees of one of the Telomer Manufactures discussed the FFFC's claim to the DoD that telomer-based products were made with C6 surfactants rather than C8 surfactants. They agreed this claim was untrue and was likely done to distinguish telomer AFFF from 3M's discredited AFFF. One of the employees observed that the FFFC had been "economical with the truth" when it led "the EPA to believe that fire fighting foam agents were only made with C6 surfactants." (Dkt. No. 2409-20).

In a 2015 email, a Navy employee reported that a chemist for one of the Telomer Manufacturers had told him that the company "had begun to move towards C6 and away from the C8 chains" but that "PFOA was possibly present" in their manufacturing process. He also mentioned the "ever evolving science" that indicated that PFOA would be found in telomer AFFF several years after it was used "due to degradation." The Navy official observed that the admission that "PFOA may be present in the material seems counter to . . . the Fire Fighting Foam Coalition

factsheet itself [(FFFC) (www.FFFC.org)], which states that PFOA/PFOS are NOT used in the manufacturing process." (Dkt. No. 2546) (emphasis in original).

Several Telomer Manufacturers claim they lacked knowledge that their AFFF product degraded to PFOA and that their knowledge on this matter was not superior to the government's. For example, Defendant Kidde/National Foam claimed it did not have "actual knowledge until years after the government that its MilSpec AFFF even contained PFOA or components that may degrade to PFOA." (Dkt. No. 2348 at 25). Record evidence indicates a material factual dispute on that issue. Kidde executive Anne Regina stated in a March 7, 2001 internal email, titled "Foam Nasties," that there was a "common understanding" that telomer AFFF degrades and can produce PFOA. (Dkt. No. 2409-21). Another Kidde executive, John Dowling, stated in an April 18, 2001 email titled "EPA meeting: comments," that he feared that "[o]nce a witch hunt starts over bioaccumulation" with 3M AFFF, "it is inevitable that that attention will turn to" telomer AFFF. He acknowledged that Kidde's AFFF "will degrade in the environment" to PFOA. (Dkt. No. 2409-112 at 2-3). Another Dowling email in 2002 stated that chemists "with knowledge of telomer structure and formulation" are aware that telomer AFFF could degrade to PFOA. (Dkt. No. 2409-113 at 2).

Telomer Manufacturer Chemguard points to a 2007 company fact sheet, which states that Chemguard AFFF products "do not contain PFOS, PFOA, or derivatives that decompose to them," as evidence of the company's knowledge at that time. The record, however, includes a 2001 Chemguard technical bulletin which states "[f]luorinated surfactants decompose in the environment to a certain extent" and "will always leave behind a fluorinated carbon chain." The company noted that telomer based AFFF did not contain PFOS and is "expected to be safer by 10-100 times" than 3M's AFFF. *See* (Dkt. No. 2409-115 at 3).

Telomer Manufacturer Buckeye stated to a customer in 2013 that its AFFF "does not degrade to either PFOA or PFOS" and its product sheet made the same representation until 2019. (Dkt. Nos. 2409-118, 2063-114 at 143:1-14). However, a 2008 company email acknowledged that it was "theoretically possible" for its AFFF product to "degrade to PFOA." (Dkt. No. 2409-117 at 2). Telomer Manufacturer Ansul, formerly Tyco, claimed it became aware that its AFFF product could degrade into PFOA in 2005 or 2006, (Dkt. No. 2348 at 21), but a December 1, 1998 letter from Dynax, which provided fluorosurfactant supplies to Tyco, stated that PFOA found at two military installations "may only be degradation products" present from Tyco's AFFF, (Dkt. No. 2409-121).

The Telomer Manufacturers argue that they meet the first prong of *Boyle* because the government has continued to use telomer-based AFFF and the government's knowledge always exceed theirs regarding their product and its possible risk to human health and the environment. They further argue that they meet the third prong of *Boyle* because they have not withheld any information known to them about dangers with their products but not the government. The Telomer Manufacturers further argue that they should not be held responsible for the statements of the FFFC because they were simply members of this independent organization.

The record before the Court, viewed in a light most favorable to Plaintiffs, the nonmoving party, contains numerous material factual disputes highly relevant to the issue of government contractor immunity. These include the Telomer Manufacturers' knowledge about the propensity of their products to degrade over time in the environment and whether that knowledge was superior to the government's. There is also a material factual dispute concerning whether the government's decision to continue using telomer AFFF was with full knowledge of its properties and dangers and whether the FFFC misled the EPA and how this adversely impacted the regulatory process.

Further, the record contains material factual disputes about whether the Telomer Manufacturers should be held responsible for the allegedly misleading statements of the FFFC, which held itself out as their agent with the EPA and the DoD.

The Telomer Manufactures' claim of continuous use also contains numerous factual disputes, including whether the government's regulatory process was delayed by industry misrepresentations and the degree to which the government continues to use telomer AFFF. At oral argument, the Court was informed that the government now authorizes the use of telomer AFFF only for mission critical activities, such as an active jet fuel fire, and that this limitation has dramatically reduced the use of telomer AFFF by the government by 80-90%. (Dkt. No. 2600 at 76:3-23). Simply put, there is a material factual dispute whether this very limited use of telomer AFFF constitutes "continuous use."

In summary, viewing the evidence in a light most favorable to the nonmoving party, there are numerous material factual disputes in this voluminous record that make disposition of the issue of government contractor immunity by summary judgment inappropriate. These disputed issues of material fact, vigorously contested by the parties, require a full factual presentation at trial and a resolution by a final jury verdict.

Conclusion

Based on the foregoing, Defendants' motion for summary judgment on the government contractor immunity defense is **DENIED**.

AND IT IS SO ORDERED.

s/ Richard Mark Gergel
Richard Mark Gergel
United States District Judge

September 16, 2022

Charleston, South Carolina